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ENGRAVED EXPRESSLY FOR THE GARDENER'S MONTHLY.

THREE EARLY PEACHES.

EARLY LOUISE.

EARLY RIVERS.

EARLY BEATRICE

The Gardener's Monthly

AND

HORTICULTURAL ADVERTISER,

DEVOTED TO

HORTICULTURE, ARBORICULTURE & RURAL AFFAIRS

EDITED BY

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The Gardener's Monthly,

DEVOTED TO

HORTICULTURE, ARBORICULTURE & RURAL AFFAIRS.

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Flower Garden and Pleasure Ground.

SEASONABLE HINTS.

Our readers will note that the heading of "hints for the month" is changed to "seasonable hints." We do this on account of a threatening letter from one of our subscribers, in Smith's Sound, we believe, though we must say the post mark is nearly illegible, who wants to know what is the use of a magazine that comes to hand "six months after date," and which tells him how to gather strawberries "and such," when with him the "dandelions are only just coming into bloom." Now it struck us that he is rather more favored than most of our subscribers. If he gets the paper when the "dandies" have just arrived, while others have to wait till strawberry time, he is *ahead*, and not behind! Still it is no use to reason with a wrathful man, when he threatens to "stop his paper." Far better is it to let him have his way. We shall therefore have no more hints for the "month," but for the *season*, let the month be what it may. Well! here we are in January—no, in the season—when all is ice and snow, and what shall we do who have our hearts gardenward? Get all ready, of course, so that the full spring time shall not catch us like the foolish virgin, with no oil in the lamp. Pruning, for instance, as a matter of abstract principle, should be done in early fall; but it is rarely done then. It is left for the leisure season, and should be done at once. There is much too little of this done in many gardens, and then there is again often much too much. That kind of trimming which comes from an ignorant laborer, who does not know a snowball from a gooseberry bush, but shears every one into a bunch, which even as a nest a crow would be ashamed of, is too common. There is no higher skill required than to prune flowering shrubs properly; and many a person who has no greenhouse, only lawns and shrubbery, and therefore thinks a handy man is as good in the winter as a gardener who knows his business, makes a grand mistake. Almost all trees and shrubs can be benefitted by pruning; but just how can only be told by a practical acquaintance with each. Let us take the common Golden Bell—Forsythia viridissima—as an illustration. This is valued for its yellow flowers in spring, and for its rich plum-colored leaves in the fall. The flowers are borne all along the last year's shoots, from every node of which they are suspended. Strong arching shoots, pushing away at somewhat regular but natural-looking directions, is the proper form to aim at. Weak, trashy shoots that interfere with this should therefore be cut out; and where strong ones have not pushed, they should be encouraged to appear. No one can imagine how beautiful a regular well-grown plant of Forsythia, properly trained, is, either in spring or fall. But how often do we see it? Generally it is left to grow as it will, and looks as tasteful as a street arab with uncombed hair; or it is sheared in closely by "John," as if it were a muscular rough, ready for the prize ring.

Besides the pruning question, there is that of manure. Our floral friends need something to eat, as well as those things which minister to our stomach joys. Lawns that are impoverished by several seasons' mowings, will be improved by a good top-dressing. This may be applied any

time after the leaves are gathered up, and before the snow falls. Soot, wood-ashes, guano, or any prepared manure, is best for this purpose. Barnyard manure is objectionable, as generally containing many seeds of weeds.

Hedges that have not had their winter dressing, should be attended to. If the remarks we have before made on hedges have been attended to through the summer, there will be very little now to do. We have said that pruning in summer weakens a plant, while pruning in winter strengthens it; and so, as hedges naturally get spoiled by growing vigorously at the top, and weakly at the sides, they should be severely summer-pruned at the apex, and winter-pruned near the base. Now will be the time to see to the latter, taking care not to make it too narrow. A good hedge should be nearly four feet wide at the base, and be cut into a point at the top.

Manure for flower beds, borders, etc., may be hauled convenient to where it is likely to be wanted in spring; many spread it on at once; but if the soil is frozen very thick, it prevents the early thawing of the soil in the spring, and so no time is gained.

COMMUNICATIONS.

THE COUNCILS AND GARDENERS OF PHILADELPHIA.

BY TAX PAYER.

The fifteen years' teaching of the "*Gardener's Monthly*" has caused ornamental gardening to make rapid strides in all the thickly settled portions of the country, *except in the Philadelphia city public squares.* I have observed for over a third of a century past, that no *gardener of skill* has ever been employed to lay out, plant, or keep in order, any of the city public squares. Surely the Councils have lacked good taste, and the knowledge of the refining influence which ornamental gardening has upon the people. The squares are a slur upon our boasted civilization. The trees all look as if in a state of mental derangement. Ignorant men, who have had the care of the squares, are not to blame, but those who employ them. Every skilful gardener feels disgusted as he walks through the squares. Foreigners can only suppose that our city squares are remnants of the original forests, roughly thinned out by an axeman, and that the grass is of spontaneous growth. The men at the head o the different branches of the City Government are skilled in their departments. The Solicitor is a skilled lawyer. The Chief Engineer knows his business, and so with all the different commissioners. Then why not employ skilled gardeners to make all improvements in their line? It seems strange to me that our many commercial gardeners of ripe practical experience, have not raised their voices in this cause, and instructed Councils as to the value of competent gardeners in the management of the public squares, at least so as to make them a credit to the city. Private gentlemen employ *skilled* gardeners to improve and ornament their pleasure grounds. Cities should be no less wise. Our commercial and practical gardeners should unite to bring Councils to see this, and they would no doubt be successful. Then, public squares might be an honor to the city, and a mark of our civilized and refined taste.

THUIOPSIS STANDISHI.

BY JOSIAH HOOPES.

This comparatively new and very handsome Conifer has at last fruited in this country, and we are thereby enabled to set at rest the surmises in regard to its proper classification. Although its organs of vegetation were unmistakably similar to those of the *Thuja* or American Arborvitæ genus, yet the note of interrogation appended to the generic name in Gordon's Supplement to his Pinetum (see page 100), showed that the author was in doubt as to its true position.

In view of the fact, that heretofore there has been no known species of Thuja found outside of America, we presume the above authority hesitated about placing it here, notwithstanding its evident similarity to others of the genus, and more especially to our species from the Pacific coast, *T. gigantea.* Owing to my absence from home during the past summer, I was unable to examine the inflorescence; but the cones, although somewhat imperfect, are very similar to the Thuja in all their leading characteristics.

This Conifer was discovered by Fortune, near Yeddo, in Japan, and sent to John Standish, of the Royal Belfast Nursery, England, about the year 1861. It was named in honor of the latter by Gordon. During the short time it has been tested in the United States, it has proven quite hardy; indeed it is more reliable than the two true species of Thuiopsis,—*T. dolabrata* and *T. latævirens*—these being types of the half hardy

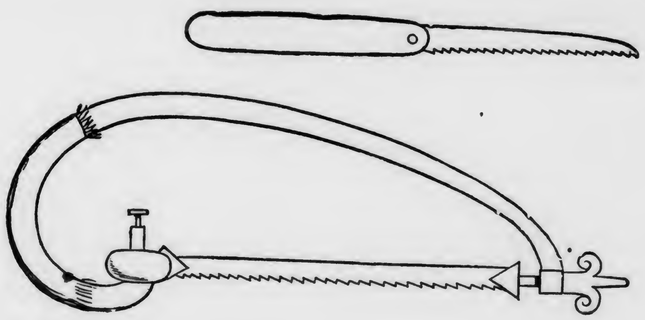
class, of which *Cunninghamia sinensis* and *Cryptomeria Japonica* are fit representatives.

Since penning the foregoing notes, I notice in the *Gardener's Chronicle* that substantially the same conclusion has been reached with regard to the proper disposition of this tree. It has just fruited in England; and Murray, the writer on Coniferæ, states that the cones are almost precisely like those of Thuja gigantea, and entirely distinct from the Thuiopsis genus.

IMPROVED PRUNING SAWS.

BY A. M. C. JONGKINDT CONINCK, DEDEMSVAART, NETHERLANDS.

Not knowing whether the saws, of which I send you a sketch, are generally used in America for pruning fruit trees, etc., I take the liberty of giving a short description of same. It may be useful to some who are not acquainted with these most practical instruments I first saw them in use at Dr. Edward Lucas' Pomological Institute,



at Reutlingen, near Stutgardt, Wurtembourg, where I learned much in fruit culture. In the accompanying figure there are two screws, which keep the saw firm. By unscrewing them you can alter the saw in whatever position you choose, which is a great advantage, as you can saw off branches very close, and in the most difficult position,—a great improvement in the saws now in use. It was invented by the said Dr. Edward Lucas himself, who rendered thereby a great service to arboriculture.

The other figure represents a small saw for removing little branches. It is very convenient, as it can be folded up like a knife, and carried in the pocket.

[This, it will be seen, is on the principle of our common American Buck Saw, which we think is not known in England, and which probably is an introduction of our German ancestors.—ED.G. M.]

WHAT I KNOW ABOUT WILLOWS.

BY W. T. HARDING, AGRICULTURAL COLLEGE, COLUMBUS, OHIO.

Under the caption of "Traveling Recollections No. 7," in the May number of the "*Monthly*," the editor describes, in a very pleasant manner, the sights and scenes he observed in the city and suburbs of Boston. On the whole, Mr. Meehan seems to have had a good time of it. The good derived from his observations are mutual or twofold, which we, the readers of the *Monthly*, duly share and appreciate. So if the intelligent traveler finds a pleasure in his peregrinations, we stay-at-home-folk find a profit in peru-ing his recollections of the same. Well, as is wont with him, he fell in company with "ye favored and enlightened few," and with them enjoyed the intellectual fruits, in the modern paradise, known as the grounds of Wm. Gray, Esq. With "Flora" blushing on one side, and "Pomona" gushing on the other, I can fancy him a blessed mortal, getting a foretaste of the bliss which awaits him and every good cultivator, in the Garden above.

As I cannot stay to review the whole of his report, but must hasten to where we meet, ideally at least, in the willow glen. While scanning the pleasant scene, in search of the beautiful, his discerning eyes discover several arboreal magnates, namely: "some majestic willows, which brought the suggestion that more use

might be made of this extensive family than is done." What a truism is expressed in those few words. I cordially say with him, there might be.

As our good friend has done so much with his pen, and otherwise, to encourage tree planting, it behooves me, a tree lover too, to say a word in behalf of willows. My acquaintance with them dates back to an early period in life; in fact, to childhood. I was born within sight of Litchfield Cathedral, and have a distinct recollection of my father remarking to a friend, "this is Dr. Johnson's willow." The famous old tree of the great Lexicographer was then prostrated, and much of it carried away by his admirers or relic hunters. The Doctor spoke of it as "a favorite tree, the delight of his early and waning life." The once vigorous old tree measured twenty-one feet in circumference, and in height about fifty feet. Well stricken with years, the arboreal patriarch succumbed at last. During a violent hurricane its much decayed trunk was blown down, to the regret of all good people within that quaint and ancient city.

Planted where the original stood is now growing a well-favored tree, raised from a branch of its venerable sire, and is as fine a specimen of Salix Russelliana, as is often seen. Another tree of the same kind, and the largest I ever saw, grew on the Earl of Scarborough's property, between Wakefield and Dewsbury, in Yorkshire. Beneath its immense roots flowed a limpid rill known as the willow-tree spring. It had long been propped up, to keep it from falling over. In fact, it was on its last legs when I first saw it. The girth of the massive old stump measured thirty-two feet.

At the time of which I write, Auriculas were much cultivated, and very beautiful they were. Every good florist in those days, in England, looked upon the prim and pretty Auriculas and Polyanthuses with tender delight. In their cultivation we prepared a compost of well-rotted cow-dung, peat, sand, turfy loam and decayed willow-wood. Thus, the old tree was made to do good service. Eventually, its mouldering remains found a resting place in my uncle's nursery.

Pope's celebrated weeping willow, S. Babylonica, at Twickenham, is said to have been the first of its kind brought to England by Lady Suffolk, from Spain. On the authority of the Hortus Kewensis, it was introduced in 1692, and is described as a native of various parts of Asia and Africa. In 1843 I was shown what was said to be a piece of the stump of the poet's tree, which had been cut down by an ignorant vandal. There is now growing near Shakspeare's Temple, a willow raised from Pope's, and planted there by Garrick. Probably Mr. Meehan has seen the tree to which I allude. I will mention another famous tree I saw some years ago, on the Isle of St. Helena, and was known as Napoleon's Weeping Willow. Perhaps it would be more correct to call it successor to Napoleon's Willow. The original tree was destroyed during a storm, in 1821. Madame Bertrand had fortunately propagated several young ones from the old stock, which were sadly mutilated by travelers, who on *doing* St. Helena, of course pay a visit to Napoleon's grave. The valley where the great exile fretted and pined a prisoner, was as romantic as any in that rather picturesque little speck in the Ocean. But to him, poor wretched man, it had no charms, although to me it was deeply interesting. The fees collected by the gate-keeper of the enclosure amounted altogether to about one dollar, which small sum entitled the visitor to the privilege of descending into and lying down in the Emperor's grave, with full liberty to walk about the valley until foot-sore and weary, to have a piece of the *real* willow, and to drink all the water it was possible to imbibe, at the spring where the great Napoleon quenched his imperial thirst.

Some years later, the writer saw another weeping willow, of which neither history nor tradition makes mention. There is nothing legendary or poetical about it, yet it nevertheless seemed to have all the conventional weeping such symbols of sorrow usually have. In the burial ground of the Old Mission Church, near San Francisco, I saw a thrifty young tree planted by a pious friend named Maloy, as the headstone of a grave recorded, as a token of remembrance to mark the spot, sacred to the memory of a brave man who died by the hands of the V. C. I thought, while musing on the many and strange mutations of life, how famous the two warriors had been in their day, equally ambitious, as heroes are, of fighting fame. However dissimilar had been the achievements of the two braves while living, they were then on a level,—equal in death.*

*The doughty champion under the willow, who "lay like a warrior taking his rest," was the once redoubtable pugilist, known to the bruising fraternity by the cognomen of Yankee Sullivan.

EDITORIAL NOTES.

HARDY EVERGREENS.—At the annual dinner of the New York *Rural Club*, the President, S. B. Parsons, made an address on evergreens, bringing evergreen knowledge down to the present time. We note that Mr. Parsons has found the Mexican Pinus Ayacahuite entirely hardy at Flushing. He offers some excellent suggestions about the various kinds of Yews, which have been undeservedly overlooked to a great extent, though generally hardy enough to satisfy any one, and among his omissions, neglects to notice among dwarf broad-leaved evergreens Cassandra calyculata, which is one of the most manageable of all the class, and as pretty as most of them.

WINTER GARDENS.—As frequently noticed in these columns, the English, in many instances, do not have their flower-beds bare in the winter, but bring in from the reserve ground dwarf evergreen shrubs, which are carried back when spring opens. The following is a list of some popular ones with them; but they would require sheltered places to do well in our clime: Aucuba japonica, Biota elegantissima, Double Gorse, Erica carnea, Erica multiflora rubra, Erica vagans rubra, Golden Yews, Golden Vinca, dwarf; Hartogia capensis, Japan Privet, Japan Yews, Laurel, willow-leaved; Laurel, Portugal; Laurel, Caucasian; Laurel, rotundifolia; Mahonia Aquifolia, Menziesia, dwarf purple; Menziesia, white; Pernettya angustifolia, dwarf; Tree Ivy; Tree Ivy, yellowed berried; Tree Ivy, silver striped; Tree Ivy, tricolor; Yucca filamentosa, Yucca gloriosa pendula.

AKEBIA QUINATA.—The *Country Gentleman* has this to say about this climber,—one we have so often called the attention of our readers to, and which we are glad to see becoming popular:

"Wm. Parry of Cinnaminson, New Jersey, showed us the iron frames of a veranda, handsomely covered with the running *Akebia quinata*, which he has found perfectly hardy and well adapted to the purpose, although some English writers say that it is tender in most parts of England."

Besides its elegance as a climber, it is one of the first to push its leaves in spring, and its rich plum-colored flowers, though delicately, are delightfully fragrant.

LONGEVITY OF EUROPEAN TREES.—One-half of the trees of Kensington Gardens in London have been recently cut away as dead or dying. The editor of the *Gardener's Chronicle* has been investigating, and finds it is not London smoke, but old age, aided by poverty, which "cleaning up" about them, and the draining of the ground for sanitary purposes, engenders. In such circumstances, it would appear that the trees of England are no longer lived than they appear to be here. We believe these trees are inside of a 150 or 200 years old.

STREET GARDENING.—H. W. S., Cleveland, the distinguished western landscape gardener, who has done so much for good garden taste about Chicago, recently lectured to a large and highly intelligent audience in that city on "Our Streets." He made a good point, that while one large park is a good thing for a moderate-sized city, a large city rather needed a large number of small ones, so that gardening might be brought to every one's door. And this, while admitting that for the highest development of the art of gardening, large parks are a necessity.

NEW PLANTS.

MAGNOLIA LENNE.—*A Princeton, N. J., correspondent* says: "Say a good word for Magnolia Lenne; it ought to be better known. The flower is superb, and it is hardly ever out of bloom. I do not think that there has been a day this summer, when it has not had *some* blossoms on it, and now it is *full*, or rather they are, for I have two; nor is this perpetual flowering exceptional; it bloomed as freely last year. Add to these good qualities, that it is even hardier than *purpurea*, and it leaves little to be desired, in the magnolia line, at least"

THE PLAITED-LEAVED GUELDER ROSE (VIBURNUM PLICATUM).—This is a marvellous improvement on the common Guelder Rose, and deserves a place in the conservatory in April and May. The Viburnums are not easily forced early. There are few hardy plants that need more heat or longer time to induce them to flower out of season. In this respect they resemble the common Syringa, or Mock Orange. Place either of these in heat with Lilacs or Laburnums, and they will take almost three times as long to open their flowers as either; but, when they do open them, they remind one of summer rather than early spring. The blooms of V. plicatum are especially pure and beautiful; the leaves, too, are exquisite, and very different in form from those of the Guelder Rose. Mounted singly,

the flowerets are admirable for the making of bouquets and in trusses, exquisite in vases or in baskets, while in pots the plants themselves look well either in the conservatory or drawing-room. In the open air, again, they are most useful, coming in on the heels of the Wild Cherry and the May, and when the profusion of white-flowering trees and shrubs is on the wane. Hardly any plants are more serviceable in shrubberies than Viburnums, and none of these are equal to V. plicatum.—D. T. FISH, in *Journal of Hort.*

WEIGELA HORTENSIS NIVEA.

WEIGELA HORTENSIS NIVEA.—There has been no novelty of late years, that we deem likely to be of a more lasting popular character than this. The flowers are white—not the white of so many things, which is neither green, nor yellow, nor rose, or a pale edition of some one of them, but a real pure snowy white. The common Weigela rosea, and W. amabilis are well known, as are also the various varieties between them, of which probably the best one is the var. Grœnwegenii, which has a very bright rosy tint, and the flowers in immense profusion on long wand-like branches The history of the present one is unknown to us It is probably a cross between W. amabilis and W. rosea, or it may possibly be a mere seedling from A. amabilis alone. It has more of its character than of the other one, including its tendency to bloom in August and September, as well as in June. It is not so straggling in habit, but is a well formed bush, as is the W. rosea. It came to American nurseries under the name of W. hortensis nivea—or snowy white Weigela of the gardens, which seems to indicate that its precise origin is unknown.

It has been found a capital plant for winter forcing, where pure white flowers are desirable. It moves very well in the fall, and blossoms as freely as if not transplanted, while a very moderate heat brings out the flowers. These are good points in a forcing plant.

QUERIES.

WEEPING MAHALEB.—*E.* asks: "Can that Weeping Mahaleb of the London Exhibition be other than the old weeping everblooming?"

"What is *Belle de Bois* apple?"

MAGNOLIA GLAUCA.—A. M., *Marshallton, Iowa*, believes this will not grow in Iowa. A Burlington correspondent in the same State, some time ago suggested the same thing. What say our readers?

LAWNS, GARDENS, ETC.—*E.* says: I unfortunately wasted years of study and desire to create crude places into features of beauty, but have too often been broken down by the economy, (so called) strictly *meanness*, of the owner, who gratifies his own taste originated in the coffee, cotton, sugar or coal oil trade, and, rather than leave the work to a capable head to direct, takes a man who has never read, but has worked practically and is willing to do, and at the same time disposed to do as the employer directs. Until we can correct this crude belief of men who come to this work without the slightest knowledge of nature's beauty and laws of production, there is rarely any use of refined brains or taste. Stiff, straight lines, narrow roadways, plaster vases and statuary, with terraces void of any association with the surrounding scenery, make up the most of the expensive grounds of this country. I acknowledge there are exceptions to the above remarks, but they do not average 10 per cent. of the whole.

Greenhouse and House Gardening.

SEASONABLE HINTS.

Flowers in winter, flowers in spring, autumn flowers, all in turn bring their special pleasures; but the first get the heartiest welcome, and chiefly, we suppose, from the difficulty experienced in obtaining them. Yet it is not so difficult if one has plenty of sun-light. If the plants have any tendency whatever to bloom in winter, sunlight will bring them on. Where windows or greenhouses be so that they can have every ray of sun, from early morning to noon at least, the houses or rooms may not have a high artificial temperature. A house at 45°, with plenty of sun-light, will have more flowers than one at 65° with the same sort of plants, and only general light, without the direct rays of the sun. This will give a hint to all who are building greenhouses for winter flowering, to have the roof-pitch very steep. It is almost impossible to get flowers of any consequence in winter from a very flat-pitched house.

The management of a greenhouse fire is worthy of a thought. Few of those who attend them know much about their proper management. In lighting a fire a good jack-knife and a piece of pine wood is as good as an armful of shavings. Shave the piece a little without taking the shavings wholly off. Start these with a match, and, being connected with the main piece, they will fire it. A few pieces crossed over this nucleus, and off the whole goes. This little hint will save considerable time in hunting paper and shavings, or straw. The fire lighted, it must be kept bright or dull according to the probable weather. To do this use wet ashes. If it is desired to keep a body of heat for a long time without burning away, proceed in this wise. Start the fire at noon, for instance, and get the coal thoroughly red hot. Then, say an hour after, put on a shovelful or two of fresh coal, and let it burn about *half* through. When it has done this, which will be towards evening, cover with three or four shovelsful of wet ashes, leaving a very small opening through to the coal at the far end. If such a fire be properly made in this way, there will be little necessity to look at it again till next day at noon. Then throw a few shovelsful of coal on the hot mass of ashes, doing no more than this for an hour or so. The coal

by that time will be thoroughly warmed, and in that condition readily burns. It is worthy of remembrance at all times, that warm coal will ignite more rapidly than cold coal. Having warmed it on the hot ashes, we may now watch the weather. If we want to get up the fire in a hurry, we now rake out a little ashes from the bottom, so as to induce a little draft, and suffer the coal on the top to drop into the ashes. As soon as it begins to redden, we can rake it more if we want to hurry it, or less if we do not. Of course how much or how little of this raking or ash covering is to be done, depends on the weather, the capacity of the furnace to heat the house, and lots of other little things. But one who understands this well will need no dampers in the flues, no ash pit door, nor any of the usual contrivances for regulating draft. It is surprising what a nice art "stoking" is. There is far more fun in this than playing base ball or the piano, and we are surprised at so few learning to do it well. Besides there is money in it, too. One who knows the art well will do as much with ten tons of coal, as others will with twenty, or even thirty.

COMMUNICATIONS.

SELF PROPAGATING BEGONIA.

BY E. J. PADDOCK, SOUTH AMBOY, N. J.

During the past summer we have been growing Begonia Sutherlandii, a tuberous-rooted variety. On removing them in the fall, it was observed that a tuber had been formed at each joint, about the size of a chestnut. In all probability it is the result of being grown in a close, humid atmosphere, for others grown in a free circulation of air had not produced any. B. Sutherlandii being somewhat rare and choice, a description may not be amiss. The stem and branches are deep red; the leaves are ovate lanceolate, veined with red and scarlet at the edges; flowers coppery-red, medium size. It is very distinct, and a decided acquisition to this lovely class of plants, entirely eclipseing the well-known B. Weltoniensis.

TRAINING PLANTS AS STANDARDS.

BY GEO. CORBETT, COLLEGE HILL, CINCINNATI.

In recent numbers of the *Monthly*, my attention has been called to various plants, so well adapted for growing as standards. Allow me to call attention to what I believe is the most effective of all bedding plants, when grown as a standard, namely, the Zonale Geranium. To cultivate them as such is very simple. Those who have not previously tried this plan, I would advise them to do so. In private places they are very effective, when dotted promiscuously in borders of herbaceous plants: prolonging a cheerful appearance when the beauty of the hardy plants have passed away. Also in ribbon borders they answer well for the back line; but probably the most effective of all, is when planted in a circular bed. For the centre of the bed, a large vase, sufficiently elevated, and judiciously planted, is very effective. Then come the standards arranged in circles, with the most striking colors, all having a gradual slope to the front. The plants must be previously grown with this object in view.

I need hardly suggest that stakes will be requisite; and if the plants are grown in a systematical form, and well cared for, the wind will have very little influence over them. Probably the most convenient time to commence this operation is in May. Select the most vigorous variety of its color. Plant in rich soil. Train it with one stem, removing auxiliary buds until the desired height is attained, when it should should be stopped, to encourage the development of buds for the formation of the head

Such kinds as Jackson's Queen of the West make a splendid standard; color, a deep orange scarlet, very large individual flower, and compact. By the way, is this par-excellent Geranium extensively cultivated in the Eastern States? Its reputation in this State is very great. In the garden and on the market it is unrivalled. Every commercial florist should have it. Its qualities as a winter bloomer cannot be over-estimated, blooming profusely in a lower temperature than any other Geranium extant.

EDITORIAL NOTES.

EPIPHYLLUM TRUNCATUM.—This well known Cactus is one of the most desirable of window plants. On its own roots, however, it is rather diminutive, except with great age, and besides it is very liable to rot away. To help these matters it is now generally grafted on a taller and hardier stock. We give below a paper by a correspondent of the London *Journal of Horticulture*, remarking, however, that though it may not grow quite so vigorously on the Pereskia Stock, it is less liable to be lost by the rotting away of the stock on that, than on any other.

"This was in great favor in my early days, and, except the Camelia, I know no plant which is so beautiful from the middle of December to the middle of January; the variety bicolor is the finer of the two. It blooms at a season when flowers are scarce, and is valuable for cut flowers, but a plant of it 4 feet high and 2 to 3 feet through is worth seeing.

This Epiphyllum used to be well grown at Garscube House near Glasgow, and at Woodhall; and there is a place about Paisley where I have heard it is grown well and in quantities. I used to have two plants of the bicolor variety when gardener to the Earl of Wemyss at Gosford, and one of them was between 2 and 3 feet through, and to see it in fall bloom was a great treat.

Pereskia aculeata is sometimes used as a stock for it, also Cactus quadrangularis, but I found Cereus speciosissimum suit it best. A good specimen can be formed in a few years by growing one stem of C. speciosissimum in a healthy state, and once it is in a state for grafting put a row of E. truncatum on each side of it, and the grafts will grow at once. A little moss may be put round for a few days until the grafts unite with the stock. It is quite easily grown, but it requires a little more heat than a common greenhouse. I grew it in a plant stove, but when grafted on C. speciosissimum it might possibly stand in the warmest corner of a greenhouse.

Ordinary soil will suit it, and add some stones or charcoal amongst the soil to keep it porous, or the plant may damp-off some morning. A few pieces of charcoal should be laid round the stock. I found a coating of manure spread over the surface do it much good. The roots grew well in it, and the plant had a fine healthy color.

I seldom or never see this plant worth looking at, and I hope more attention will be paid to it. It only requires to be seen in perfection to make every one long to have such a beautiful flower."

MICE IN HOTBEDS.—When mice get into frames, as they often do, they produce a fearful amount of mischief in a few days, if not destroyed. This may easily be done by mixing sugar and butter or lard smoothly together, in which a little strychnine is incorporated; spread this on thin slices of bread, and cut in small cubes and distribute them among the plants, and at the same time place vessels of water in some convenient place, where they may drink. Or if preferred, the phosphorus compound sold by druggists for this purpose may be used, but we have always had the best success with the first named mixture. In either case care must be taken that the children do not have access to the prepared bits of bread.—*Canada Farmer.*

NEW PLANTS.

LOBELIA SUBNUDA.—The Lobelia subnuda is a small species with prettily veined foliage, spreading in a tuft about 2 inches high. It is cultivated on the rockwork at Kew, where it was received from Mr. Thompson, of Ipswich, who is fortunate in possessing so interesting a novelty. The leaves have a dark metallic lustre, relieved with light green veins; they are ovate, obtusely serrated or incised, and purple underneath. The petiole rather exceeds an inch, the blade is somewhat less. The flowers are small and pale blue, in erect racemes 10 inches high. It is a native of Mexico.—*Gardener's Chronicle.*

GODWINIA GIGAS.—There is now in flower at Mr. William Bull's, King's Road, Chelsea, one of the vegetable wonders—the Godwinia gigas. It is the first time it has bloomed in this country. The individual flower, or properly spathe, is nearly 2 feet long, by 1½ foot in circumference, and produced on a stem only 18 inches high.

This Aroid was thus described in our seventeenth volume, page 396. "This extraordinary plant, which has proved to be the sole representative of a new monotypic genus of plants, has been figured in the *Journal of Botany* where a detailed description may be found from the pen of its discoverer, Dr. Berthold Seemann. It is allied to the genus Dracontium, but differs from that genus in having twice as many stamens as perigonal segments. It produces but a solitary leaf, this one leaf with its petiole being some 14 feet in length. When the leaf has quite died down the flower appears, after the manner of the Colchicum of our meadows, but the flower of this giant Aroid measures 2 feet in length, and 1 foot 8 inches in breath. The leaf of the plant figured attained a height of 7 feet in two months, the leafstalk acquiring a circumference of 9 inches. The same plant ultimately nearly attained the dimensions of the Nicaraguan plants. The leafstalk has a beautifully mottled metallic surface, brimstone yellow in color, barred and striped with purple, looking, says Dr. Seemann, 'like a snake standing bolt upright at the command of some eastern charmer.' It was discovered in January, 1869, near the Javali Mine, in the Chontales Mountains of Nicaragua, and is altogether the largest Aroid of which we have any knowledge. Its flowers emit the odor peculiar to many Aroideæ. The base of the spadix, preserved in spirits in Central America, is now in

the herbarium of the British Museum."--*London Journal of Horticulture.*

CANARINA CAMPANULA.—This fine old-fashioned plant, which displays its beauty throughout the whole of the winter months, is one which, unfortunately, is too seldom seen in our plant-houses of the present day. It is a native of the Canary Islands, and even upwards of two centuries ago it was held in much esteem by cultivators. It has a tuberous root; the stems are herbaceous, the leaves opposite, and sometimes, though rarely, verticillate; their upper surface is shining dark green, their under side being of a paler hue. The flowers are large, campanulate, and pendulous; orange-red in color, prettily veined, and very beautiful. I have a plant of it between 2 and 3 feet high, just beginning to open its blooms, which it will continue to do up to March or April. The management which this plant requires is extremely simple; after it has flowered the stems die down, and whilst they are decaying, water must be withheld by degrees, until very little indeed need be given, but I do not keep it quite dry at any time. About the beginning of August it should be repotted in a well-drained pot, using for soil good sandy loam and peat, to which may be added with great advantage a little charcoal and broken lime rubbish. After potting, place it in a little heat, from which it should, however, be removed when about a foot high; transfer it then to the greenhouse, to the temperature of which it should be gradually inured, and place it in a dry sunny spot if possible. When the dull days of autumn come on, care must be taken that it does not suffer from damp, for when that happens, the young and growing shoots which produce the flowers become rotten; a little attention will, however, prevent this mishap, and it will then be found to be one of the best of winter blooming plants.—G. in *Gardener's Magazine.*

QUERIES.

VARIEGATED CARNATIONS.—*W. A. H., Dubuque*, writes: "Are there any variegated-leaved Carnations known to you? I have not seen any advertised, but have a well marked plant, a sport from C. Shiller, having a creamy-white stripe in the centre of each leaf. I discovered it when only the tip of the first variegated leaf could be seen, and propagated it at once, and is now a vigorous well marked plant.

[There is no variegated Carnation in cultivation that we know of.—ED. G. M]

GOOD HYACINTHS.—*Mrs. B. F. C., Baltimore, Md.*, inquires for a list of twenty-four good Hyacinths for window culture. It is rather late, now, for this; but it may do for another season, for we have found very old kinds often as good as new ones. We take the following from a list before us, of R. Lauer, New York, one of our advertisers, which we are pleased to see contains chiefly only the old and well-tried kinds:

Double Red.—Bouquet tendre, Coeur fidele, Grootvorst, Bouquet royal. *Double Blue.*—Bloksberg, Lord Wellington, Pasquin, Lafontaine. *Double White.*—Anna Maria, La Virginite, Passe virgo, La tour d'Auvergne. *Single Red.*—Lord Grey, L' ami du Coeur, Paix d' amiens, Robert Steiger. *Single Blue.*—Grand lilas, Emicus, Blue mourant, Orondatus. *Single White.*—Grand Vidette, Semiramis, Grand Vainquer, Vesta.

All these we have seen for many years, and doubt if they are excelled by newer ones.

SEDUMS FOR BASKET PLANTS.—*E.* says: "W. F. advises many good basket plants, among the best he names being Lysamachia and Mimulus. I yet think he should have advised some of our hardy forms, and Sedums for centre plants"

A good hint, especially if it be remembered that Sedums, and all growing succulents, must have plenty of sun-light.

VICTORIA REGIA.—*E. L., San Francisco, Cal.*, says: "The *Victoria regia* has been grown successfully during the past fifteen years at the Insane Asylum, Nashville, Tennessee. Mr. Blair, late gardener at the above Institution, informs me that the plants were doing finely when he saw them in September last; but whether seed has, or will ripen this year, can only be ascertained by applying either to the superintendent or the present gardener."

BUDDING THE OLEANDER.—*J. H., Canandaigua, N. Y.*, asks: "I wish to know, through your columns, whether it is practicable to successfully bud the Oleander? and if so, at what season of the year, and also if there is anything peculiar in the modus operandi?"

[We have never known it to be propagated in this way, but have no doubt it can be done. At any time, when there is a well-formed bud in the axil of the leaf, and the bark of the growing stock parts freely from the wood, we should take for the trial.—ED. G. M.]

LA BELLE CARNATION.—This, which we illustrated last year, is thus referred to by Mr. Chitty: "I am delighted with La Belle; it produces more than twice as many flowers as Degraw in a given space. I am trying to get up a stock of about 20,000 for my own planting indoors for next winter flowering. It requires more head room than Degraw, but I intend building a house specially for it. I am perfectly satisfied that it is the best thing in the way of a white winter flowering Carnation at present in the market."

SMYLARKS.—*M. A. B., Sunnyside, Va.*, asks: "Can you tell me anything of a little green vine, which friends tell me is much used in the North in bouquets, as Smylarks. 'Will it grow in rooms?' I have a small conservatory, with a roof over, so that light only comes in from the side, just as in room plants, and want something green, like this is represented to be."

[The plant referred to is what is known as "Smilax," but properly Myrsiphyllum asparagoides—pronounced Mir-sif-illum,—accent on the first syllable—and which should be as easy as "Smilax." The plant would grow well where you require it.—ED. G. M]

POINSETTA PULCHERRIMA.—*Mrs. E. C., Spartansburg, N. C.*, asks for "any information about Poinsetta pulcherrima." This is the plant now one of the essentials to a Northern bouquet maker, on account of the large scarlet bracts which surround the rather unconspicuous flowers. These bracts are cut off, each wired for an artificial stem, and thus perhaps a dozen or more "flowers" made from one head. The plant requires a good deal of sun-light in summer, and heat in winter, to grow and flower well. It was introduced, after the Mexican war, from Mexico, where it grows as large as an apple tree, and named after Mr. Poinsett, who was American minister to Mexico.

TRADE PRICES.—A correspondent complains that a firm, whom he names, offers to the trade an article for $15 per hundred, and yet sends out the same article at retail at $1 per dozen. We do not insert the communication, because the manner in which any people choose to do their business, does not come within the scope of this magazine to discuss. In this case, however, we would suggest not to buy by the hundred, but order the hundred by the dozen.

Fruit and Vegetable Gardening.

SEASONABLE HINTS.

Many complain of the struggle with insects and fungoid diseases. Some of this may be cured by washing trees in the winter season. Under glass, the best peach and grape growers would never think of letting the season go over without washing the trunks after pruning, with a mixture of soot, sulphur and lime. If the bark, as in the grape, be loose, it is stripped off first. The eggs of thrip, red spider, scale, and seeds of many "blights" and mildews, are thus destroyed. It is just the same benefit to wash young orchard trees. And this is especially true of scale covered trees. If the young trees are very bad, cut away the twigs, so as the more easily to cover the whole tree, to the enemy's destruction.

It strikes us from various signs, there will be a movement again soon among new and improved grapes Many of these are sent out in the condition of weak plants. It must be remembered that a small thing requires more care than a strong one, such as can be had when a variety becomes common. These young vines like to have a rich soil—a rather dry soil, and yet a cool soil, so that the feeding roots may keep near the surface without being scorched. It likes not, either in this young stage, to have other strong vegetation competing with it for its food. We wonder no one has ever tried to raise grapes

and asparagus together in the raised beds, as done in France, and as described in back numbers of our magazine. The raised beds give the dry bottom; and the asparagus stalks through the summer make a shade, which keep the roots cool; and then the manure, which good asparagus must have, gets to the grapes as well.

In the vegetable garden preparation is being made for early spring crops. Radish, lettuce, and beets, require but very little heat to start them, and may be put in at once when the ground is warm and dry, and there is no fear of much more frost. A little frost will not hurt them, even though it does follow the sowing unless the germ is about pushing. This is the time when most hardy seeds suffer from frost, when they do suffer at all. The pea is also one of these early vegetables which a little frost will not hurt. Except, however, in the extreme South, the most of our readers will not think much of these things till next month.

COMMUNICATIONS.

THE PLANT PATENT.

BY JACOB STAUFFER.

The article under the above head by my namesake, Mr. Jacob Moore, arrested my attention both as an old solicitor of Patents and Botanist; hence, I may be excused for making a few remarks. I certainly believe that every inventor or originator of any new and useful thing ought to be protected, and such is the object of the Patent and Copyright Laws. But the question that first meets us, is, how are we to understand what he means by "the *originator* of a valuable plant." That there are certain sports and accidental varieties under cultivation, that are as much a surprise to the cultivator or producer as to others, and may be a desirable acquisition, for those who are fond of the new and curious, he says, "The peculiarity of the variety, *i e.* the various qualities which render it valuable, owe their origin to him, and are precisely as much his property, as the ideas of the author, or the device of the inventor are theirs." Here I fail to see any analogy, unless some special mode of culture and chemical or mechanical manipulation was employed, knowingly, to produce this result. Then his mode and manner of culture, if novel, may be protected by Law, unless he chooses to keep the secret of the art to himself. He adds, "The one kind of property is no more intangible than the other." This and his idea of "the plant author," I must confess, is, to my mind, rather "intangible." The plant in its new form may be "tangible," but how it came so, is the question. Was it by the knowledge of the producer of the laws that govern vegetation? If so, then that "knowledge or discovery" is the thing patentable, for which he can have protection, either as a receipt or for a composition to be used to produce such a result. This, however, would give him no right to the mere accidental or abnormal results occurring as a mere variety under his cultivation, without his special aid to that end; and this special aid must be new and originate with him, and be of such a nature as to produce like results under like conditions. An accidental change may occur with another of a like nature, what then? I question whether any rule or law could be enacted, so as to define "the originator or discoverer of a new variety of tree, shrub, perennial vine or plant," &c., Sec. 1 to 17.

All our rare exotics are introduced by travelers, or, even suppose you send for a well known plant to Japan and introduce it. Are you the "originator or discoverer?" How did you get your knowledge of it? Why should others be prevented from availing themselves of the same information? Or suppose you have such a plant under your protection of a patent; I go to Japan, and see the same plant, and bring it home with me. I cultivate it, and may have no knowledge of your patent; must I pay you for cultivating a plant I may have *actually discovered* in a secluded woods in Japan, dug it up, preserved it with care, brought it home with me, and had it under successful culture? You stop me, because through some Agent in Japan, you had the opportunity to introduce the plant, and obtain a patent, while I was sojourning in that country with the object in view, to collect new and interesting plants. Competition is the great stimulus in all business. Sec. 13 of the Act, confines the patent however to such plants or varieties "that are *new, distinct* and *valuable.*" That is well said, but in this line of protection the trouble that would follow, is, even under this restriction, to have a clear definition of the terms "new, distinct and valuable." I apprehend it would lead to endless strife, litigation and expense, and be of no adequate benefit to have protection, such as is contemplated by the Article referred to. The most skilful mechanic uses brains, and his superior workmanship gives him custom. To *invent* "the new and useful," implies originality, thought, and a true knowledge of the facts in the case, to bring about the *new* and *useful result.* Not a mere grabbling or monopoly of a thing in which he had no hand to make or invent such qualities, unless as first stated, his skill, brain, thought and experience of a certain mode, composition or chemical applied, is the secret of success. But this is not the object of the Law, as I understand it. In short, you truly observe, "protection in this shape is impracticable."

EDITORIAL NOTES.

DEAD SEA FRUITS.—A clergyman, in a delicately profane way, named and exhibited a lot of potatoes at a recent meeting of the Royal Horticultural Society, as Fenn's "condemned" seedlings. Singularly enough, these *potatoes* seem to have been referred to the *Fruit* Committee, who awarded these "condemned" things a first-class certificate! At this distance the whole thing smells sulphury.

MONSTER BUNCHES OF HOTHOUSE GRAPES.—These are shrewdly suspected by English gardeners, as it has been for some time in America, that these overgrown bunches are the result of inarching when young. It ought to be very easy to produce large bunches in this way. The large bunches at some of the exhibitions of the Pennsylvania Horticultural Society in times past, had a very suspicious appearance,

PORT WINE.—It appears that in some parts of Europe "Port wine" is extensively manufactured from plums. Here the "pure oporto" is mostly poke or elder berries and brandy.

DEPARTMENT OF AGRICULTURE SEEDS.—A correspondent informs us that the statement going the rounds of the papers, in regard to the sending of an agent abroad to purchase old seeds and so forth, refers to the old Patent Office Department and not to the Department of Agriculture, as separately organized since 1861.

PEACH CULTURE IN COLORADO.—The *Colorado Farmer* gives the following encouraging account, confirming our frequent suggestion that much of the failure reported from these regions comes from injudicious watering:

"Mr. Robert Armstrong, living between Colorado Springs and Pueblo, says the *Mountaineer*, has been experimenting in peach growing for several years, and he concludes that the trees should not be irrigated at all during the summer and fall, as they form so much wood that it cannot mature, and consequently cannot bear. His trees have not been watered this summer, and they are now filled with bearing buds, and he expects a beautiful crop the next year in consequence He proposes not to water any of his fruits hereafter during the warm season, and his grapes at no time of the year. Mr. Armstrong is one of our best fruit growers, and is good authority on this subject. His grape crop this year was six thousand pounds."

THE LARGEST PEAR IN THE WORLD.—T. Brehaut, of Guernsey, has raised of the Uvedale's St. Germain, six pears, twenty pounds, and he asks whether any one in the world has beaten this? One weighed "all but" five pounds. In his remarks on this subject, Mr. B. intimates that Belle de Jersey and Belle Angevine are *not* the same as Uvedale's St. Germain, which will be news to American pomologists. These large pears seem to attract, for Mr. B. says six of his large pears brought nine guineas. Some $8 a piece is profitable pear growing, but it will not do to figure up an acre at this price.

GRAPES—*Late Keeping.*—For the above purpose I grow Black Prince, Trebbiano, and Lady Downes. The first two serve up to Christmas, and Lady Downes I keep till the end of March. This year the Lady Downes is very much inclined to shrivel up, though the fruit room is kept very dry. I have in former years left the water in the bottles for a month, but, on noticing the shrivelling this year, I had the water renewed once a fortnight, and seeing the grapes expand themselves after the fresh water was put into the bottles, I have since renewed the water once a week, with a plentiful supply of charcoal in each bottle, with the most beneficial results. Although I have for many years kept Lady Downes into March, I never previously noticed in that variety any such disposition to shrivel, which I can only account for by the imperfect maturity of the wood, caused by the unceasing rain of the past year. It could not be caused through any immaturity in the grapes, as they were everything that could be desired; and, in fact, at the present moment they have a bloom on them that would please the most fastidious taste; and now, having ascertained the good effect of changing the water weekly, I am satisfied I will be able to keep them on in the same condition, until the end of March, as I have done heretofore.—SOUTH DOWN, in *Gardener's Record.*

THE BARAROSSA GRAPE—I have been always under the impression that the Barbarossa Grape

was a large black-berried, large-bunched kind. with leaves heavily veined, thickly serrated, and turning to a beautiful variegated red of different shades on coming to maturity, but that, unlike other vines, the green fades, and the coloring commences sooner and it was owing to this red coloring of its leaves. and to its deeply serrated beard-like look at this season that it takes its name from "Barba-rosa," red beard, and not from its bunches, which are not at all like a beard, nor red, for they are jet black with me. I send you a bunch of the Barbarossa vine leaves of different sizes, which, if held up to the face, is more like a beard than a bunch of Grapes. I may further say this Grape is perfectly distinct from the Seacliffe Black ; and in my opinion, the Gros Guillaume and it are identical. We have, then, two first-class, large-bunched Grapes—the Barbarossa, and Seacliff Black or Gros Guillaume ; and, if you want a third large-bunched Black Grape. Gros Colman is the one.—H. KNIGHT, *Floors*, in *Gardener's Chronicle.*

NEW FRUITS & VEGETABLES.

SEEDLESS APPLE from B. S. Graves, Kittaning, Pa. This fruit is double the size of the one sent last year, and we think well worthy of propagation under a distinctive name.

NEW CUCUMBER, "GOVERNOR-GENERAL."—It is not usual for Americans to try to get new cucumbers. This one is thus described : "It grows about 20 inches long, with a smooth, dark green skin, a firm, melting flesh, and with little or no heel. It will bear fruit, ready for market, within seven weeks from the time of sowing the seed, and will continue bearing all the summer, each plants producing from 55 to 60 fruit. It is equally well adapted for growing in a frame, as well as in the open ground, and will, when it becomes generally known, be grown in preference to every other variety.

DUCHESS STRAWBERRY.—The *American Agriculturist* says : Last year Dr. Hexamer, of New Castle, Westchester Co., N. Y., sent us specimens of the fruit of this variety, which seemed to be of excellent quality and early. Our own plants being too small to allow of a fair judgment, we requested Dr. H. to state how the Duchess had done with him. He replies :

"It has for three years ripened earlier than any other of over one hundred kinds. Its berries are larger than those of other very early varieties, hold out well in size, and are of uniform globular shape, without neck ; color, light crimson ; flavor, good and sprightly, without being acid like the Wilson ; texture, firm. Berries sent to Virginia, arrived there in good condition, three days after being picked. Foliage hardy and vigorous, withstanding the severe drouth of last year exceedingly well. This variety has not yet been disseminated, but will, if it succeeds in other localities as well as in the vicinity of New York, form a most valuable addition to the list of early strawberries."

THE CALIFORNIAN MAMMOTH RADISH.—The samples of this winter Radish, exhibited at South Kensington on Wednesday last, were from seed sown here the first week in August; consequently they had been three months in coming to full maturity. The Radish thrives best in good moist soil that has been deeply stirred, and the more rapid the growth the better the flavor, and the crisper in eating. The leaves develop to a considerable size, and require plenty of space, therefore the seed should be sown in drills not less than 12 inches apart, the plants in the rows being left nearly the same distance from each other. Not later than the early part of November the roots should be carefully lifted, and be laid in thickly in some sheltered spot, where some light litter can be laid over them when frost prevails, as the Radish is not hardy, a sharp frost or two not only killing the leaves but also seriously injuring the root. Its great merit consists in its usefulness as a winter salad, adding materially to our somewhat scanty stock o' that class of vegetables at a dreary period of the year.—ALEX DEAN, *Bedfont*, in *Gardener's Chronicle.*

QUERIES.

FOX'S SEEDLING PEARS.—Mr. Fox sends us the following note. We trust that so long as he can raise such good seedling pears, it may be many years before the "rosin weed" is gathered from over his "six by two," as he expresses it : "Thankful to you for kindly notice in the *Monthly*. Being so engaged, forgot all about sending the autumn varieties, but will send Barry and Wilder. You can get a few specimens of the best winter pears, and keep them over ; and I wager you a new hat you cannot get a better winter pear than No. 3, or Wilder. Mind, a fair show. The sorts to be tested have to come some distance, say Rochester or Boston ; and when you have decided, tell me the sort that beats it. If all well, and on this side of the six by two, with no grass over it, I shall be in Philadelphia in '76, to see what I can see in the pomological world."

NO-CORE APPLE.—*E.* says : "Your 'old contributor' T. S. R., says he described, last February, a 'No-Core' Apple as new. Please let me tell him that an apple void of core and seeds was known in the century of 800, and a 'sweet and sour' was grown, propagated and described in the century of 1000. If he wants the actual years when these were first noted in those ages, taking our Biblical items of dates, they can easily be given."

[There have been, as E. truly says, apples with no core, owing to defective organs of inflorescence, for numberless years. There is no reason, however, why there may not be many varieties of these as well as many varieties of kinds with cores ; and we suppose our "old contributor" was referring to *Menocher's No-Core*, as one distinct from those of the olden time.—ED. G. M.]

STOCK FOR EARLY RICHMOND CHERRY.—*J. H. H., Hagerstown, Md.*, writes : "I want to bud some early Richmond cherries on some stocks that will not sprout from the roots. Will Mahaleb do it ? Is the Mahaleb the best stock to bud on, provided it does not sprout ?"

[The Early Richmond does well on the Mahaleb, and it does not sprout or sucker.—ED. G. M]

RADISHES UNDER GLASS.—*C. M. F., Ashland, Ohio*, asks : "Will you please inform me through the *Monthly* how to grow early radishes under glass ? Please state which is the best variety for that purpose. How long does it take for a crop to mature ? How close can they be planted ? How warm should the ground be ? How much cold will they stand without injury? Can I use muslin covers if I have straw mats to use when it is likely to be too cold ? or will nothing do but glass ? My bed is heated by a flue, and is so arranged, that if it is necessary, I can let heat from below to warm the air under the sash. As I will not want the beds for potatoes until the middle of April, I thought I might grow a crop of early radishes first. Do you think the plan feasible ? Any hints will be thankfully received, as I know nothing about growing them."

[Radishes can be grown very well under the circumstances. They require very little heat; 45° or 50° is abundant, and they will endure several degrees of frost without injury. The best varieties for frame purposes are the long rooted ones, though the turnip rooted kinds come easier. The white turnip is the earliest. It is the practice to sow about as thick as one would grain, and under hot-bed culture they must be near the glass—say a foot or 18 inches from it—and must have the sashes raised on every fine day, or they will "draw," or have weak leaves and no roots. You can do nothing in radish forcing with oiled muslin. Must have glass.]

FINE LAWRENCE AND GLOUT MORCEAU PEARS.—Major Freas, of the *Germantown Telegraph*, with some of the largest of these kinds we have ever seen, sends the following note : "I send samples of Lawrence and Glout Morceau Pears. They are among the best. The Lawrence did not bear profusely this year, but are very fine. The Glout Morceau was never so good, large, or abundant. For the last two or three years they ought to be classed among the best for their general qualities.

KINKHEAD APPLE.—A correspondent sends us the following well-timed caution in regard to this fruit : "Be sure of 'Kinkhead' Apple being a new seedling, and equal to Fall Wine, Ohio Nonpareil, or a dozen more of fall varieties."

CUTTING OUT THE APPLE BORER.—A correspondent says : "Do you really believe it is policy to knife cut the stems up and down, near the base in autumn, to extract the 'borer.' I suppose you mean by borer Saperda. Would it not be preferable to lay bare the stem down to the surface of the upper course of roots, then scrape the surface bark of the stem, and then wash it with a weak alkali ? Then as soon as severe frost is off the ground two inches deep apply charcoal dust, sand, leaf mould, etc., to four inches, in a conical mound over the roots, and around the stem."

[The *Saperda bivittata* is the only apple borer in this section of the country that operates on the apple near the surface of the ground. We like the practice we have recommended much better than that suggested by our correspondent, because it takes less time. The jack-knife is always in one's pocket,—always ready at a moment's notice, which alkali, charcoal dust, leaf

mould, and so on, is not. The cutting *up and down*, and *no wider* than the diameter of the hole made by the insect, does no more harm than the insect has already done. A strip of bark taken from a tree a quarter of an inch wide, and a quarter of an inch high, does as much damage as a piece the same width and a couple of inches high.—ED. G. M.]

PRUNING FRUIT TREES.—*G.* says: Is it true that sappy shoots push out upon old apple and pear trees that have not been incorrectly pruned? Even if they have been left unpruned from the time of maturity—say six to eight years from planting—do they send out sappy shoots? As I view it, all this of sappy, or water, shoots come from error in pruning, in the cutting away of all the inner branches, and leaving the main stems without shade or shelter, which nature endeavors to fill up by forcing previous dormant buds.

[The word "sappy," as applied to sprouts coming out of the main branches in the interior of a fruit tree, we take to be a mere technical expression. They are no more sappy or immature than others, except so far as we may suppose partial shade to influence them. As our correspondent well remarks, it is generally from some disturbance of a fair balance of relations that they appear. Very often overbearing will reduce the vital power of the outside branches; and these being unable to take up all the matter provided by the roots, this is forced out of the main branches in the shape of sprouts. When this occurs, it is often best to let them have their way, cutting the old weakened branches back to the new sprouts.—ED. G. M.]

EXTRAORDINARY NEW FRUITS.—*Mr. F. R. Elliott* says: "Glad to see you, Mr. Editor, putting a check on Plowden and other seedling peaches, and crab apples. When you get a record of a new seedling fruit, time and time again examined and compared with others by an old pomologist, then give it notice; but it does me good to see you hold back on giving favor to many fruits, that while they are valuable because in the bearing upon the owner's ground, and there should be kept, yet because of their want of characters compared with others already known and described, they should not be named or propagated."

Editorial.

REVIVAL OF HORTICULTURE.

The few years previous to our civil war, gardening was making extensive strides in this country. The year preceding the rebellion, the *Gardener's Monthly* struck off an edition of ten thousand copies, a greater number than was ever issued by any purely horticultural magazine before or since. The fall before the outbreak it met its first check. In the language of a Southern customer to a Philadelphia dealer, "people were thinking more about bullets than bulbs." Since the close of the war, however, in spite of the many panics, crises, and troubles, the circulation of our magazine has been strongly rising; and all around we hear from nurserymen, that they see encouraging signs. One of the most pleasant features that come before us, is the improved tone displayed in numerous catalogues. There must be considerable business to warrant the outlay we see. Even in rare plants and flowers much is being done, although the prevalent impression has been that only the more "solid necessaries" were being sought for. We are pleased to discover these signs, and trust that we shall all, in the horticultural journey, go on our ways rejoicing henceforth. In connection with this subject, we may note, as an excellent sign, that many of our leading public men are giving considerable attention to horticulture, and a general recognition of its claims. Not long since, Carl Schurz, of Missouri, delivered a lecture in Mr. Beecher's Church, at Brooklyn, in which he stated that there was a prevailing tendency to educate people into the idea, that mere money was not so much the chief end of life, as the pleasure and happiness which money can bring. And among the wisest and best of pursuits in which to spend money, he classes horticulture. This is getting to be a prevailing public sentiment, and one we are sure our readers will welcome.

HALF HARDY TREES AND WIND SHELTER.

Every once in a while we come across a statement that this tree or that is not hardy. There is no doubt that so far as temperature is concerned, the trees referred to will stand all the cold they are likely to meet with in the regions referred to, but still the trees die.

It may be as well to remind our friends who lose their trees, that it is not so much frost as wind which destroys them. Death is the result of the whipping out of the juices of the tree, and not by the freezing of its cells. And it is no proof that because a tree dies in an exposed windy place, that "it is not hardy" in the deponent's latitude. That trees die under different circumstances, where they were thought hardy, is no wonder to those who are familiar with trees. Indeed it is rather a wonder that so many live that do. Generally it is the tree nature to be gregarious. They grow up in forests thousands together, and by mutual protection hardly know what wind is. The falling leaves protect the young plants, so that in the severest winter's day, one may go into a dense wood and hardly find frost an inch below the surface. So that trees growing in woods have a double chance. They are kept from severe waste of their juices by their mutual protection from wind; and the roots, without much hindrance from frosty ground, draw in moisture all the winter through, and thus easily supply what little waste there may be. How different is this from a tree's usual fate. Set out alone, to battle with the winds unaided, and with the frost encasing every root, so that all the moisture they can take up has to be first thawed by their own internal heat from the frozen ground, why should not large numbers perish? It is not in the nature of things to be otherwise, and it shows rather a limited acquaintance with plant life when the loss occasions any surprise.

In the suburbs of Philadelphia is a settlement formed by some of the higher classes of citizens of that city, known as Chestnut Hill. It is a high and bleak spot, some two hundred feet above the level of the Delaware; and with a valley of some six or eight miles wide in front and around it, it is particularly exposed to bleak north, north-east and north-west winds. The writer knew it some twenty-five years ago, when barely a tree was found over its surface, except where a sheltered inlet or so kept off the worst winds; and every farmer remarked as if it were as true as gospel, that trees would not grow on Chestnut Hill. But trees or no trees, it was a delightful spot, whereon to catch the cool summer breezes. It was just the spot for summer-burnt Philadelphians to have country residences. A railroad was led to it, and improvements began. One of the first of these improvers was Col. Cephas G. Childs, one of the heroes of the Mexican war, and a highly intelligent horticulturist. He took in the idea of shelter at once. Trees were planted almost as thick as they could stand together; and besides this, very common and hardy trees were set thickly outside of all. The Hemlock Spruces, which, single and alone would have been easily killed, were set thick together; and together they grew up without any injury to leaf or bud, and finally made a good shelter for all the rest. It was a rich treat to go there in subsequent years and see the rare trees growing. Deodar Cedars, Abies Smithiana, Hollies, Yews, and such like, which the average Philadelphia horticulturist will tell you "are not hardy here," flourished like weeds, though everybody's exposed trees died as regularly as they were tested. The good old man has left this earth, and even his successor has departed; but the trees, the great triumph of his faith, still live. They formed a nucleus around which others grew, and to-day Chestnut Hill is the most beautifully clothed with arboreal vegetation of any suburb in the world. To be sure Chestnut Hill had advantages many localities had not. Not only were the wealthy settlers almost all regular readers and students of such works as Downing's *Landscape Gardening*, the *Horticulturist*, the *Country Gentleman*, the *Gardener's Monthly*, and similar works, which were found in every household, but an excellent class of practical gardeners had established themselves about them, and received their encouragement. Gardeners like Saunders, Pooley and Miller, educated and observing, and yet with so much love for their profession that they overlooked every detail personally, could not help but leave their mark on a field like this; an dwhen to this was added a list of shrewd fellows, not brought up to gardening, but who showed remarkable aptitude for picking up what the others did, and who finally themselves took up "landscaping," with as much success as any similar class of men

ever could do anywhere, Chestnut Hill may be said to have been singularly favored in its chances to become the garden spot it is now.

But there is not a place in the whole country but might do as well. The coldest place on the bleakest Western prairie, by thick planting of the valuable trees; and planting of shelter belts of Larches or other wind-proof trees, might have everything we have,—everything we call half hardy,—everything in fact that any reasonable horticulturist could desire.

To be sure much has been done in this direction in the West. The agricultural papers and agricultural writers have written over and over again as to the necessity of shelter belts before much can be done; but when we read, as we continually do, of experiments with these trees or those, and the conclusions come to, that "they are not hardy west," when we know it is all a matter of wind and not of frost, we see how much more is to be done in pushing a knowledge of the shelter idea, before those regions can half enjoy the full pleasure of horticulture; and it is in the hope of reinforcing our Western friends, who have labored so long in this field, that we have been moved to pen this article.

REMEDY AGAINST THE PHYLLOXERA.

France is making enormous efforts to find remedies against this insect. Its attacking the roots makes it so much more difficult to fight. The Government, the academies, the different societies, all are on the alert, the wine interest being one of the most important in France. Monsieur Dumas, in the Academy of Sciences, declared, recently, that two things were sure to kill it without hurting the plant—sulphate of carbon and coal-tar. At Cognac and Montpellier they have been tried successfully. The prolific crops of grapes in California are explained solely on the ground that the Phylloxera had not penetrated there yet. Their advent there, by and by, is said to be a sure thing.

Natural History and Science.

COMMUNICATIONS.

WEATHER-TELLING PLANTS.

BY X., NEW YORK.

Herr Hanneman, Inspector of the Botanical Gardens at Proskau, Germany, has observed that several plants may be used as weather-prophets. Here are some of his observations: Convolvulus arvensis, the common English Bindweed and Anagallis arvensis, the English Pimpernel, spread their leaves at the approach of wet weather, whilst the different species of clover contract them. Stellaria media, the Chickweed at nine o'clock in the morning, if the weather is clear, straightens its flowers, spreads its leaves, and keeps awake until noon; if, however, there is rain in prospect, the plant droops, and its flowers don't open. If they open a little, the coming rain will be of short duration. The same with Pimpinella saxifraga. Calendula pluvialis, the Marigold, opens between six and seven in the morning, and keeps generally awake until four in the afternoon. In such case the weather will be steady; if, on the other hand, it has not opened by seven o'clock in the morning, you may that day look for rain. Sonchus arvensis and oleraceus, the Hog-thistles, indicate fine weather for to-morrow, if the head of blossoms closes for the night; rain, if it remains open. Again, rain is certain if Hibiscus trionum, the Bladder Ketmia, does not open its blossoms; if Carduus acaulis, the Stemless Thistle, closes; if Clover, and most allied kinds, drops its leaves. Also if Lampsana communis, the Nipple Wort, does not close its blossoms for the night; if Draba verna, the Whitlow Grass, lets its leaves hang drooping; if Galium verum swells and exhales strongly; also if the Birches scent the air. Anemone ranunculoides, the Crowfoot Anemone, also tells the coming rain by closing its blossoms; whilst Anemone nemorosa carries its flowers erect when the weather is fine, and drooping when overcast.

Would it not be very interesting if we, in our country, observed vegetation, particularly the commonest, and thus invented barometers of the cheapest and most reliable kinds for our farmers and gardeners?

THE COLLAR OF A TREE.

BY REV. J. H. CREIGHTON, PETASKALA, OHIO.

Much has been written about root, trunk, branch, leaf, flower, stamen and pistil. But one of the most important parts has been nearly overlooked. The *collar* is that part where the trunk enters the ground, and roots begin. Upon close attention to many trees in various situations, I find frequently a wide crack or cavity between the tree and ground, which is sometimes deep and mouldy. I once found a fine orchard dying, and could discover nothing unusual but the large size and very wet and fungoid condition of this cavity around the collar. I have also found that this condition of the ground is most conducive of fungus, and though not yet prepared to say positively, yet I have a strong suspicion that this has much to do with blight. By actual observation I notice that when the ground is favorable to this large cavity, there blight is most common. In all cases where I have examined dead trees, and the cause could not be certainly known, I found this cavity, and generally found it to emit a strong odor of fungoid matter, and always very moist,—even wet with the exuding juices of the tree. Now these being facts, what should we do? I can only give my views; others may differ.

I put a small quantity of stiff clay round the collar of every tree. Not a great quantity, as some have advised for the borer, but enough to make a neat, smooth, close connection between the tree and ground. And then attend to it from time to time, adding a little clay from year to year, and filling up any crack or fissure that the rains or the shaking of the tree might make. This is cheap and simple, and of great value to an orchard.

One thing is perhaps not often thought of by horticulturists, and that is that a large amount of water, during every hard rain, runs down the trunk into the collar. This water runs over the decaying bark, and carries with it thousands of sporules of litchen and much fungus matter. Then when it gets into the cavity above spoken of, it is in a most favorable place to do mischief. It is like a damp cellar to a box of succulent plants.

In addition to all this, I must further state that I never knew a peach tree attacked by borer at the collar when it was kept neatly surrounded with stiff clay.

[One could not pronounce on the scientific points raised by our correspondent, without the specimens with the facts before him; but as to the practical value of earthing up about the stems of trees, we know, from actual observation, that it is an excellent thing. We have repeatedly called attention to this good practice, and wonder it is not more done.—ED. G. M.]

EDITORIAL NOTES.

WHEAT AND CHESS.—Dr. Higday, of Laporte, handed to Dr. Levette, of the Indiana Geological Survey, some heads of wheat with chess apparently growing out of them. He sent one to the Philadelphia *Academy of Natural Sciences*. It was referred to the Botanical Committee, which reported through its chairman, Mr. Thomas Meehan, that the heads of the one stalk were undoubtedly *Bromus* and *Triticum*. The sources from which the specimen came prevented any suspicion of fraud. The Botanical Committee's duty was finished when it decided the two separate heads belonged to different genera. Not however, to judge by appearances Mr. Meehan asked that the specimen be referred to the microscopical section for dissection. The *Bromus* was found fixed into the wheat or Triticum in a very ingenious manner, making a genuine case of cheat. By this action of Mr. Meehan, a trick which has been played on many in the community, has been thoroughly exposed in a way which could have been no better done.

Some of our cotemporaries are enjoying themselves over the fact that *they* have never been tricked in this manner. We cannot learn that they have ever been tempted. We did hear, indeed, that Professor Asa Gray had had these Indiana tricks played on him, but that he had "always detected and reported on the factitious characters." Supposing that the same parties had played in both cases, we wrote to Dr. Gray for names and particulars, who kindly responds in the following note:

"I only know it came to me from Indianapolis, via Smithsonian Institute, several years ago. I have no record of the senders' names. I examined to see how the *Bromus* part was *inserted* It might have been put in,—might have been *caught* in by wind. It was not cemented. I returned the specimen to Washington."

It will thus be seen that Prof. Gray's experience, was not an ingenious trick, and not analagous with this. The only analogy is, that the Smithsonian Institution, equally with Mr. M., supposed that there were good reasons for asking that the specimen should be examined.

Mr. Meehan has received abundant advice to "be sure he is right before he goes ahead." Good advice, especially from some quarters. Those who lie lazily in camp gazing on the stars, while a more active fellow gets mired in exploring a lost trail, may or may not be able to afford such advice. It is, at any rate, the "way of the world," and those who venture on these unexplored fields, expect to hear it.

Branch Growing Through Another.—The Opelousas (La.) *Journal* gives an account of a white oak tree, in the Parish of Calcasieu, which has, in the course of its growth, accomplished a curious feat. The trunk of the tree is about 2½ feet in diameter, and rises to the height of about 25 or 30 feet without throwing out a single branch. About 12 or 16 feet above the base of the oak, the limb or stem of a pine tree, 6 or 8 inches in diameter, and 12 to 16 feet long, passes directly through the centre of its shaft, projecting several feet beyond each side. The oak incloses the pine tightly, and is as perfectly solid at this point as at every other. The question is, How did the pine and the oak get into so strange a position toward each other? The pine is dead, but the turpentine in its cells preserves it from decay, and conjecture helplessly wonders how it ever got through the oak, or the oak ever got around it.

In Mallet woods there is another white oak that presents a curious feature. The trunk is of considerable size, and divides into two prongs about 1½ feet above the ground, which run up separately perhaps 15 feet, and then unite again into a single solid stem. The two prongs are each, say 1½ feet in diameter; but, when they become one again, the single stem is smaller in circumference than the two stems measure taken separately.

These cases are not unnatural, and are explained by an answer to a correspondent in another column. The pine tree branch pressing against the oak tree trunk, the latter by its annual increase of wood soon grows round it and the growing wood meets on the other side, both from above and below, and thus the pine branch appears in time to have "run through" the oak. This was, of course, in this case, hastened by the early death of the pine branch, enabling the oak to get around it in a few years.

Botany Made Easy.—Under this head, some of the daily papers have the following:

"An excellent specimen of the crack-jaw tongue is found in the (English) Charterhouse examinations for 1873, under the head of botany, where the scholar is told to explain the following terms: 'Malva has a gamosepalous calyx, a polypetalous hypogynous corolla, polyandrous monadelphous epipetalous stamen, and a superior syncarpous pistil.'"

This is very well so far as it goes. It is as well, however, to show the other side. The "hard words" used above each express a "long story." By their use an immense amount of language is saved, and thus "botany is made easy" by a book of moderate size, which in ordinary language would take one as "big as the Bible," and which would be much more likely to frighten beginners than a little book with big words, which a glossary easily explains.

Rainfall and Forests.—There are so many apparent contradictions afloat in regard to the a influence of rainfall and forests mutually, that a good unprejudiced mind, capable of generalizing fairly, is much wanted. Most of our papers lately have insisted that rainfall is greater where forests exist. The *Gardener's Chronicle* of October 10th quotes "remarks studied for several years in Berne," which concludes "that the depth of rain and snow is greater in an open country than in a forest."

A Profound Thought.—It is not likely wheat will turn to chess, but when we see one usually amiable, become "cantankerous," there is no limit to the possibilities of nature.

The *Agriculturist* indulges in a sneer at a "wise man in Philadelphia," who was "in haste to announce a discovery," the haste being the asking of a competent committee to examine a specimen that had been sent to the Institution for that purpose.

Well, one who can tell his readers that if they let their stocks become frozen solidly in the ground, they will have to wait till a thaw comes before they can get them out! is not likely to be charged with "haste to announce a *discovery*," and we congratulate him on his impregnable position. And yet on account of the profundity of the thought, its mother is surely entitled to rank with the "wise," either "in Philadelphia" or elsewhere.

Utilization of Typha Weed.—The common cat-tail of our swamps, scientifically known as *Typha latifolia*, is susceptible of being used as food, for which purpose it is highly esteemed in some countries. The plant is perennial, and propagated by the formation of underground stems, containing much starchy matter. In Southern Russia the young shoots, when they push up in the spring, are cut and tied up, as asparagus for our markets, and sold in all the markets. Boiled as asparagus is boiled, and seasoned with salt and spice, it is pronounced quite delicious by all who have partaken of it. This plant is found, in more or less abundance, in swampy places all over the United States, and may very easily be introduced in places where it does not grow already.

The Phylloxera.—M. Planchon, who was commissioned by the Paris Academy of Sciences, at the request of the Government, to examine the vineyards of France, and propose remedies for the destruction of the Phylloxera, has addressed a note to that body on the extension of the creature in Europe, adhering strictly to the rule that no case should be recorded in which its presence on the vines is not clearly proved by those well-marked characteristics which distinguish it from the white or flowery cochineal and vine-louse, or phtheir of Strabo and the ancient Greeks. The insect is a native of America, and recently imported into Europe and its presence has been demonstrated in the vine-houses of England and Ireland since 1863; in the departments of the Gard, Vaucluse, Bouches-du-Rhone Drome, Ardeche, Var, and Herault, in France, from about the same date; in the Gironde, in the neighborhood of Bordeaux, the insects having been introduced into a garden there with some American plants: in Portugal, in the vicinity of the Douro and at Lisbon; and at Klosternenberg, near Vienna. Another member of the Academy has marked on a chart all the places where the insect has been found, and says that its ravages extend over at least 2½ millions of acres. The worst part of these reports is that it is declared that no efficient remedy has yet been found for this pest.—*Gardener's Chronicle.*

The Vine Disease in French Vineyards.—M. Armand writes very despondingly to the Academie des Sciences as to the disastrous increase in the ravages made by the Phylloxera among the French vineyards. He feels persuaded that in a few years' time the whole of the vines in Provence will have disappeared, unless some means of destroying the insect can be discovered. M. Cornu, who has been dispatched into the Bordeaux country by Government to report on the increasing damage caused by this scourge, declares that in nearly all the vineyards which run down to the river-banks the plants seem to have dried up, and that the vineyards in other situations have been attacked in such a way that the devastation is circular in shape; whence the expressive name of "oil spots," which indicates that the malady has spread from the centre to the circumference. The Phylloxera has, it is stated, not confined its attentions to the vine, fruit-trees everywhere in the same neighborhood having also suffered; and yet the grape crop is said to be greater in France this year than for many past.

Phylloxera Quercus.—The recent account of Phylloxera vitifoliæ or Vastratrix, in the *American Naturalist*, mentions that it is oviparous in summer, and hybernates in winter, and that there are no eggs then. In this it agrees with Phylloxera Quercus, which I have often observed, for more than twenty years, to lay eggs in summer and autumn, which eggs are shortly hatched, and their occupants do not lay eggs, but pass away in early winter, except a remnant, which must serve for the continuance of the race. As the moving power of the creature is very little, it cannot go far from the leaf, to whose recesses it must resort in the spring; and the means whereby it shelters itself from severe frost have not been observed. Other families of aphides pass the winter in the egg state; and Chaitophorus aceris is remarkable on account of its æstivation, or passing the summer in a suspension of growth, as is the case with some caterpillars; this occurs in a very early stage of its existence. P. Quercus is represented, beyond the Atlantic, by another Phylloxera (P. Rileyi, of Lichtenstein), which frequents Oaks in North America.—Francis Walker, in *Newman's Entomologist*

QUERIES AND ANSWERS.

Forest Meteorology.—*S.* writes: "I have seen, in a magazine lately, the 'editor of the *Gardener's Monthly*' quoted as proving that forests have no influence on the rainfall. It was a surprise to me, as I have been led to believe from the observations of distinguished men, that they have much influence. I remember especially Humboldt as being strongly of the opinion that

they have great influence; and especially that he refers to a lake in South America, which became almost dry after the forests were cut away about it. Still I should be glad to read what you have written about it. Being a new subscriber to the *Gardener's Monthly*, will perhaps excuse my ignorance."

[The editor of the *Gardener's Monthly* has made no special observations on this subject. He only endeavors to show that the arguments in favor of the views suggested partake rather of the character of special pleading than of science. He has no decided views of his own about it; but is waiting to find some. There has been really no more reason for placing the editor on that side, than for having Humboldt on the other. It is prejudice, not science, which hastes to place men on this side or on that, in spite of one's self. Humboldt was too great a scientist to place the proposition squarely that *because* the trees were cut away, the lake level fell. The periodical rise and fall of lakes occurs all over the world, quite independently of the vegetation about it. As for what Humboldt's actual belief was, if those who affect science on this matter were unprejudiced, they would be as likely perhaps to quote the following from Becquerels' *Observations*, as this bottomless lake notion. "These observations," Humboldt says, "tend to *demonstrate*, contrary to an *opinion* quite generally adopted, that since the first settlement of Europeans in Virginia and Pennsylvania, the climate on either side of the Alleghanies, *has not*, in consequence of the destruction of numbers of forests become more mild in winter and cool in summer than it was before. There has been no change whatever."

We wish, however, our correspondents would not bother us with these questions. There has been too much ill feeling, and passionate appeals to one-sided prejudices in the discussion of this question to suit our taste. If any one has any *actual facts* to offer, not opinions, we will gladly print them.—Ed. G. M.]

Dr. Le Conte's Essay.—*Mr. Elliott* says: "The article of Dr. Le Conte should be carefully read and considered. While the English sparrow and other birds are destructive of many insects, they cannot destroy all by natural powers, more than man can of beasts."

Gas Injurious to Trees.—*Mr. Elliott* says: "On page 339 of *Gardener's Monthly*, November, 1874, there is a word headed 'Gas Injurious to Trees.' In my profession as landscape gardener, I have been repeatedly called to tell why fine Maples and Elms were dying upon public streets. In all cases I have found a leakage from the gas pipes as the cause."

[Mr. Elliott of course refers to the injury as operating in the earth, and on the roots. We should suppose that everybody understood this in that sense, only we saw that a correspondent of the *Horticulturist*, some months ago, affected to believe that Mr. Sutherland was referring to gas "in the atmosphere" when he spoke of its injury to trees. We do not suppose any but that one gentleman was so dull; but for fear he may be induced to waste his valuable ammunition again in the pages of our cotemporary, we explain in behalf of Mr. Elliott.—Ed. G. M.]

Growth of Wood.—A correspondent asks: "Is there anything wonderful in the fact that a surface wound in the bark and into the heart of a tree may be healed over, or in other words the new formation of bark yearly, in time, bring together a complete covering of a once hollow? How many of old foresters will tell you of the trees they have chopped that were hollow at the base, and that showed the ridge of union, probably produced by yearly growths and overlaps in after years from a first abrasion."

[Wood increased by the germination of cells out of the cells of last year primarily, and then by successive broods from the new formed cells till the yearly growth ceases. This growth is of course from all the exposed parts, and must of necessity in time close openings in the trunk. There is not only nothing especially wonderful in the case presented by our correspondent, but is what must and always does take place.—Ed. G. M.]

Dying for a Joke.—A compound of wheat and chess was sent for examination to a public body, whereat the *Agriculturist* grinned. The *Tribune* published, as news, the proceedings of this body, and the *Tribune* saw the shining teeth also. Will it now be believed that the *Agriculturist* announces (not in its "humbug" column) its readiness to receive and examine the chess heads also! "What was your dog worth?" said the judge to the prosecutor of the slayer of his yellow cur. "Divil a cint was he worth yer honor; but be jabers I want to make him pay the full value of the baste, d'ye see."

Literature, Travels & Personal Notes.

EDITORIAL NOTES.

New California Nursery.—Prof. H. N. Bolander, well known in connection with California Botany, has taken a practical Horticulturist into partnership with him, in order to pursue the nursery business. All horticulturists congratulate themselves whenever intelligence takes part in these active pursuits, and the accession of Prof. Bolander to the nursery ranks in connection with his great knowledge of California plants, is an event worthy of special notice from us.

An Obscure Botanist.—An English paper gives an account of the life and services of a Botanist in humble life, not known beyond the town in which he lived, Wigan, in Lancashire, but who was so beloved by these country people that 1040 persons attended his funeral, and £150 was subscribed at the conclusion of the burial ceremony build to a monument of red granite to his memory.

Mr. Masters of the English Canterbury Nurseries.—Dr. Asa Gray, from a personal acquaintance, has written a feeling tribute to the memory of this model English Nurseryman. He, Mr. Masters, will be best known to American horticulturists as the father of the present chief editor of the London *Gardener's Chronicle*, who in his position is doing more perhaps to make gardening popular with intelligent people, than any one man in the world. Mr. Masters could have no better monument to mark the place in life that now knows him no more forever!

Origin of the Ohio Cultivator.—*F. R. E.* says: "Does T. S. R. really mean to say that he was the first publisher or editor, of the Journal called *Ohio Cultivator?* If he can show any proof of such act, it will be gratefully received by those who have been residents of Ohio 40 odd years."

Mr. James Fitz has recently written and published a work on southern pomology which we hear highly spoken of. It is entitled the *Southern Apple and Peach Culturist.*

CURRENT LITERATURE.

Cowan's Compensating System we have often referred to. The waste heat of lime kilns is used to heat greenhouses. Recently gas manufacture has been added. A pamphlet giving full accounts of this very profitable idea is before us, from A. F. Foster, sole agent for U. S., Columbia Avenue, Philadelphia.

A Netherland Catalogue.—We have before us the wholesale trade list of Mr. Coninck, of Dedemsvaart, near Zwolle, Netherlands, who is already known to our readers by some interesting correspondence. Special attention seems given, among other things, to hardy herbaceous plants.

Notice Sur quelques et varietes de Lis. Par J. H. Krelage. Published by E. H. Krelage & Sons, Haarlem, Holland. Part 1st.

This serial proposes to go into the whole history of Lilies, not only embracing all the species known. but their garden varieties, giving all that is known about them botanically or otherwise. This part takes up Lilium Thunbergianum, var. transiens flore pleno, L. tigrinum flore pleno, Lilium Wittei, Lilium Humboldtii; all of these are beautifully illustrated. There are also chapters on Lilium Thunbergianum and Lilium auratum. The work, though published in Holland, is in French, so that it will be readable to our more intelligent readers.

Additions to the List of Timber Trees and other Plants, Eligible for Industrial Culture in Melbourne, Australia. By Baron F. Von Mueller.—The first list was so interesting that we reprinted the whole in the *Gardener's Monthly*. The present additions occupy 40 closely printed pages, and shows how carefully Baron Von Mueller is watching Australian interests.

The Rural New Yorker.—A year or so ago, there were some unlikely rumors, that this good old agricultural paper was about to suspend. Instead of which it seems to have gone on stronger than ever. We do not know about how strong it is, but it is too good a paper to die. Only the useless and decrepid in the literary world die, neither of which is this. We have just gone through with a number carefully, in order to feel how its pulse is beating, and find it in excellent health and spirits The following, among other

good paragraphs, caught our eye, which we cordially endorse :

A Bureau of Dendrology.—This scheme to saddle on the people another Bureau for the benefit of a few individuals who do not know what to do with themselves, and who believe "the world owes them a living," is not given up. Congress is again to be importuned to establish such a Bureau and give the charge of it to parties who have the past two or three years been traveling about the country soliciting the indorsement of scientific and industrial societies. This proposed Bureau has already received the indorsement of the distinguished scientific body known as the Farmers' Club of the American Institute. It was attempted, the other night, to get a similar indorsement from the Polytechnic branch of the same Institute, but ingloriously failed. The fact is the whole scheme is "too thin." Fossils may indorse it; but *live*, thoughtful, sensible men, who know how such schemes work, are not likely to do so.

THE HEARTH AND HOME, as our readers know, was sold last year to the Graphic Company, who now issue it as a medium for the reproduction by their process of the finest works of the great artists. Horticulture prides itself on aiding in the advancement of all the fine arts, and we therefore congratulate the *H.* and *H.* on the success its enterprize is evidently meeting with.

THE AMERICAN NATURALIST, Salem, Mass. This excellent monthly is now in its ninth year, and has proved much more popular than a work devoted to the highest aim of natural history was expected to be. Unlike most publications which give attention to every day affairs, it can derive but little revenue from advertizing pages, and has to depend on subscriptions alone. Though its list is large, it requires an addition of about 500 to make it self-sustaining. With the increasing taste for natural history, these ought to come this year. The subscription is $4 a year.

HAMILTON COLLEGE, NEW YORK, ANNUAL CATALOGUE.—Among other interesting matter is a review of the college grounds, with a list of the trees, the aim being to have every hardy thing. There are but 114 in the list, however, about one third of what they might easily have.

A remarkable statement is made that the following is not hardy there (Clinton, N. Y.)

Cypress, Lawson's	Cupressus Lawsoniana
Pine, Lofty Bhotan	Pinus excelsa.
Silver Fir, Cephalonian	Picea Cephalonica.
Silver Fir, European	Picea pectinata.
Spruce Fir, Menzie's	Abies Menziezii.
Yew English	Taxus baccata.
" Irish	" Hibernica.
" Golden	" aurea.
" Silver	" argentea.

The interpretation of this is probably that plants of these kinds have died on the grounds. This is not for lack of hardiness. Plants die for many reasons besides this, both in winter and summer.

ROSE CATALOGUE.—Miller & Hays, of Germantown, Philadelphia, have entered into rose culture as a specialty. We have before us a beautiful descriptive catalogue, of twenty-two pages, wholly devoted to the Queen of flowers.

VICK'S FLORAL GUIDE.—Probably all the leading catalogues of the world come to our table, but we do not know that any thing published in Europe, equals in beauty or interest Vick's Floral Guide. This is the more remarkable, as it is not generally supposed American seed or nurserymen do as large a business as some Europeans. If it is not more profit, it must be more enterprize.

LITERARY NOTES.

OIL OF LAVENDER.—The harvest takes place in August. The cutting, which is done by the sickle, appears an art of itself, which affects the crop in the future year. The laborers are followed by women and girls, who immediately pack and tie the Lavender up in mats, to protect it from the rays of the sun, or otherwise the quantity of oil to be extracted would be reduced before it could be taken in hand at the distillery. Small quantities have been previously cut before they are fully ripe, for Covent Garden Market, or for sale about the towns and villages in the neighborhood. The distillery process is carried on upon the spot ; as the volumes of smoke from several chimneys, and the strong odor of herbs around the buildings, sufficiently testified to some very odoriferous process within ; for it must be remembered that Peppermint, Rosemary, Dill, Chamomile, as well as Lavender, have to find their way to the same crucial test. Beneath a brick-built shed stands a row of stills, with what are called worm-tubs attached to each still. Upon the ground-floor the furnaces are being attended, and the percolator watched, as a trickling noise indicates that the oil is being extracted by the process going on. Above the furnaces are the stills, of dimensions sufficient either to contain half a ton or a ton weight of herb, and the building is spacious enough to admit of carts being driven in for the purpose of unloading.

The still is filled thrice in 24 hours, namely, eight hours to a run. The men get upon the upper floor, remove the still-head by a lever, then take the Lavender from the mats, and tread the stalks down with their feet until the copper is tightly filled to the brim. Liquor at boiling heat is then taken from the top-surface of the worm-tub, although at the bottom and lower surface the water is quite cold, and the furnaces are set to work. The worm consists of piping attached to the head of the still, and passes round and round the tub which contains the cold water. The men watch the bringing over of the still—that is, the moment when the liquor begins to flow over the head into the worm. Directly it does so, they know that the oil is running, and immediately damp down the furnaces. The boiling liquor from the herbs, by passing through the tubing immersed in cold water, becomes condensed, and the oil separates from the water and runs into the percolator at the foot of the worm-tub. This bringing over is the most critical point in the whole operation ; then great attention and experience are needed, otherwise the herbs, both stalk and flower, might be taken into the worm, and the oil be spoiled. So well practised, however, are the men employed that what is called a "run foul" is scarcely known during the whole of the distilling season. From thence it is taken and placed in dark glass bottles with short necks, containing 4 lb. to 7 lb. each, ready for merchandising. When one lot has been distilled the still top is removed by the lever, and the charge taken out with long forks.

The steam and vapor that arise are very great —for the uninitiated quite overpowering ; and what is termed the "walk" being very heavy, the men themselves have to labor hard to get out the refuse, which is thrown just at the back of the building for manure. The coppers are filled up again with herbs, fresh water is pumped into the worm-tub to supply what has been taken off the surface for the still, and to replace what has passed off in the evaporation that has been always going on, and the process again proceeds. The quantity of oil extracted from a ton of Lavender varies according to the influence of the season : from 15 lb. to 16 lb. is considered a fair average, very seldom it reaches 21 lb., sometimes not more than 10 lb. The distilling lasts about two months, from the first week in August to the second week in October, according to the abundance or otherwise of the surrounding crop. The business itself is separate from the growing ; the small growers as well as the large take their crops to the distillery and pay a certain agreed-upon rate per ton. The results during the present season have been favorable, although the continuance of wet weather somewhat interfered with the outdoor work. These operations may be seen and inquired into by following out the route we had taken from Sutton, through Charlton to Wallington, thence by the footpaths across the Lavender fields to Beddington, and on to Waddon station upon the railway of the London and Brighton Company.—*Journal of Applied Science.*

ORIGIN OF DOUBLE ZONAL PELARGONIUMS. —I have read with interest in *The Garden* of December 27th, Mr. Peter Grieve's article on Zonal Pelargoniums. He therein regrets being unable to give the name of the originator, or the precise date of the introduction, of the double-flowering varieties. As, in my opinion, it is very interesting in the history of floriculture that the date of the introduction of a new plant or new variety should be preserved, I seize this opportunity of informing English horticulturists of the origin of the first double Zonal Pelargonium. M. Henri Lecoq, director of the Botanical Gardens of Clermont-Ferrand, department of Puy de Dome, France, wrote to me on the first of March, 1867, as follows : The first double Zonal Pelargonium has been cultivated here in my garden and many others, under the name of Triomphe de Gergovia, for several years (I cannot say how many), and nobody paid attention to it, thinking, like myself, that it was generally known. Seeds obtained from it were sown by M. Amblard, horticulturist, at Clermont-Ferrand, and produced several double-flowering varieties, one of which was named Gloire de Clermont, and sold to M. Louis Van Houtte, of Ghent, who changed the name and sold it under that of Ranunculiflora. Another double variety existed at the same time in the gardens of Clermont-Ferrand, under the name of Martial Champflour, which was of a

rather deeper color than Triomphe de Gergovia. In 1863, M. Emile Chate, horticulteur, of Paris, went to Clermont-Ferrand, and was struck with the appearance of these double Zonal Pelargoniums, and bought the stock of Triomphe de Gergovia, and Martial Champflour. In June, 1864, he sent some flowers of Triomphe de Gergovia, to which he had given the name of Auguste Ferrier, to M. Victor Lemoine, horticulturist, at Nancy, who immediately used the pollen of these flowers to fertilize Beaute de Suresnes, the finest single pink Zonal yet in existence, and obtained, from this artificial fecundation, in 1865, Gloire de Nancy, well known by all horticulturists, and till now the best formed double Zonal. In 1866. he obtained, by the same process, Triomphe; in 1867, Madame Lemoine, the first double cherry-pink Zonal, and Wilhelm Pfitzer, double scarlet; Marie Lemoine, one of the best of bloomers amongst the double Zonals; Le Vesuve, double red; Victor Lemoine, and Stella. National, Signet, Duc de Suez, Sapeur Pompier, Floribunda, Volcan, Prince du Teck, and several others sold in England by Messrs. Bull, Henderson, Carter, &c., are all seedlings of Victor Lemoine, although those who sold them did not acknowledge their origin. In 1869, I obtained by artificial impregnation from Boule des Hesperides, by Gloire de Nancy, Victoire de Lyon and Clemence Royer, the first of a purple shade, and the latter of a pure rose. In 1871, I obtained Charles Darwin, Frangois Arles Dufour, and Emilio-Castelar, all three more or less crimson. In 1872, I obtained the first double white, Aline Sisley, by artificial impregnation of a grand-daughter of Madame Vaucher by a double red of my seedlings. A great many double Zonals have been raised by Alegatiere, Chate, Crousse, and Aldebert, but all resembling, more or less, Gloire de Nancy and Madame Lemoine. The great and interesting facts are, that the first double Zonal Pelargonium was found, some fifteen years ago, at Clermont-Ferrand, where it had been overlooked for several years, and that the first improvement in form and color was obtained by M. Victor Lemoine, of Nancy, and the first double white from seed by me.—JEAN SISLEY, in *The Garden*.

AN EARTHLY PARADISE.—A correspondent recently arrived at Apia, sends to the *Alta California* an enthusiastic description of the Navigator Islands. He says that there are, perhaps, sixty European houses at Apia. The Group contains an area of 2,600 square miles, but this island is not to be surpassed for its beautiful climate, luxuriant foliage, and richness of the soil. The highest ridge is at an elevation of not more than 2,000 feet above the level of the sea, and more than three-fourths of the island is suitable for cultivation. The very rocks seem to bring forth vegetation; the eye cannot discover anything but the beautiful tropical verdure. Spices of all kinds are growing spontaneously. The valley abounds with nutmegs, ginger, curri plant, &c. In some parts the ground is covered with pine-apples, while the bread-fruit, guava, and other trees lend a perfect and delightful shade to traveler. Upolo is like no other place on our globe, and the stranger is forced to exclaim that it was the last place created. The Creator, beholding all the most beautiful things in nature, centred them on the Samoan group. Sunrise on this lovely spot is splendid beyond conception; thousands of birds sing forth the joy of returning day; everything is filled with life, and nature seems to have bestowed more than their share of beauty on the inhabitants. The central position of these islands points towards them in the future as being the great depot of commerce in Polynesia.

HISTORICAL NOTICE OF THE VINE.—It must have been in the east that the culture of the Vine first took its origin. The hieroglyphics of the ancient Egyptian temples show us that the making of wine dates back to as far as six thousand years from the present time. Vintage and wine-making scenes are still to be found in the tombs of Phtahhatep, situated in the necropolis of Memphis, which were depicted under the fifth dynasty, or about 4000 B. C. They are in "bas relief," and represent the cutting of the Grapes, and the trampling of them in the wine-press in order to extract the juice. The picture is terminated by a man in a drunken condition, which shows that even at that early period wine was not always partaken of in moderation.

In the other vintage scenes, reproduced by Champollion, are portrayed the cultivation of the Vine on wicker work frames, the gathering of the bunches, the system of watering employed in those days, the trampling of the fruit by men, held up by a cord attached to a tranverse beam supported upon two forked props, and finally, those untrustworthy vintagers who, in a drunken state, are receiving the persuasions of the bastinando in the presence of their master. Champollion also tells us, that at a feast celebrated at Alexandria, 284 years before the birth of Christ, on the occasion of the accession of Ptolemy Philadelphus to the throne, a chariot in honor of wine was included among those which formed part of the procession. It was a four-wheeled one, 20 cubits long and 16 broad, and was drawn by a team of three hundred men. In the middle was constructed a wine-press full of Grapes, which sixty satyrs trod, singing at the same time the wine-pressers' song to the accompaniment of the flute and other musical instruments. In this ceremony were also many children, who carried vessels for serving out the wine, of which twenty were gold, fifty silver, and three hundred of variously-colored enamels. Vines were often trained to wicker trellises, and were very regularly watered and tended during the time of the ancient Egyptians. Those used for the purpose of wine-making were in general the ones which remained over after the daily wants of the possessor were satisfied. When cut they were carried in baskets to a tub placed between two Date Palms, where they were immediately trodden out by men, supported by a rope which hung from one Palm tree to the other, or by means of the appliances we have noted above. The offering of wine is often delineated in the representation of religious rites. It is here seen shut up in large jars, which are firmly closed up and ranged along the cellars.

The production of cooked wine is also figured upon the monuments of ancient Egypt. The Grapes are placed in a large pot hung over a lighted furnace, and when sufficiently boiled the must and dregs are put into cloth, through which the clarified wine escapes into jars on the application of a strong twist given to the cloth by means of levers moved by hand-power. In another hieroglyphic the wine-press is in the form of a square tub, above which is a beam placed upon two forks. From this beam are hung strips of wood between which the Grapes are crushed, or bands of cloth in which they are pressed.

Dion reproaches the Egyptians with being great bibbers. The class which was prevented from drinking wine on account of its poverty, indulged in a kind of barley beer mixed with a bitter infusion of Lupin. Aristotle used to assert that those who became drunk with wine fell forwards, whilst those who got drunk upon beer fell backwards. Athenæus declares that drunkenness can been combated by eating boiled Cabbages. In ancient times the priests used to oppose the cultivation of the Vine, and tried even to put a stop to it. What justifies this feeling of the priests upon the danger likely to result from the abuse of wine under a climate such as theirs, is, that the most part of the North African people had adopted this measure long before the birth of the Prophet. The Egyptian priests contended that the use of wine prevented the wise men and philosophers from making discoveries, and that is why the Egyptian priest Calasiris, who played such a large part in the story of Heliodorus, refused constantly to drink it. This way of thinking, no doubt, arose from the fact that they applied themselves much to the study of geometry and astronomy, two sciences which require a great concentration of the mind. It is known that the effect of wine is bad in hot countries, and this is why none of it was ever presented to the Pharoahs.

Pythagoras also adopted, without restriction, the injunction of the Egyptian priests concerning wine. Moses, however, did not pay the slightest regard to it, and allowed his people to drink this liquor, for which they showed a peculiar propensity. Noah planted and cultivated the Vine in the old land of Gessen, now called Bir-aban-ballah, and at the present time one of the most beautiful agricultural districts belonging to the Khedive. With regard to Noah's Vine, here is a legend which has reference to the deluge.

When the ark was cleared of all the animals which had been shut up in it in order to escape the deluge, the Vine was not to be found, and Noah addressed himself then to the Angel Gabriel, in order to know what was become of it. He was told that the Devil had carried it off. On Noah demanding it of him, he obstinately refused to give it up, under the pretense that it belonged to him. "Very well, then," said the Angel Gabriel, "share it between you." "I am very well contented," replied Noah, "to give him the quarter." "That is not enough," said the Angel. "Very well then, the half." answered Noah. "That is not enough yet," continued Gabriel; "he must have two-thirds of it, the remainder is sufficient for you." By this the Angel of God would imply that as the juice of the Vine had the property of inebriating and destroying man's reason, it ought to be partaken of moderately by him.

The Egyptians cultivated their Vines as bushes—that is, they pruned them like shrubs without prop or trelliswork. They grew them

in this way in large enclosures near their dwellings.

Among the Romans the Vine was very frequently planted at the foot of Mulberries, Acacias, Poplars, and other trees with a bulky head. The shoots were allowed to grow to a great height, and were scarcely subjected to pruning. In this manner abundant and excellent raisins were gathered, and is still the system pursued in Italy. We have ourselves, in the outskirts of Bologna, seen immense fields of Vines planted near Mulberries and Maples, and arranged in long lines as in the cultivation of Maize and Hemp. We have grown the Vine thus in several parts of the Khedive's dominions, and have gathered abundant bunches of Grapes without pruning or culture.

The Egyptians must have brought the Vine from Asia, for they had carried the transferring of plants from one country to another to a great extent. The hieroglyphics still show us the Egyptians disembarking from the Red Sea with foreign plants, which they derived in their victorious incursions upon the Asiatic nations. It must have been from Asia, its original home, and where it is most often found in a wild state, that the Vine was introduced into Egypt. From Egypt it must have been carried to Greece and Italy, and thence into the centre and north of Europe. All clue as to the date of the introduction of the Vine into Europe is wanting. We only know that in the fifth century of the Christian era, the barbarians of the north were attracted into Gaul by the juice of the Grape, and then two hundred years had passed since the cultivation of it had been practiced upon the hills of the Rhone.—M. G. Delchevalrie.—(*Belgique Horticole.*)

Large Ivy Trees.—Mr. Noble will be glad to know that the large Ivy at Kenilworth (see p. 1294), is not a solitary one. There is a large Ivy growing at Fountains Abbey, Studley, Yorkshire. I measured it many years ago, and if I remember rightly it was then 33 inches in circumference, about 1 foot from the ground; the Ivy then looked in bad health, probably from the excavations carried on there about that time. Another fine Ivy is growing in the gardens here in full vigor, with a clean stem 6 feet before making a branch; the circumference of the stem about 1 foot above the ground is 3 feet and 1 inch; where it branches out it is larger, and also much larger near the ground. This Ivy is twisting round the stem of a Holly, 5 feet in circumference; out of the same root is growing another stem, a little less in size. At 10 feet high the Ivy has taken the second stem into its arms, the whole then becomes a perfect mass, each trying to outgrow the other: both are in vigorous health. For many years this mass was an impregnable fortress for sparrows and starlings. A few years since the rats took possession of the tree, and banished the birds, much to their disgust, and now the rats defy all attempts to dislodge them. The finest piece of Ivy I ever saw is growing at Snape Castle, also on this estate. I went there to measure the stem, but could not do so, as the Ivy branched direct from the ground. Part of the Castle is inhabited by a farmer, who took me into a neatly furnishud sitting room to see a great curiosity. A branch of the Ivy had worked its way through a small fissure of the thick wall, and grown around the room, forming a beautiful natural cornice, in perfect health, the color being a fine dark green. —W. Culverwell, Thorpe Perrow, Yorkshire; in *Gardener's Chronicle.*

Fruits Unknown to the Romans.—Among the fruits little cared for by the Romans, though profoundly in favor with ourselves, were Apricots, probably because of inferior sorts only, and those which are commonly called "bush fruits" —or Gooseberries, Currants and Raspberries. These three do not appear even to have been known to them; while their acquaintance with the Strawberry was only as a wilding of the hills, or brought down therefrom, just as cloud-berries, the produce of the Rubus chamæmorus, find their way occasionally into the fruit shops of the north of England, or as the Whortleberries of the moors where sportsmen go for grouse, come, in September, into the market places. Even at the present day the climate of Italy is found unsuited to the generous and always welcome little Rosewort; it succeeds only upon the higher grounds, and the same is to be said of the fruit-bearing species of Ribes, which flourish, as regards countries, in inverse proportion to the Olive and Fig. Where these hardy children of the north—the Gooseberry and Currant—attain perfection, the former are exotic curiosities. Contrariwise, where the Fig and Olive prosper, the others stand abashed, turn to evergreens, and forget their language. Mount Ida, close to the Hellespont, gave its name to the Raspberry, Rubus Idæus.—*The Garden.*

The Floating Gardens of Mexico.—When the city of Mexico was taken by the Spaniards under Cortez, in 1521, it occupied several islands in the lake Tetzcuco. The water, from various influences, chiefly volcanic, has since receded, and the city, although still retaining its ancient site, is now 2½ miles distant from the lake. At the time of the Spanish conquest, however, it presented very much the appearance of Venice, a "city in the sea," "throned on her hundred isles," the margins of whose broad and narrow canal-streets were in many places lined with splendid mansions. According to the ancient Spanish historians, the native Mexicans had at that time attained a high degree of perfection in various arts, for which they do not appear to have been in any way indebted to the civilization of the Old World, and which must have been an out-growth of unaided indigenous talent. Among the many novelties and wonders which met the eyes of the Spaniards, were the *chinampas*, or floating gardens, which abounded on the lake, and supplied the city with vegetables, fruits, and flowers, the latter being in great request amongst the Mexicans for decorating the altars of their gods. These gardens were formed by constructing a large raft from the reeds and other aquatic plants which grew by the shores of the lake, making it sufficiently firm and buoyant to sustain a quantity of soil which was spread over the surface, and kept in position by a low fence of wicker-work, or intertwined reeds and branches, which ran round the edge of the raft. The fertility of these little floating islands, owing to the constant supply of moisture, is very remarkable, and the old chroniclers describe them as being literally covered with flowers and fruit and verdure. The city of Mexico is still, to a great extent, supplied from these singular market-gardens, which form the sole support of some villagers on the shores of the lake, inhabited by families of the descendants of the aboriginal race who fell beneath the treachery of the sanguinary Cortez. Two of these villages, Santa Anita and Ixtacalco, which are not very far from Mexico, are particularly noted for the production of beautiful flowers, and, at certain seasons, when their floating gardens are in full bloom, they are a favorite resort of pleasure parties of the citizens. Our illustration affords an excellent idea of the structure and general appearance of these interesting horticultural contrivances, the sole heritage of the outraged people who once possessed the splendid city, the view of whose domes and spires, still proudly rising from the distant horizon on the other side of the lake, must often awaken in many a toiling breast sad memories of long-departed greatness.—W. M., in *Garden.*

A Nut Garden in England.—Previous to the year 1855 Mr. Webb grew nuts in a small way, much as his neighbor did, but finding the demand for them increasing, and the price rising in the market, he planted all the spare ground he had, about 10 acres, with nut trees, and these are now in full bearing order. The trees are planted diagonally, about 8 feet apart, two rows of nuts and one of fruit trees alternating, 640 trees being planted to the acre. The 10 acres are divided off into quarters, by grass paths, these paths on either side being edged with rows of Strawberries, and in their season with Wallflowers, Narcissus, etc. While the trees were small the ground was kept clean with the hoe; it was dug once a year for the first seven years, and it has only been manured once since the trees were put in, though for several years Mr. Webb has taken off good crops of Potatoes. The only dressing that he gives to the ground is rotten leaf-mould, a large stock of which he has generally in hand for this purpose. By growing Potatoes and such like crops on the ground while the trees are getting up, a fair return for the original outlay is received. It is only when the trees come into full bearing and attain a good size, which takes about seven years, that the nut plantation pays, and then the returns are more than cent. per cent., and go on increasing. On this subject Mr. Webb says, if the 640 trees bear at the rate of 1s. each, £32 per acre per annum is secured; and if they should bear 10s. each tree, it would amount to the almost fabulous sum of £320 per acre; and it is not too much to suppose that they will yield even more than that, for as a proof of it he "had six individuals a quarter of a day gathering the nuts from one tree, and they were all witnesses to the weight—110 lbs. of Cob Nuts." Nuts are sure bearers six years out of seven, and always saleable, and Mr. Webb has come to the conclusion that no crop can be planted that will yield so much money per acre. "Compared with land for building purposes, it will yield ten times the profit without any expense after the first few years, and then but trifling." I am here citing Mr. Webb's opinion; it is obvious that the reader must himself test their correctness. The nut

trees have grown into a perfect thicket, though in many instances they have been beaten in height by the fruit trees Of the latter only really first-class sorts are grown, and many of these this year carried enormous crops. The last season Mr. Webb considered only a moderate one for nuts, but the crops were very evenly distributed, and, I thought, plentiful. In a good season as many as from 1500 to 1800 lbs. of nuts have been picked in a day. When gathered they are stored in barrels of 100 lbs. weight each, and kept in a barn until sent away to market. Mr. Webb has raised a number of new nuts, which he calls Cob Filberts, remarkable for their size, excellent quality, and free-bearing properties, and it is these really fine sorts that he has principally planted.—*Gardener's Chronicle.*

JOSIAH HOOPES.—We recently stated that when people read of Josiah Hooper, they were to understand *Hoopes.* One of the best writers of the California *Horticulturist* is Mr. Hooper, and there is therefore the more reason to be accurate on the nomenclature, or each will wear the other's laurels.

Horticultural Societies.

COMMUNICATIONS.

MASSACHUSETTS HORTICULTURAL SOCIETY.

BY M.

This Society held its annual meeting in Boston on the 15th, 16th, 17th and 18th of September, the exhibition of plants and flowers being held in the Music Hall, and the fruits and vegetables in the Horticultural Hall. For plants, especially new and rare varieties, the display was superior to any of the Society's former exhibitions, showing the increasing love for the higher grade of plants in the vicinity of Boston.

For the collection of twelve greenhouse plants William Gray, Jr., was first with small, but healthy specimens of *Cocos plumosa*, *Phœnix reclinata*, *Phormium tenax variegatum*, *Chamædora elegantissima*, and others of similar character. Hovey & Co. received second for larger specimens, among which were good plants of *Pandanus reflexa* and *ornatus*, *Cycas Romaniana* and *Dracœna Veitchii* F. L. Ames had also twelve specimens of young but vigorous plants, among them *Maranta Lindenii* and *Warscewizella*, *Agave Xalapensis* and *Cibotium regale.* For variegated leaved plants, six in number, James Comley was finest with very good plants of *Croton Neisinannii*, *Dracœna Chelsonii*, *Phormium Colensoii*, and others, Hovey & Co. being second. For the best variegated leaved plants F. L. Ames was first with a magnificent plant of *Cissus discolor*, trained on an umbrella trellis; Mr. Gray second. For the best ornamental leaved plant not variegated, Mr. Gray received first for a large specimen of *Yucca recurva*, Hovey & Co. being second, with a very fine plant of *Pandanus Vandermeerschii.*

F. L. Ames received first for six varieties of Caladiums, which were in fine condition. Hovey & Co. got second for plants not so large, but very healthy. Ex-Governor Claflin had twelve very fine specimens of Ferns, for which he received first prize. Among them were good plants of *Adiantum Farleyense*, *Gleichenia spelunca* and *Todea peleucida;* S. A. Merrill being second. Mr. Claflin was also first for twelve Lycopods,—remarkably fine specimeus. For succulents and Cacti, Louis Guerineau was first in both classes; Hovey & Co. second. For Agaves, Hovey & Co. was first, and Charles S. Sargent second. Cut flowers were well represented, large collections being exhibited by C. H. B. Breck and Anthony McLaren.

The fruit exhibition was well represented in the different classes, especially the Apples, Peaches, Plums and Foreign Grapes, which were of good size and quality. The Pears and outdoor Grapes were not so good. Among the most conspicuous of the fruits, were twelve Peaches of E. Crawford from H. H. Hunnewell, and two bunches of Grapes—Victoria Hamburg —in F. L. Ames' collection of six varieties, which weighed respectively 5½ lbs. and 4 lbs., both being cut from a vine three years old, which also bore nine other bunches varying in weight from 1½ lbs. to 3 lbs. each.

The vegetables were a very good exhibition, the really good things being too numerous to mention. Four Onions were exhibited by Washburn & Co., Boston, which were grown on the seed farm of Messrs. Carters & Loudon, England. One of them, a Red Tripoli, measured 21 inches in circumference; and one of White Italian measured 20 inches in circumference.

Very fine collections of Gladioli were exhibited by A. McLaren and W. H. Spooner, among them the finest varieties in cultivation. The most attractive collection was a collection of Coniferæ from H. H. Hunnewell. They were really worth a visit to the Hall alone. Mr. Menand, nurseryman, Albany, N. Y., had two large lots of plants upon exhibition, for which he received the Society's bronze medal. The number of smaller collections were very numerous, some of them containing some of the rarest plants in cultivation. Altogether the exhibition was a complete success.

A PELARGONIUM SOCIETY.

BY THOMAS MOORE, BOTANICAL GARDEN, CHELSEA, LONDON, ENGLAND,

Permit me to bring under your notice, and to solicit your support for *The Pelargonium Society*, which has been recently established to promote the improvement of the various sections of the Pelargonium, to facilitate the introduction of new species and varieties, and to give system and method generally to the practice of hybridisation.

The Society proposes to accomplish these objects:

1st. By offering liberal prizes to be competed for by British and foreign exhibitors, and thus to afford raisers and cultivators an opportunity of forming an opinion as to the merits of new varieties, and to give the general public the means of judging the decorative value of these plants under superior cultivation.

2d. By determining the merits and distinctive qualities of new varieties, and their suitability for conservatory decoration or bedding-out purposes, or both.

3d. By cultivating all new varieties, British or foreign, side by side, and in conjunction with approved old kinds; during the first year under glass, and out-of-doors in the second year.

With reference to this point, the Society has reason to think that opportunities for carrying out these tests will be afforded by the Royal Horticultural Society at its Garden at Chiswick.

4th. By the formation of a register in which approved sorts shall be entered, and from which inferior varieties shall be eliminated.

In conjunction with this register, it is hoped that an accurate report of the means adopted, and of the results obtained, in the process of hybridization, may be kept, for the purpose of comparison and scientific study.

5th. By facilitating intercourse and interchange of opinion between raisers and cultivators.

It may here be remarked that the Society has already taken steps towards securing the due recognition of the labors of those to whose skill and patience we are indebted for improved varieties, by stipulating in its schedule that the name of the raiser be affixed to every plant exhibited—an act of simple justice, worthy of adoption in all similar cases. The Royal Horticultural Society also suggests the adoption of this recognition in clause vii. of rules attached to its recent schedules, but in lieu of a suggestion, it should be made "a condition" in offering the prizes.

EDITORIAL NOTES.

REPORT OF THE PENNSYLVANIA FRUIT GROWERS' SOCIETY FOR 1873 AND 1874.—Printed by the State.—The volume for 1873 was destroyed by fire, in the office of the State printer, hence the issue of the two volumes together. It is a work of 140 large pages, and full of interest, not only to Pennsylvanians, but to horticulturists everywhere. It has engravings of some of the most popular Pennsylvania Apples. Members of the Society get it free. $2.00 render one eligible for membership for one year.

FRUIT GROWERS' MEETINGS AND WINTER DISCUSSIONS.—Notices of these generally reach us too late to announce. The Western New York Society meets at Rochester 6th and 7th of January. It is one of the most alive of all, and the meetings are always looked forward to with pleasure by those within reach. P. Barry is President this season.

HORTICULTURAL EXHIBITIONS.—The London *Gardener's Chronicle* has some excellent hints on this subject. Among others we take the following brief notes:

"Every town and village of note now has its horticultural exhibition. Shows increase faster than good material out of which to make them. Large flowering plants cannot be dispensed with. Those societies get the best material who are

particular that just merit receives its due. Useless rules often hamper exhibitors, and do not serve the society. Railway companies always carry things for exhibition at half price. Some carry wholly free; and a few subscribe liberally besides all this, to the premiums. The Royal Horticultural Society provides wagons for porterage from the railroad to the hall; others do nothing and much dissatisfaction often exists in consequence. Some prizes should be awarded for collections, in which exhibitors may bring from any class they please; but high prizes are offered in order to produce the highest culture in special lines. It is extra culture which attracts the intelligent visitor. Continual variety must be sought, or interest wanes after a few years. A large class go to see and be seen,—their wants must not be forgotten. Exhibitions must be made instructive by cards and other means. The judges should be aided in every possible way. Things of one class should be distinguished from others by ribbons of different colors. Cups, plate, and so forth, are nuisances. Some constant exhibitors have enough to start a jeweler's shop. Exhibitors often bespeak places and do not take them. They should pay a fee to be confiscated for the good of the Society if they do not come. Mere arrangement should not be a subject for premiums. Taxes differ too much, and dissatisfied competitors become too abundant. Exhibitors who come late are a nuisance. Rules in regard to these should be stringent. Every article, so far as practicable, should be labeled. Gardening is not apt to be carried on to any large extent in towns, yet there the most visitors are to be found. It is wise to hold the shows there; but the most liberal inducements should be held out to exhibitors who come from a distance, as there are often the best gardening products."

INSECTS.—POTOMAC FRUIT GROWERS' SOCIETY.—At a recent meeting, Dr. Snodgrass stated that the sparrows were doing a good thing in the public parks by destroying worms and insects among the trees.

Major King had one charge against the sparrow: that it robs the nests and eats the eggs of our native song birds; and he wished to have our native birds more generally domesticated and protected.

D. O. Munson stated that, though the caterpillars prey on some kinds of the maple, they do not trouble the silver, white and sugar maples.

Capt. Smith reports that the crows are doing a great work in quickly and completely killing and clearing away the potato bugs—making clean work of them.

Dr Brainerd said that the guinea fowls eat and clear off the potato bug very readily, wherever they have a chance.

Capt. Smith kills off and rids his trees of the caterpillars by singeing them with a kerosene lamp or torch, holding the blaze under the webs. He cleans his own trees, and then goes to his neighbors' and does the same, and without the least injury to the trees or fruit.

Other members suggested other modes, as soap suds, wood ash ley, etc.

Earnest and general pleas for preservation of all the birds were urged by members, and the guinea fowl and turkey highly praised as insect destroyers and field and garden cleaners, especially the tobacco field and potato patch.

ALLEN'S PLANET DRILL, first brought to notice through our pages, we are pleased to note, took one of the two only silver medals awarded for improved agricultural implements at the recent great fair of the Franklin Institute in our city.

WEIGHT OF LARGE COOKING PEARS.—At a recent meeting of the Royal Horticultural Society, at London, the following are the weights of some of the Pears exhibited. By a "dish" we suppose six pears are meant:

"The two varieties represented in this section—Catillac and Uvedale's St. Germain—were well represented as to numbers, and more than well as to size, if that is judged a merit. Of Catillac there were fifteen dishes, and amongst these were samples from Mr. G. Thomas, weighing 10 lbs. 2oz.; from Mr. C. Ross, 8 lbs. 9oz.; from Mr. C. Tivey, 12¼ lbs.; from Mr. E. Keeler, gr. to H. Simmonds, Esq., Herne Hill, 8 lbs.; and from Mr. Scott, Merriott, 7 lbs. Mr. Pluck and Mr. G. T. Miles also exhibited fine samples, but the weights were not stated. In the Uvedale's St. Germain class there were dishes from Mr. Thomas weighing 14 lbs. 13oz.; from Mr. C. Tivey, 14 lbs.; and Mr. Scott, Merriott, 13 lbs. 5oz. In the class for the six heaviest pears of any variety, the Rev. T. C. Brehaut, Richmond House, Guernsey, contributed a dish of Uvedale's St. Germain, all grown on one cordon, of the astonishing total weight of 19 lbs. 13oz.! Mr. C. Tivey had a dish weighing 16½ lbs., and Mr. Scott, Merriott, one of 16 lbs. A heavy dish also came from Mr. F. Langlois, but the total weight was not stated.

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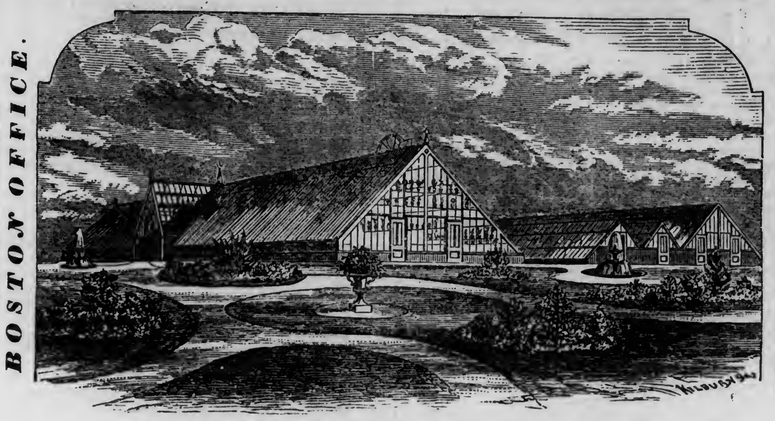

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The Gardener's Monthly,

DEVOTED TO

HORTICULTURE, ARBORICULTURE & RURAL AFFAIRS.

EDITED BY THOMAS MEEHAN.

Old Series—Vol. XVII. FEBRUARY, 1875. New Series—Vol. VIII. No. 2

Flower Garden and Pleasure Ground.

SEASONABLE HINTS.

It would be a capital work if some one would take in hand to go over horticultural literature and gather together all that has been certainly known in the theory and practice of gardening. Because this has not been done, every one thinks he has something new to tell, though it has over and over again been told. And indeed it is new to most of us, and simply because just such a work has never been done. Take up any paper we may, we see inquiries about salt as a manure, and recommendations to use or not to use salt in various ways. Yet we doubt whether any advice about it could be more clearly given than that below, which we extract from a writer on gardening, who wrote about one hundred and fifty years ago: "To show an acquaintance of mine the effects and advantages of salt properly applied to vegetables, I made the following experiment, in an extremely dry summer, upon a bare piece of pasture land, out of which the cattle were all taken for want of grass. I marked four places with stakes, each of which I watered nine nights successively in the following manner: The first with spring water alone, to the quantity of a gallon; the second with the same quantity of water, adding an ounce of common salt; the third and fourth with the same quantity, mixing the water in the third place with two ounces of salt; and that in the fourth with three ounces, which produced the following different effects:

"The grass in the second place grew more, and of a darker green than that in the first; in the third it only grew by spots, for part of it was killed where the greatest quantity of water fell; and the fourth was quite brown for a greater compass than the third, by which it appeared that an ounce of salt mixt with a gallon of water had a better effect than the water alone; and that three ounces of salt to one gallon of water was more than the grass would immediately receive; but the fourth place in the spring ensuing was the most fertile of them all, which was owing to the winter's moisture diluting the salts."

He goes on to say that "If what I have said with regard to salts, etc., appears not reasonable to some persons, I will not contend with them, but leave them to their own opinions," so that it appears even in those days, as in ours, there was a hardened class who distrusted things.

Now we have repeatedly called our readers' attention to the great value of salt as a top dressing for lawns, especially as regards its value in keeping the grass green. So many do not do it, that we felt some hint to be yet necessary. Not knowing, however, what we could say that was new, we have made this extract from old Thomas Hitt, in order to accomplish this novel purpose.

In those parts of the Union where frost is over, February is the great planting month, but do not plant immediately after the frost leaves the soil; wait till it dries a little, when you can tread the soil firmly about the roots without risk of rendering it hard, as it dries more. If circumstances make it necessary to plant in wet soil, do not press the soil much until it gets drier. It is important to have the soil well pressed about the roots, but it injures soil to press it when wet.

As soon as the frost leaves the ground, the

lawn should be rolled with a heavy roller, while it is yet soft; this will make it have a smooth surface, take out many small inequalities, and press again into the soil the roots of the finer grasses which the frost may have drawn out. Where new lawns have to be made next spring, the seeds should be sown as early in March as possible, and the ground should be prepared for that now, if opportunity offers. For a good lawn the soil should be loosened at least twenty inches deep, and be well enriched with stable manure, where practicable, in preference to any concentrated preparations. Guano, super-phosphates, etc., are well enough; but they do not give the soil that *fibre*, or lend it that *porosity* by which it retains moisture and air, so essential to perfect vegetation.

In regard to pruning and decorations, we can do no better than quote from our volume for 1868.

All pruning should be done as early as possible, for the later it is left, the weaker the shoots push; the roots store up sap all winter for a grand push in spring, and the end buds get most of the supply. By cutting back early the lower buds get time to fill up strong as the cut-away ones were. Hedges that have been neglected, and are to be renovated, should be cut down to six inches from the ground if not already done. Miserable things, mere trees of a dozen or twenty years standing, may be reconstructed most beautifully by this cutting down process.

Rustic adornments very often highly embellish grounds. These can be made of split wood nailed to board frames. The worst feature is that they rot away so soon in our climate as scarcely to serve long enough for the labor. To guard against this every part of the frame work should be tarred or painted, and the pieces used for the fancy work should be stripped of its bark, and painted of various shades of color to represent natural shades of bark. The effect is not so striking as when the bark is left on, but we have to sacrifice a little to permanence.

As a general rule evergreens please best when they are close and densely clothed with foliage. If one has thin open trees they can be made into the most enviable specimens by a judicious use of the knife. As soon as the frost has probably departed is an excellent time to do this. Cut back the growth of last year to within a few inches of where it started from. It is very essential, however, to remember that the whole plant, *leading shoot included*, must be done at one time. It is particularly essential that the leader be shortened. A new one will push, and generally will grow straight; if not, a little art will help it. Several leaders will come out sometimes, but of course all must be sprouted off but one. By this simple treatment, any dilapidated old scrub may be brought to the perfection of beauty, if it have not lost its lower branches, when, of course, it is beyond grace to restore. Pruning of all kinds should be got through with as soon as possible—the earlier this is done, the stronger will plants push in spring. Nothing weakens trees or shrubs more than to be cut severely just as the new growth is pushing.

COMMUNICATIONS.

WHAT I KNOW ABOUT WILLOWS.

BY W. T. HARDING, AGRICULTURAL COLLEGE, COLUMBUS, OHIO.

[*Concluded from page* 4.]

In South America, near the hot and sweltering Rio, is a secluded little cemetery, at the foot of which the waters of Gamboa Bay mourn, as "the sad sea waves" do, in tremulous monotones, a ceaseless lament for the dead. Altogether it seemed like a fit place in which the weary might slumber, undisturbed, beneath the palms and willows. Salix Babylonica, to which I allude, are exceedingly fine specimens, equal to any, I believe, in this or any other country. Again at the Cape of Good Hope, S. tetrasperma, S. formosa, S. Humboldtiana, S. Ægyptica, S. Babylonica and others, are as beautiful, vigorous and interesting, as willows always are. There was a very good collection growing in the private grounds of a Mr. Charlesworth, at Fals Bay; in fact the best I ever saw, with one exception.

Looking from the windows where this is written, I have, with much interest, observed a group of willows, S. candida, S. fragilis, S. lucida, S. alba, and have watched their pretty soft catkins come forth to announce "that a renovating spirit comes fanning his cheek with the breath of infant spring." The chilling winds, biting frosts and snow of the early season, seem not to retard or check their vernation in the least. No stress of weather keeps them back; inured as they are to every atmospheric change, they seem to enjoy the cold and bracing air. As the season advanced, they, modestly attired in the spring fashions, debonairly came out, becomingly apparelled in rich foliated mantles of pretty pea green.

And now these lovely wood-nymphs and sylvan beauties may be seen displaying their May morning charms, newly bathed in the evening's dew.

The peculiar green of the willow, as seen in the foreground, when backed by the more sombre shades of the forest, always presents a striking and pleasant feature in the landscape. When gently moved by the breezes, they seem to wave like rolling billows of vernal green. The Salix or willow family is one of the largest, and numbers upwards of two hundred and fifty species. They are widely scattered throughout Europe, Asia, Africa and America. Australia, I believe, has not one indigenous species. Although I saw a number of various kinds around Sidney, Melbourne and Adelaide, and in New Zealand and Tasmania, they were all foreigners. Sir W. J. Hooker observes, "the many important uses rendered to man by the different species of willow and osier, serve to rank them among the first in the list of economical plants."

During the last century in cold Lapland, Sweden and Norway, in seasons of scarcity, the inner bark, when mixed with oatmeal, was used for food, and has often served to eke out the miserable existence of the poor, through the long and dreary winters. In cold northern countries the leaves and twigs are collected and dried, to feed horses and cattle, and are considered good and nutritious fodder, upon which the animals feed and fatten. As a therapeutic agent, Salicine, prepared from the willow, has long been held in esteem by medical men, and like sulphate of quinine, is used in the treatment of such disorders as fever and ague. As the uses to which they are generally applied in commerce and the arts are well known, I will pass on to other remarks. In the days of Theophrastus, Cato, Pliny, Herodotus, Ovid and Virgil, who each notice them, they seem to have been used for similar purposes then, as they are now with us.

As every intelligent person has read the poetical allusions to the willow, from the royal psalmist's time to Herrick, Spencer, Shakspeare, Cowper, Montgomery and Byron, I need not quote from the old worthies, but merely remark,

> "When we hear the sound of a mountain stream,
> And feel the charm of a poet's dream,"

while listening to the wild wood notes of bird melody, recollections of happy times come back again of joys among the willows.

I am not aware that a salictum proper, or willow garden, can be found in this country, where good collections are under cultivation. Forming a part of a well ordered aboretum, they are exceedingly interesting. There are few persons, excepting horticulturists or arborists, who are aware of the great diversity of habit to be found among them. A few kinds, half a dozen or so, are frequently seen, mixed in with groups of other trees, or standing as single specimens on the lawn; but a full collection is as yet to be. Probably there is no better place than Fairmount Park, Philadelphia, to lay one out. In the extensive area within its limits, are many locations well adapted for so desirable a purpose. I previously suggested to the ruling powers of said Park, that some suitable spot, in connection with an arboretum, should be selected, laid out, and planted, and thus display, in a conspicuous and tangible manner, to the lovers of nature and science, some of the many arboreal beauties which adorn the world we live in. But unfortunately as long as the engineering planets are in the ascendant, such lesser lights as botany, arboriculture, horticulture and floriculture, will be dimly clouded, if not totally eclipsed by the bright luminaries. Beset and surrounded with such untoward circumstances, it behooves us to look for brighter skies and better prospects elsewhere, for some more favored spot. We naturally turn towards St. Louis, and the neighborhood of Boston, and hopefully expect that such noble minded, generous and intelligent men as Mr. Shaw, Mr. Wilder, Mr. Gray, Mr. Hunnewell, and Prof. Sargent, and a host of others blessed with similar tastes—progressive men—will carry out so grand a scheme. Such solid men as they, with ample means at their disposal, and who live to appreciate the beauties of nature, and enjoy the good our Father sends, and freely share with others the blessings of life, may justly be termed *pro bono publico* men.

The best nursery collections of willows I remember having seen in England, were at Girton's of Newark, Skirving's of Liverpool, May's of Bedale, Backhouse's of York, and Loddige's of Hackney; the latter probably the largest and best in Europe. The Duke of Bedford's excellent salictum at Woburn Abbey is by far the choicest private collection, and at the same time the most extensive and complete of any in the world, and is well worth crossing the Atlantic to see.

In designing and laying out a willow garden or salictum, it is not necessary, as many would suppose, to choose a swamp, because they generally seem to thrive well on the banks of streams,

and on marshy ground. They will grow well enough on terra firma. So there will be no need to put on a suit of India-rubber whenever we wish to pass a pleasant hour among them. Some species delight in a moist soil, and such as they should have one, if the nature of the ground will admit, but not a *wet* place. Others again flourish on the mountain peaks and sandy plains in Peru, Africa, India and China. From Greenland's icy mountains, to the hot sands of Senegal, the willow finds a home. Salix arctica and S. herbacea vegetate within the Arctic Circle, and grow nearer to the Pole than any other ligneous or woody plants. The latter, S. herbacea, only grows to the height of half an inch, and is said to be the least of all trees or shrubs.

We are told "there is no new thing under the sun," and yet the fact may be new to many readers of the "*Monthly*," that there is so great a variety and dissimilarity among willows. To illustrate the subject more fully, and for the benefit of those who may wish to form a salictum, I will name fifty species to begin with, as follows. The first set are twelve pigmies, or little tree wonders in their way, and average, when full grown, from half an inch to about a foot high:

Salix serpylillifolium,	Thyme-leaved willow.	
radicans,	rooting-branched	"
vaccinifolia,	Bilberry-leaved	"
planifolia,	flat-leaved	"
procumbers,	creeping	"
herbacea,	herbaceous	"
retusa,	blunt-leaved	"
prostrata,	prostrate	"
livida,	livid	"
polaris,	polar	"
betulifolia,	birch-leaved	"
humilis,	humble	"
Twelve from 30 *to* 90 *feet high.*		
Salix alba,	white willow.	
acuminata,	acuminated willow.	
fragilis,	crack	"
vitellina,	golden	"
Russelliana,	Bedford	"
rotundata,	rotund	"
cœrulea,	blue	"
triandra,	triandrous	"
lucida,	glossy	"
amygdalina,	Almond-leaved willow.	
undulata,	wave-leaved	"
Meyeriana,	Meyers	"
Twelve from 6 *to* 20 *feet high.*		
Salix rubra,	red willow.	
foliosa,	leafy	willow.
violacea,	violaceous	"
longifolia,	long-leaved	"
rigida,	stiff-leaved	"
mollissima,	softest	"
tenuifolia,	thin-leaved	"
Helvetica,	Swiss	"
damascina,	damson-leaved willow.	
decipiens,	deceptive	"
nigra,	black	"
purpurea,	purple	"
Fourteen Ornamental Species.		
Salix Babylonica,	weeping willow.	
laurina,	laurel-like	"
bicolor,	two-colored willow.	
rosmarinifolia,	Rosemary-leaved willow.	
caprea pendula,	Kilmarnock weeping	"
conifera,	cone-bearing willow.	
præcox,	early	"
crenulata,	curl-leaved	"
cordata,	heart-leaved	"
pendula nova,	American weeping willow	
caprea tricolor,	three-colored	"
latifolia,	broad-leaved	"
rupestris,	silky-rock	"
laurifolia variegata,	variegated laurel-leaved willow.	

EDITORIAL NOTES.

EUCALYPTUS.—Several intelligent friends have written to us in regard to planting this tree. We would, to one and all, say that all they have heard about may be true. No greater blessing in the way of a tree may ever have been given by kind Providence to man. In less than twenty years time, he who plants the Eucalyptus may have it cut into solid beams and rafters, or into planks or boards. The English have found it but little inferior to teak wood for ship building. A twelve year old tree may be cut into ties, and will last better than any wood we are in the habit of using for that purpose. He who plants a piece of ground with a lot of the Eucalyptus, will leave to his children, and children's children, a magnificent legacy. They will run up to 200 and 250 feet high, and will grow on otherwise useless soil.

Perhaps the finest feature of this blessed blue gum of Tasmania is its beneficent property of absorbing miasmatic gases In this way a plantation of Eucalyptus takes the fevers out of any unhealthy locality. Already the Faculty experiments with the bark and leaves as a substitute for quinine. Marshy low countries, river bottoms, alluvial soils, are, as it were, drained by it, and rendered fit for man's culture and habitation. There is but one drawback, and that, alas! for half the world wipes out the Eucalyptus. *It won't stand the frost.* A few frosts, and our giant —is dead. Consequently our friends living north of South Carolina may shed one tear, and give up Eucalyptus. Those south of South Carolina may go at it, tooth and nail, and if they will raise it on their flats, and sandy beaches, they will, in time, raise a fortune for themselves, and a national blessing for the whole country. One correspondent especially, who writes to us about making a plantation in *Maine*, may profit by these remarks.

ORNAMENTAL HEDGE.—The *New England Homestead* says: "Mr. Edwin Marsh, nearly a mile west of Agawam Centre, Mass., has a very handsome hedge of white pine. This tree was placed by Downing at the head of the beautiful evergreens. Planted near it is a well trimmed Hemlock hedge, and opposite, on the grounds of Mr. Goddard, a very beautiful hedge of the American Arborvitæ. On account of its brighter and never changing green, we had, in this case, to give our preference to the white pine. For dry sandy soil it is peculiarly adapted.

NEW PLANTS.

WEEPING MAMMOTH TREE.—The Mammoth tree of California—sequoia gigantia—has furnished the English nurserymen with a weeping variety. So far as we know, the Mammoth tree has not proved a success in the Atlantic States. It gets diseased in summer, and after a few years dies away. Of hundreds set out around Philadelphia, we only know of one living now. And this is sheltered from the summer sun, by tall white pines. No winds or frosts have hurt it. The cool shade however keeps the summer complaint from being rapid enough to destroy it. Three-fourths of the lower branches are killed; but it seems to keep a little ahead of death. This season we fancy it is better than for many years.

TRICOLORED ENGLISH BEECH.— A responsible English firm announces a new variety of the English Beech in which the leaves are "crimson, white and green," and "especially beautiful for the first six weeks after expansion." It is called the *Knowlfield variegated.*

A DOUBLE PANSY.—A few years ago a Double Pansy called "good gracious," made its appearance, but with a short lived popularity. There appears to be a new one now of the history of which we find the following in the Dublin *Gardener's Record:*—In last week's issue of your valuable paper we notice that a correspondent, "Observer," makes reference to the Double Pansy, "Lord Waverley," which we exhibited at the International Flower Show, lately held in Belfast. He gives a very accurate description of it, and leaves us little to add. It came (we believe) in a batch of seedlings some three years ago, and, finding it much superior in richness of color, abundance of bloom, size of flower, doubleness, and duration of time in flower, to the old double variety, we at once commenced to propagate it, and now have a good stock, which we intend sending out under the above name.

QUERIES.

EVERGREEN HEDGE.—*B.* says: What, in your opinion, is the best *evergreen* for making a hedge upon an exposed situation; something that will turn both man and beast. The arborvitæs are all too smooth for my purpose, and I desire an *evergreen.* Has the European Holly ever been tried, and if so with what success? Perhaps some of your numerous readers could enlighten us.

[Unfortunately "B." gives no residence, nor is there any clue to city, town or state without which it is impossible to answer his question.—ED. G. M.]

PURPLE WEEPING BEECH.—We have heard it suggested that there is really no such a thing, that there is some "mental *reservation*" in the statements made about this. We do not know how this may be; but it implies the necessity of caution in making purchases.

HARDINESS OF THE REDWOOD—TAXODIUM SEMPERVIRENS.—A Wisconsin correspondent asks how far north this can be grown. We believe that in the Middle States, even when preserved from wind, it generally kills to the snow line. If any one can give us facts we shall be obliged.

Greenhouse and House Gardening.

SEASONABLE HINTS.

We do not think we can offer more seasonable hints in this department, than the following in regard to insects, which we take from our usual column of answers to correspondents:

M. N. says: "Would it be too much to ask you for advice in your 'house gardening' department, what is the best way to kill the green bugs which annoy my window plants? I see tobacco smoke is recommended in the books, but I dislike the smell of the nasty stuff, and especially in the house."

It is difficult to get anything that will not be annoying from its odor, that will destroy insects. When we began to read the inquiry—so like so many we get—we had it in our mind to say, "Why do not these ladies so arrange that the gentlemen's smoking room, and the plant cabinet shall be combined in one? The smoker might then envelope himself in the most luxurious of clouds, and the lady of the house look on with approval, as 'bug' after 'bug' fell to the floor from the narcotic dose." But here we see even that will not do, as smoke in any case is disagreeable. Perhaps a compromise might be made in well-dried and pounded tobacco. The dust may be sprinkled over the infested parts. Hot water will be the next best thing. Heat the water to 120°, testing it by the thermometer. Dip the plant in, and take it out *instantaneously*, and the soft insects will be destroyed without the slightest injury to the plants, unless the leaves are very young and tender. This hot water plan for plants was first promulgated through the *Gardener's Monthly* many years ago, and has been found the best thing yet, as it is efficacious against all kinds of insects. Very light doses of coal oil have been found very destructive to all kinds of insects. Just enough poured on water to make a purple film is sufficient. If, however, it is applied through a water pot—the spout opening at the bottom of the pot—the water of course all goes out first, and the oil last, when there is too much for the plant's good. It is best to use a syringe. In this case a portion of oil is taken up with every syringeful, and spread as the water is ejected from the implement. A friend tells us that if coal oil be poured on chalk or magnesia the oil will be absorbed; and when in that condition it can be mixed with water like milk. It is best to strain it through muslin, so as to keep the thicker particles out. Nothing like this, however, will of course do in a lady's cabinet. Better have the nasty green bugs, than greasy spots about. On the whole, one of the safest plans for a lady is to have the pots taken out and set on their sides on a clean cloth or grass sward, and then powerfully syringed by warm soap suds. The very cleanliness seems to do them good, even though there be no insects on them. The pots should be laid on their sides, as it enables the syringe to operate better on the under surface of the leaves, and, besides, saves the plants from saturation by water. Too much water for pot plants is as bad as too many bugs.

COMMUNICATIONS.

UPON THE EFFECT OF COLORED LIGHT ON VEGETATION.

BY J. M. W. KITCHEN, MORRISTOWN, N. J.

That colored light has had an effect on plant-growth is a fact; has been noted for many years, but so far as I know, very little is practically known about the matter. I propose to tell what I have observed in regard to this subject, during the past few years, in the hope that others may be drawn out to give their experience.

First, let us overhaul our chemistry on the subject. The sun's rays, upon being decomposed through a prism, are found to be composed of three primary principles, viz.: heat, luminous and chemical rays, and these apparently are further divided into other rays, seven of which are visible, and are the so called colors of the rainbow. All of these different rays run, more or less, into one another, though their maximum of strength is situated as follows: The maximum principle of heat is just beyond the red ray of the solar spectrum. This is easily proved by running a thermometer along the spectrum. The luminous ray being the arc that gives us vision, has its greatest power in the green and yellow rays. And that there is a chemical ray beyond the violet of the spectrum we know, because a photograph can be taken in the dark by merely turning this invisible ray upon the object to be photographed.

Now what effect do these several principles have on plant growth? *Theoretically* I should say, that the chemical ray is the germinating power, and has to do with the early and woody growth of the plant. The luminous ray does the plant coloring business, and the heat comes in to effect flowering and fruiting of the plant.

I might mention numerous illustrations that would seem to back up this theory. For instance, in the regular season for growth, we get the largest wood growth in the season when there is not a great heat; but with plenty of light and the chemical ray in preponderance, then the fruit comes only after the heat has a chance to do its office. Plants will grow without the luminous ray, but do not get their color under such circumstances. Fruit to ripen must have heat, and can do it very well without the chemical or luminous rays. I have grown fine grapes, with the clusters tied up in paper bags from the time of flowering till the picking.

A fact more in chemistry. Bodies have the power of reflecting the colors that to our eyes seem *their* color, and of absorbing the other rays. Now when we shade a greenhouse with a white shading, we screen out a part of the sun's rays. and transmit, by reflection, the remainder in an unaltered condition, simply because white being composed of all the primary colors, reflects and absorbs them equally. But if we shade a greenhouse with red glass, we should find that the heat rays were transmitted into the house, and the chemical and a large part of the luminous rays, absorbed into the glass itself. And if we replace the red with blue glass, we will find that the chemical, and part of the luminous rays are transmitted, while the whole, or most of the heat rays, are absorbed by the glass. This can easily be tested by placing blue and plain sheets of glass in the sunlight. The blue ones will be much warmer than the plain ones on this account.

There can be no doubt but that plants generally require the three principles in sunlight for their perfection, but not always in equal proportions. Some plants like shade, others must have the fullest light, others find heat their greatest essential, and I take it, that it evinces the gardener's skill, who understands the matter well enough, to give his plants the requisite conditions for perfection in this matter, as well as others. Gardeners practice a great deal of this principle without knowing anything theoretically about it. Why does the grape grower, when ripening his fruit, shade his house, or fill it with watery vapor? Simply to supply to his vines the heat ray in preponderance. In the first instance the chemical and luminous rays are stopped at the surface, and the heat supplied mechanically. In the other every particle of vapor becomes a prison, and the heat rays are given more directly, while the blue rays are refracted upward.

I cannot agree with an extract in the *Monthly* of last year (1873), in which the writer claims that the giving of colors to plants other than white are injurious. For I have had too much practical benefit from the use of these principles to agree with him. To be sure it will not do to use the colors indiscriminately and without judgment, for like other good things, such as guano, for instance, too much can be used.

Practically, my observations have been on blue light, and I find it acts about as follows: In the dead of winter—say for two months—I have received no benefit from it, and in some cases positive injury.

In spring and fall a blue light cast on most plants seems to act upon them as a stimulator to wood growth, and in case of plants that were grown for foliage or its woody growth, such as Smilax, Rose Geranium, Lettuce, etc., it has been of the greatest practical value. Its influence at all times has seemed to retard flowering or fruiting. In summer I find a blue light good for plants that need a lowering of temperature, and will stand deprivation of the luminous ray, and in case it is desirable to keep up a wood growth. Its influence on such plants as are wanted to rest at this season, or to flower, is generally injurious.

When blue light is used as a stimulator to plant-growth, like other stimulants, it must not be used too much, for there would certainly result a disproportionate growth. Hence I would generally condemn the practice of making a permanent fixture of blue glass in plant-houses, for though the effect might be good at first, there would be a tendency to an ill effect as time passed.

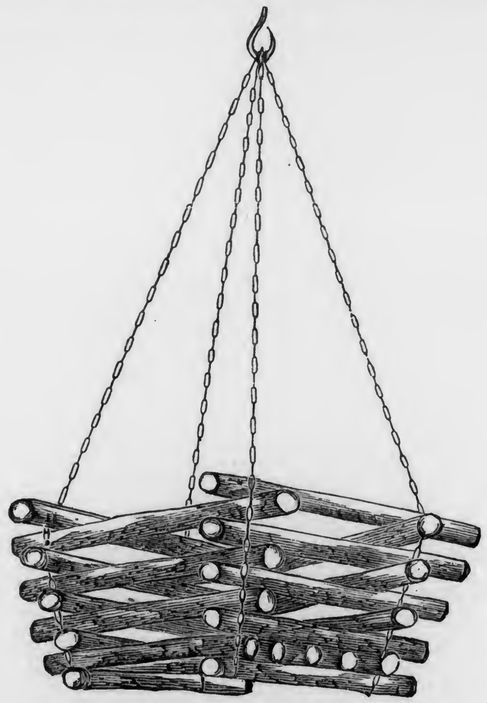
HANGING BASKETS.

BY L. L., CAZENOVIA, N. Y.

Your magazine has had some pleasant articles on baskets, lately, and the plants best suited to them. I have not seen my style of basket des-

cribed as yet, and as I find it very good, I send to you, if you can make any use of the idea. Mine are made of round maple sticks, about 1 inch in diameter, 8 inches in length at the bottom, increasing to 14 at the top. In constructing, begin at the bottom and build up, log-cabin fashion; chink the openings with green moss, and line the whole basket with the same. They are easily kept moist, and the plants droop and twine over them very gracefully.

[The drawing sent was not quite clear. We have made the chains attach to the lower pair



of rods. Such a basket, we suppose, would need no boring and wiring the ends, except the bottom ones, so as to keep them all in place, as it is usual with orchid baskets. The earth inside, and the chains out, make all compact; and this idea, as we understand it, is one of the most useful hints we have had in basket making, and for which we are sure most of our readers will thank the lady who sends it to us.—Ed. G. M.]

EDITORIAL NOTES.

Mikania scandens.—A few years ago this was advertised in the English papers. We have an idea that the real Mikania scandens, has not been introduced to modern English cultivators, and that perhaps *Senecio scandens* was intended. Do our readers know whether the real Mikania scandens is in England?

French Love of Flowers.—An American in Paris writes as follows:—"The French woman must have her daily supply of flowers even if she is compelled to stint her table to obtain them. When she purchases the substantials for her breakfast she is sure to take home with her a bouquet of flowers. You will scarcely pass a window at an inhabitable house where, from the basement to the pens erected upon the roofs, six or seven stories from the ground, there is not a display of flower-pots. Having secured quarters high up in the Louvre we can look down upon the upper stories of the neighboring houses, in each room of which there appears to be a separate family. They seem to be tailors, and at daybreak in the morning the men are plying their needles, and the women preparing for breakfast and arranging their bouquets for the breakfast table. The cultivation of flowers in all the palace gardens and squares, and even by the street sides in the Champs Elysees, is carried

to perfection. The Luxembourg garden is the finest display of flowers cultivated in the open air I have ever witnessed, and it is thronged every evening with admiring visitors. So also at the Jardin des Plantes, which we visited this afternoon. It was crowded with visitors, and the flowers attracted more attention than the great exhibition of the cattle of the field, the bird of the air, the beast of the jungle, and the fish of the sea, which are here collected, and open free to the inspection of the public."

Whittemore's Portable Window Garden is a contrivance which is just now meeting popularity. It is a contrivance for holding pots that can be fitted outside a window sill, without being screwed to the wall, and which will bear a weight of 100 lbs.

Propagating Zonal Pelargoniums.—I Have been asked to give some details respecting striking cuttings of Pelargoniums of the Scarlet section.

The first consideration is the size of the cuttings. The larger the cutting, the larger under like circumstances will be the plant. The smaller the cutting the less room it will occupy. Middle-sized cuttings are generally the best, as most medium modes and ways are. I have not the least objection to place a single cutting in a small pot, or a dozen in a larger one, or five dozen in such a portable rough box as I have lately described. I use the latter, and place the cuttings thickly, because room could not be found for them if separately or thinly planted. Whether they are placed in rather large pots or these shallow wooden boxes, if we are making several hundreds of cuttings at a time, they are thrown into two or three heaps, according to their size; as the future plants will not only do better but look better if each receptacle has plants of a similar height. Suppose some Geranium cuttings of one kind to be 7 inches, some 4, and some 2½ inches long, how much better they look when sized, the doing of which takes up no more time.

With regard to removing leaves from the cuttings or allowing the leaves to remain, I am asked, What is my general practice? The whole question lies in a nutshell. Provided you can place a cutting in such conditions of shade and atmospheric moisture as to force the leaves to absorb as much as they perspire, the more foliage that is left the sooner will you have a strong, healthy, well-balanced plant. If these conditions cannot be given, the more leaves left the more will the juices of the cutting be perspired, and dropping and flagging will be the result. This is not so conspicuous in a Geranium cutting as in most plants, as the succulent stem makes the cutting so much more independent. In general circumstances it is best to remove a portion of the lower leaves, and thus lessen the evaporating surface, leaving the top leaves to carry on the natural functions. This may be deemed the medium path of safety. In the case of a large number of cuttings which must be struck and wintered in little space, say 2 inches from cutting to cutting, the leaves would only be in the way, would soon damp from crowding, require picking-off, and thus cause an expenditure of labor.—*Cor. of Journal of Horticulture.*

NEW PLANTS.

Ivy-leaved Pelargonium L'Elegante.—This charming variety is in beautiful condition now in a house of mine which has not yet had the benefit of fire-heat. It is several degrees more hardy than any of the Zonals, and no one can doubt its decorative value and its noble distinctness. About this time last year I brought home a scrap cut from a plant half a day's journey away from home, and it lay on my table until it was nearly dead. Then, "just for fun," I cut the scrap into two, and stuck the two bits into a pot in which some cuttings of Sedums were planted. In the month of May following they were nice plants, and they did duty during the summer in a rustic basket, and now they are in pots, nicely trained up as pryamids, and for beauty worth their weight in gold.—*Gardener's Weekly.*

Crassula lactea.—A beautifully bloomed plant of Crassula lactea has just been shown to us by Mr. Thomson, of Penge, who finds it to be a favorite with people who are fond of winter flowers, and yet have nothing better than a window or cool greenhouse in which to grow them. It is a fleshy-leaved plant, which, though not more than 9 inches in height, bears a profusion of branching spikes of pretty white star-like flowers that last long in perfection. Belonging, as it does, to a family whose head quarters are at the Cape of Good Hope, it is, of course, not absolutely hardy; but it will nevertheless stand a good deal of hard treatment, and as a winter-flowering window plant has few equals at this season of the year.—*Journal of Horticulture.*

MANETTIA BICOLOR. This is an evergreen stove twiner, with narrow pale green leaves, and long, small, tube-shaped flowers, the tube scarlet and the end yellow. Though the flowers are small they are very abundantly produced, rendering the plant very attractive and desirable both for decorative purposes and for supplying cut flowers. With me it commences to flower in November, and continues to bloom until spring is far advanced. The small sprigs, with their elegant and numerous blossoms, disposed amongst cut flowers, give an elegance that few other plants can impart; for though large flowers are very effective, without subjects such as this they lack elegance.

The plant succeeds well if planted out in the compost recommended for Passiflora princeps, and will do well in a pot, the shoots being trained to an upright close top or flat trainer. Whether planted out or grown in pots, the treatment does not differ. It needs to have the soil moist in winter, although then so much water is not needed as in summer.

When the flowering is over, in April or May, cut the plant in rather closely, leaving, however, any small young shoots; but if the plant is as large as desired, cut off any long shoots, and thin out the old ones considerably. Top-dress the border if the plant is planted out; or, if grown in a pot, turn it out, reduce the ball considerably, and repot in the same size of pot. Water moderately until the plant is growing freely, and then copiously. When the roots reach the sides of the pot shift into one a size larger; this should be done by July. Mealy bug spreads more rapidly on this than any plant I know.

The shoots, as they grow, should be trained in regularly, and to keep them from matting they should be gone over frequently. After September water less copiously; give no water as long as the foliage keeps fresh; so continue until the flowers show; afterwards water to keep them gently growing. A light and airy position is required.

ADIANTUM GRACILLIMUM (*Moore.*)—The genius Adiantum has probably contributed more beautiful plants to our fern-houses than any other belonging to the order, and the species now offered for the first time is a sufficient proof that its stores of beauty are not yet exhausted. In the well-known *A. Farleyense* we have a massive grandeur found in no other species, and in *A. gracillimum* we have the most elegant and graceful form yet introduced, so that wherever these plants are grown, these two extreme forms will assuredly become great favorites. The fronds are about a foot long, and from eight to nine inches across; they are very distinctly five times pinnate, the ultimate pinnules standing wide apart on their rachis, and having a distinct stalk, while they measure from about one-sixteenth to one-eighth of an inch in length, very few, indeed, being larger; these and a few of the longer ones being generally cut into about two or three shallow lobes; many of them, however, are not lobed, but have at the top a slit or sinus, at the base of which the orbicular indusium is situated so that the sinus is completely filled out; the texture of the frond is very thin and fragile, and its color is a very pale yellowish-tinted olive-green; the multiplicity of minute pinnules, and the almost invisible ramifications of the rachis give the plant a peculiarly charming appearance; its light and graceful fronds will render it simply invaluable to the bouquetist, while its hardiness will commend it to all fern growers for decorative purposes.—B. S. WILLIAMS.

QUERIES.

Mrs. L. D. says: "Please tell me what to do with the 'Cyperus alternifolius.' I have a fine plant in a rustic stand, and would like to know how to treat it."

[This is usually considered a very easy plant to manage. As soon as the old culms look shabby, they should be cut away, when new ones will come up from the roots. In other respects there is nothing more required than ordinary plants get.—ED. G. M.]

COOL SOIL FOR ROSES.—*J. W. K.* says: "How does your cool soil do for roses? We find that we have need of bottom heat, in order to get good rose-buds in winter."

[Yet, you cannot have good rose-buds in winter, unless the earth is kept at over 60°. "Cool soil" is a comparative term. When we speak of "cool soil" in orchard culture, we mean a soil of from 70° to 80° in comparison with one of 90° or 100°.—ED. G M.]

PELARGONIUMS.—*E. L. H.* says: "I am very much interested in the cultivation of Pelargoniums, and, having quite a collection myself, am very anxious to produce such show plants as I saw in London, and once at an exhibition in Brooklyn, seven years since, from a private garden in Astoria. As the season for propagating them will soon be here, will not some of your correspondents give the desired information to those who have but little knowledge on the subject?"

ACHÆNIA MOLLIS is the name referred to by A. S. M. "Is there such a plant as *Acharnia?* I send a leaf of a plant that I am desirous of finding out the *true* name."

DOUBLE WHITE CAMELLIAS.—*A., Reading, Pa.*, says: "I would feel obliged to you, or some of your numerous correspondents, who may have had experience in growing the *double* Camellias from *cuttings*, to tell me whether plants so raised are equal (all things considered) to those grafted upon the single varieties. I have special reference to the whites."

[We are inclined to favor the grafted plants; but shall be glad to hear what our readers have to say.—ED. G. M.]

QUERIES.—Will those who have various queries in one letter, write only on one side of the paper. It is best to write on one side only in any case.

Fruit and Vegetable Gardening.

SEASONABLE HINTS.

In no department of gardening is it more difficult to give practical rules than in fruit culture. How to plant, to prune, or to cultivate, depends on so large a number of circumstances, that no rule applies. Take pruning for instance. There are some who say, do not ever put a knife on your trees, and they carry out their teachings by excellent practice. We saw, once, an orchard at Leavenworth, Kansas, owned by Dr. Stayman, treated on this plan. It was an immense success. It would be folly to prune them; and yet we know that in thousands of cases a judicious use of the knife would be essential to great success. So in regard to planting fruit trees. In many cases a tree must be set no deeper in the earth than will just serve to have its roots covered; but on sandy soil this would not do. There is no danger from planting deep in a sandy soil; and if the soil is very sandy, it might be put a couple of feet without injury. And then if the soil is wet, it is best to put the tree simply on the ground, and draw the earth up over the roots. As for cultivation, it is just the same. Continually harrowing or plowing among roots, do little injury in a sandy soil, while in heavy earths the same culture would be next to death to the trees; and then as regards heat, we now know that a very high temperature is injurious to the roots of fruit trees, so in those parts of our country where the sun warms the earth to excess, the cultivator will be especially anxious to clothe the surface with living and cool vegetation; while the northern man, with no more warmth in the soil than he needs, will tell you he has just as good crops from his clean surface orchard, as any one can have from growing any green crop between the trees. In all cases of advice about fruit trees, therefore, one should be very careful about taking it, unless the time and place of giving the advice be well understood.

In the vegetable garden we have few hints to give to those who grow for profit. Few seldom go into the vegetable business until they have had some amateur experience, and after this they know how to make money better than we can tell them. But the amateur may be benefitted by what we say, and he can go into the profitable line afterwards.

In managing the vegetable garden the highest excellence should be aimed at. This is the chief source of pleasure in a garden. If one can take no pleasure in his garden; if the watching of the beautiful processes of nature is furnishing him food; and the many lessons they teach him, which he in a thousand ways can so pleasurably and profitably apply, have no charms or attractions for him, he had better give up gardening; for, assuredly, in most cases—even to ninety-nine in one hundred instances—the market gardener will bring the vegetables to his own door

cheaper than he can grow them. Amateur gardening should primarily be pursued for the lessons it teaches, and the pleasure it affords. When it ceases to do this it should be abandoned.

One of the most interesting parts of a vegetable garden is a hot-bed for starting seeds early. The end of the month will be time enough for those who have not command of a large supply of stable manure, as the very low temperature we often get at the end of the month, soon absorbs all the heat the hot-bed possessed. It is in any event best to put up the beds in the warmest and most sheltered spots we can find, and to keep cold winds from the manure, by covering it with branches of trees or mats; and the glass should always be covered with mats at night. Tomatoes, Egg-plants, Peppers and Cucumbers, are the first seeds to be sown this way. Cooler frames can be got ready for Cauliflower, Lettuce, Beets, Celery and Early York Cabbage, a little of which may be sown about the end of the month for the earliest crop. The Cauliflower is a particularly valued vegetable, and no expense spared to get them in perfection will be regretted when one's efforts are successful.

In the open air, should the weather prove favorable, as it often is about the end of the month, Peas and Potatoes may be planted. Frost seldom gets deep enough in new dug ground to injure them after this date.

In the more southern states the gardener will lose no time in getting in his Potatoes, Beets, Carrots, Parsnips, Peas, Spinach, Radishes, Lettuce, Onions and Salsafy. These should be the first crops put in after the season breaks up for good. The earlier they are put in the better. Asparagus, Rhubarb and Horse Radish beds may now be made. Asparagus roots are generally planted too thickly to produce fine shoots —they starve one another. A bed five feet wide should have three rows, and the plants set about eighteen inches apart. A deep soil is very important, as the succulent stems require every chance they can get for obtaining moisture. About four inches beneath the soil is sufficient to plant them. Rhubarb also requires a deep, rich and moist soil. Horse Radish beds are best made by taking pieces of strong roots, about one inch long, and making a hole about a foot or fifteen inches deep, with a dibble, and dropping the piece to the bottom of the hole; a clean, straight root will then rise up through the soil. Crowns or eyes are better than pieces of roots—where they can be had—and a rich, clayey soil better than a light, sandy one.

About the middle or end of the month, or still later in the north—say the middle of March—Celery and late Cabbage may be sown. Here, we usually sow the second week in March.

COMMUNICATIONS.

FORMATION OF VINE BORDERS.

BY GEORGE CORBETT, GARDENER TO JOHN R. DAVEY, ESQ., COLLEGE HILL, CINCINNATI.

The cultivation of the foreign Grape under glass is now becoming very popular in some parts of this country, and may eventually, in a few years, be thoroughly abreast with floriculture.

The vinery is sometimes found under the charge of an amateur, whose knowledge of the requirements of the vine is often limited, and far too often miserable results are produced. Doubtless the fact of the vine border being injudiciously performed, is the cause of more failures than all other evils combined. Having had some experience in this operation under various systems, I will make a few suggestions for the amateur, based only on what I have observed. The various locations differ so widely in elevation and natural conditions of the soil, that a precise rule can hardly be given.

The excavation of the natural soil for an outside border will, under most circumstances, be from 3 to 4 feet. An 8 feet border will be ample for a period of four years, when 8 more feet should be added. I would strongly recommend a concrete of lime or chalk for vine borders. No doubt many will object to this as being unnecessary, but my observations have taught me that the concrete is an essential; absolutely necessary, on all subsoils, both in low damp situations, and in more elevated positions. In the former it has a tendency to check the percolation of water, when the springs are at their highest, and the rainfall great. In the latter case the concrete will act as a safeguard in preventing all roots descending into the subsoil, where we have no control over them.

Some years ago, while the writer was serving in a large fruit growing establishment, this was put to a practical test. Two large vine borders were formed side by side. No. 1 was concreted, No. 2 was not. The result of the former was all that could be desired, while the latter, in course of time, the fruit showed evidence of shanking, and air roots produced in abundance, indicating unhealthy root action. Examination exposed the evil. The roots, in their search for moisture, had penetrated the subsoil, and so laid the foundation of a great evil. But this is only one case out of many. A concrete of 3 inches thick will be sufficient. As a general rule drain pipes should be laid along the front of the border, and in very wet situations an occasional drain from back to front, all having a gradual slope to the front drain. About 10 inches of drainage is necessary. This may consist of brick rubble and old mortar. Two layers of turves, each 4 inches thick, should be placed over the drainage. This followed by a compost of 2 feet, consisting of stiffish yellow loam,—the top 4 inches of an old pasture is best. The loam should not be chopped very fine; and if time is not so much an object, a portion of the loam may be burned. This will have a tendency to prevent the soil from becoming soddened, when the fibre decays. I have found in all places, that wire worm is more or less present in good loam. The process of burning will destroy them. But if loam is secured in slight frosty weather, it will be observed that wire worm descends below the frozen soil, hence they can be avoided. Bone dust should be liberally incorporated—say 8 or 10 per cent.—thereby using less rotten manure. In the purchase of bone dust, I would advise the testing of its purity by putting it in water, when the dust will float, and anything added extraneously will sink. A little road scrapings and old mortar will improve the whole compost.

For all general purposes, an unlimited border will be found the most suitable, especially in the hands of those not skilled in the requirements of the vine, as to water, etc.

The walls of the vinery should be built on arch, or somewhat equivalent to that, allowing the roots to pass inside and outside.

The advantages of inside borders are these: you can secure a warmer and drier medium for the roots, which is certainly beneficial in early forcing, and for the ripening up of some of the Muscat Grapes. But inside borders require continuous attention, and where matured grapes are not required prior to May or June, an unlimited border will be found the most preferable.

SPREAD OF THE PHYLLOXERA.

BY M.

The Phylloxera, that pest of grapes, which, once there, cannot be got rid of, and defies the investigations of scientific men, has, like epizotic animals, been put under the supervision of Government in France and Switzerland. Wherever it appears the place has to be treated so as to prevent the spread.

One of the Rothschilds has, in Pregny, Switzerland, a fine country place, and a cold grapery on it. The Phylloxera appeared; consternation all around, for the Phylloxera does not travel more than fifty miles a season, and had not been heard from at less than three hundred miles distance; Government sends its officers to Pregny; a "crowner's quest" is held, and it appears that the vines have been imported a year ago from England *in pots*. Verdict, "Phylloxera in pots traveled by railroad, unbeknown to proprietor." Moral: Don't import any vines from Europe, and don't buy any such imported."

[The Phylloxera is an American "Institution," and if it comes back to us from England, it is but retribution.—Ed. G. M.]

THE CURRANT.

BY GEO. CRUICKSHANKS, LANDSCAPE GARDENER, WHITINSVILLE, MASS.

There is perhaps no small fruit so generally grown throughout the country as the Currant. But with the Currant we have an enemy to fight before we can get the fruit. My first experience with the Currant Worm was in 1866, when I applied the usual remedies then used, such as whale oil soap—four pounds to thirty-two gallons of water—wood ashes, air-slacked lime, if applied often, would keep the worms off; but with the return of the next season would make a new and larger army to fight, and then I found it necessary to try something more powerful. In May, 1870, I began using kerosene with whale oil soap, increasing the kerosene till it would kill the worm and not injure the foliage of the plant. I used five pounds of whale oil soap, and one wine quart of kerosene to twenty-five gallons of soft water to mix. Stir the soap and kerosene together till thoroughly mixed; add two pails of hot water, stir till the soap is dissolved, then add the balance of cold water, and it is ready for use. Apply with a syringe, with *force*, in bright sunshine. I do it in the middle of the forenoon. Since I have used this solution, I have had few Currant worms after two or three applications with *force in bright sunshine*. The sun dries the liquid on the leaves;

whereas, if applied in the evening, as is the custom of many, the falling dew gives the worm a chance to revive, so as to go on with his work of destruction the following day. Having Currant bushes planted in different parts of the garden, I applied different remedies, so as to see which would be the most effectual.

Where the kerosene and soap was used, I had no worms after two years. In 1873 I had a barrel of the liquid all mixed, and ready for use by the usual time the worm makes his appearance, but could find no worms to use it on. This solution not only kills the Currant worm, but cleans the bushes of other insects that infest them and invigorates the plants.

There is, perhaps, no remedy so often recommended as white hellebore, either by dusting or mixing with water, and applying with a syringe. Many object to using this, it being a poison. I have an old friend that had his Currant bushes dusted with white hellebore, when the worms first made their appearance last season. While picking the ripe fruit he got his hands badly poisoned.

EDITORIAL NOTES.

NOTICES OF FRUITS.—Friends occasionally write to the editor that if this or that article will find a place in our columns, they will advertise, etc. The editor has no control or interest in the advertising department, and can only admit into the reading columns what he thinks of public interest. But those who wish to advertise, by addressing the publisher, will find him liberal.

HYBRIDIZING RASPBERRIES.—Mr. W. Saunders, of London, Canada, has been very successful in raising hybrids between the Black Caps and Red Raspberry. Mr. A. Fahnestock, of Toledo, Ohio, is also a worker in the same field, and we understand with excellent results.

ROGER'S GRAPES.—Mr. Batcham, in *Cleveland Herald*, writes warmly of the success in that region of the Wilder, Barry and Salem, of the Roger's hybrid grapes.

A GRAPE COMPANY.—Mr. Batcham says that a company has been formed to purchase and push the Rickett's seedling grapes.

THE JUCUNDA STRAWBERRY.—A Massachusetts correspondent of Philadelphia *Practical Farmer* says of this fine fruit:

"The Jucunda has pleased me most and brought me the most money to an acre, of any Strawberry I have ever grown, and have tried every variety up to time of this writing that has been introduced. It is somewhat particular about its soil and care, and is in fact truly aristocratic; but I can grow it on my loamy soil with fair cultivation, and have prime berries five weeks from the same vines, and quantities of them. The vines will do well three years if properly managed; but it *never* can be a berry for the whole country, needing a particular kind of soil and too much care. There is a berry wanted to take the place of Wilson's Albany, that will do as that has formerly done—well on all soils, and with ordinary care; and the man who gives the country *such* a berry ought 'to make his mark' with it, long or broad."

HASKELL'S SWEET APPLE.—A correspondent of the *Maine Farmer* says that in many districts in Maine this is regarded as the most profitable of all sweet apples.

CHARACTER OF PEARS.—It is worthy of note on how slender a thread a reputation may hang. Some years ago we received a box of Cuyahoga Grapes. They were delicious, and of course we said so. But the variety never took a high stand; and we do not think we ever after tasted it in such good condition as the first fruit sent. We took up a box of "Fox 169" Seedling Pears a few days ago. The first one we ate led us to the reflection as to what Mr. F. could see so excellent in that pear, and we made our notes read "good," and so forth, regretting all the while the disappointment which our good friend would experience reading our candid opinion of his fruit. But we tried another, and lo! we could safely say, we never ate anything in the Pear way more delicious. It is not safe to offer any opinion on a fruit, good or bad, on a few specimens; and when people read this or that as to what any editor says about a variety, it is well to remember these things.

NEW FRUITS & VEGETABLES.

PYRUS MAULEI.—Europeans are just now interested in what is represented to be a new fruit from Japan. We stated some time ago, that so far as we could tell from the written accounts, it was but a form of *Pyrus japonica*. In reply to an inquiry, Messrs. Maule, the introducers kindly send us the following note:

Any information respecting Pyrus Maulei, is interesting just now, as it has a battle to fight and some of our first in the trade have just

come to your conclusion, and view it in the same light, in the face of every thing to the contrary. There can be no doubt it is closely allied to Cydonia japonica or in that class of plants. We got the seed from Capt. Alcock's expedition some 8 or 9 years ago, so that if a variety of Cydonia japonica it is new as a variety if not a "species." You say the old sort does well with you, and fruits abundantly; is it made any use of? Can you eat it or make any thing like a good marmalade? It fruits here abundantly, in some parts seldom or never ripens, and is always most *acrid* and *bitter*. Your climate may alter its condition, and shall be glad to know if so."

[We believe that though the plant fruits abundantly in this climate, no use has ever been made of this fruit of the Pyrus or Cydonia japonica. However, since the above was written for us, we note that Mr. Masters, one of the best authorities, has pronounced the P. Maulei a distinct species, and we all look for its introduction here with interest.—ED. G. M.]

THE ALEXANDER AND AMSDEN PEACHES.—Mr. Capps says: I notice that you are very cautious in what you say of our new early peach, the Alexander. It is perfectly right that you should be cautious in recommending any new fruit; but if we have fruit from our Alexander trees this year we hope to be able to convince you that it is no humbug. We have only fruited it two seasons and only in this locality. It may be possible that its extreme earliness may be the result of the unusually dry summers which we have been having, but see no reason why this effect should be confined to this variety. The Amsden peach is said to have ripened some 20 days earlier than the Alexander, but 200 miles south of this place, will account for the difference. On the Illinois Central Rail Road we are told that 10 miles make one day difference in the time of ripening, at this rate 200 miles would just make the difference claimed. We think the Alexander will prove about as early, and considerably larger.

DREER'S IMPROVED LIMA BEAN.—Paschall Morris says: "It is the product of the ordinary green lima bean, selections from which were commenced thirty years ago by H. Kimber, of Chester County, Pennsylvania. By annually making careful selections of the earliest and largest and finest specimens it has been brought to its present state of perfection assuming all the fixed characters of a standard variety."

EARLY BEATRICE PEACH.—Cultivators are still anxious to learn all they can about this early peach. The following is said to be the opinion of Mr. P. J. Berckmans, who is generally very careful about forming an opinion unless the evidence is conclusive.

"Early Beatrice matured some six days before Hale's on an average; fruit sound, of good appearance, but quite small. In quality, hardly different from Hale's, which we class as best. It has the same flesh and adheres slightly to the stone—a characteristic of very early peaches."

QUERIES.

ILLINOIS FRUITS IN 1873.—A correspondent from central Illinois says: "Our crop of Apples was quite light; bloom in the spring very abundant, but dropped badly; trees much injured by winter of 1872-3; Pear trees about all dead; Peach crop was pretty good; old trees about used up; the Curculio leaves us no Plums; Cherry crop light; Grapes abundant, Concord from two to three cents per pound. Small fruit, except Strawberries, were abundant. The Ben Davis and Wine Sap are taking the lead here as the most productive and profitable varieties of Apples. They possess all the good qualities that can be desired in an Apple, except good rich flavor. In this they are sadly deficient.

FORCE OF HABIT.—*M.* says: "The invention of a new sauce, or of a new way to cook an old vegetable, seems mathematically equal to raising seedlings and finding new kinds. It certainly seems far superior to the pursuit of the common drudgery and the common round of agriculture. Yet how do we look upon the man who, for the benefit of all the world, and for his individual satisfaction, studies cooking, shirt-sleeves rolled up, pots simmering, etc., etc.? Fill up the picture, honest reader, and tell me which of the two ought to be the highest in your estimation.

[Is the cook to have a patent right?—ED. G. M.]

RIPLEY APPLE.—An Iowa correspondent inquires if we know anything of this western Apple. We do not of our own experience. Indeed all we know is the following, which we extract from the *Boston Journal of Horticulture*, written when Mr. Flagg was associate editor, and, we suppose, from his pen:

"Said to be a seedling from a tree planted ten years ago by N. L. Ripley, of Collinsville, for which he suggests the name 'Ripley,' and describes it as follows:—The fruit is medium to large in size, oblate in form, and generally somewhat conical; halves unequal, making it somewhat lopsided. The specimens sent, which are under the average size, measure three inches in breadth by two and five-eights in height. The calyx is large and closed, the stem medium in length and rather slender. The skin is smooth and shining, and the color a greenish ground, nearly covered with a brilliant crimson, and marked with numerous white dots. Flesh white, firm, moderately juicy; sub-acid, and in quality 'very good' to 'best.' Core rather small, and closed, so as to make the centre of the apple nearly solid. Season, the present year, last of August and September; but this is exceptionally early. The tree is said to be thrifty, well shaped, and tolerably productive."

BRANDYWINE RASPBERRY.—*E. G. M., Baltimore, Md.*, says: "I suppose, from the article on page 270, that the Brandywine is the Raspberry most to be desired for general use. I do not grow 'for profit'—only for a good sized family."

[We shall be glad if any one who has had experience with this in other localities than that referred to in our last article, will give us their experience.—ED. G. M.]

Editorial.

TRAVELING RECOLLECTIONS.

No people more truly love gardens than Americans. In many European countries, one must keep his garden to be fashionable. To ride in one's carriage, to keep one's servant, to have a garden,—these are tests of respectability. When an American makes a garden, it is because he loves it. He hardly expects to leave it to his family, for the old homestead has no reverence in the eyes of our laws. Neither has it any commercial value, for the land is worth just so much per foot, and no more, no matter how evenly the lawn may be laid, or how rare the trees growing on the land. There is little doubt but that most American gardens are the pure emanations of real horticultural love. And yet one would not think this, as he travels through the country, and finds so many neglected places, and so much that savors of garden indifference, where considerable pretentions to gardening are made. But it is generally apparent that this state of things exists from a miscalculation of what one is easily able to do. The garden costs more than it was expected to, or it was made when times were good, without thought of tomorrow. The end is that it is a painful exhauster of resources, instead of the source of enjoyment anticipated in the beginning. Once in a while we find some who, with abundant means for large gardens or grounds, are satisfied with small ones. Then we find gardening just what it was intended to be. No pleasure can be greater than to spend an hour in a place like this. The most insensible to garden charms, ceases to wonder why the early poets put the first pair in a garden, and why they were supposed to enter a world of woe when the early garden gate closed behind them.

One such a place we found last year, not a thousand miles away from home, but near to our own door. It was about the time when Apples and Grapes were ripe, that we met one of our readers, who complimented us on what we had said about Cornell's Fancy Apple at various times, and invited the writer to visit his place at Chestnut Hill, if we felt like knowing just what Cornell's Fancy would do. Of course we knew enough about that Apple. An editor always knows enough. Still we are always in favor of an overflowing measure, especially in our knowledge of good things, so that we may have all we need for ourselves, and a little to spare for our readers.

Our friend's grounds, we suppose not to exceed three acres; we do not know exactly how large they are; but the arrangement is such, and the points of interest so numerous, that one may take half a day at leisure without feeling that he has exhausted them all.

Of course we went at once to the tree of Cor-

Fancy. It was an old tree—perhaps fifty years old—that had been top grafted several years ago with this fine Pennsylvania seedling. It is so beautiful, so productive, so large, and so good, that for a September fruit no one could want a better. If we had been tempted as powerfully as Eve was, we should have selected just such a tree as this to steal from. The best plant of the comparatively new Hydrangea paniculata grandiflora we ever saw was here. It had several dozen of its large changeable white heads. With a little training by the pruning knife, no plant will probably compete with this in attracting attention during the summer months. The flowers dry beautifully, and without much trouble, and make nice winter parlor ornaments. A Pampas Grass near it showed what it could do when in perfection. Few know how truly beautiful it can become under the right kind of care. With a score or two of dense pure white spikes, borne eight feet or more high, it is certainly unique in the grass line. Most of our readers know that one of the striking differences between closely allied species of European and American trees, is the diffuse growth of the latter. If we are in doubt whether a tree is an European or an American Linden, an European or an American Horse Chestnut, an European or an American Beech, and so forth, the close growing formal tree will be the European, and the loose and open one the American. Generally the European is, by the neat and trim, deemed the handsomer form. But an American Beech here; in the vigor of youth, is so extremely beautiful; its growth, though still with its American spreading character, is so uniform, that for its size we may say we never saw a more beautiful Beech tree.

Apart from the rarity and beauty of the specimens of the trees and shrubs, the superior health and successful production of fruits and fruit trees of all ages and conditions is worthy of special note. The grounds, many years ago, were part of an old farm apple orchard. Many of these old trees yet remain, and are quite as good as new. They are now on the lawn and the grass is as neatly shaven and shorn under the trees by the lawn mower, as ever razor kept the most fastidious Norman beard. Among the most productive and most desirable in every respect of these old varieties, are the Roman Stem and White Doctor. Few people around here have Apples. "The Codlin Moth and the Stem Borer get them all." They "are scrubby or knotty, and blisters and spots spoil them." "Apples won't grow about here any more. What's the reason?" And then we have a philosophical disquisition on potash and climatal changes. The forests have been cut away, and goodness knows what. Nothing but an appeal to Congress for a genuine fruit or forest tree law, will ever make the Apples grow again. It is needless to say our friend laughs at all these things. He fights the moulds and the bugs. For the former he uses soap. Little pellets are placed in the crotches of the branches, and the rains and dews carry the soapy current down. Besides this the stems are washed with soapy water once in a while. We suppose it is utterly absurd to some. "Nature does not wash trees with soapy water." Well, he does; and nature never had beautiful trees like these. In the war against insects, he uses wide-mouthed bottles with sweetened liquid. It is sad to think that friend and foe alike perish here. Some say the worst insects are not caught in these bottles. In this case they must be shy of visiting our friend's grounds. The most of his fruit is free from insect damages. The ground is rather rolling; some of it has to be terraced, and of course this is the chance to have good grapes and strawberries. It is not a mere use of words, but a deliberate expression of opinion, that no grape vine in the United States can excel the one we saw here, covering two sides of a large stable. It was a Concord, and neatly and skilfully trained over the whole surface. The leaves were large and of the darkest green, and thousands of large black bunches glistened between them. It is truly wonderful how it could do so well, growing out of a hard well-traveled gravel walk in front of it, and nothing but the closely mown lawn beyond. On one of the terrace-banks is a row of grapes, of many of the choicest kinds, and all doing remarkably well; the Maxatawney particularly so. This is a great favorite with the owner. They were grafted on some strong growing kind, Concord probably. He grafts in the winter season, and below the surface of the ground. When grafted in spring the flow of sap prevents an union of cells. Most failures in grape grafting comes from forgetfulness of this little fact. The Raspberry seems quite at home here on a cool knoll. The Brinkle Orange was doing admirably, and this is a fair test of good Raspberry treatment. Where that will do well, any will. The Herstine is a great favorite with him, and in Strawberries the Boyden's No. 30;

though Jucunda and all the fine varieties do well. Some new imported kinds were under trial.

The vegetable garden was no less an interesting sight to see than the fruits and flowers. Every thing orderly and healthy, it was more of a *garden* than many a person's flower and pleasure grounds. The Tomatoes were trained on branching stakes much as we have often recommended, and were as near perfection as any well could be. The fall Peas, however, interested us as much as anything on the grounds, as every gardener knows how hard it is to get them, they mildew so. Our friend says that there is an art in selecting in each locality the exact time. With him he never fails if the Peas are sown between the 10th and 15th of August

We leave our "recollections" of this extremely interesting little place, by closing with our opening advice to all who would have gardens, not to have them too large. If it is in contemplation to make one, and it is supposed ten acres can readily be afforded and maintained, cut it down to five, and we know the time will come when the *Gardener's Monthly* will be thanked for the advice.

Natural History and Science.

COMMUNICATIONS.

SEEDS—THEIR GERMINATION.

BY REV. L. J. TEMPLIN, UNION CITY, INDIANA.

In all the realm of nature there is nothing more wonderful or interesting than a perfect seed. It is a plant in embryo. It contains, not only the germ that may be developed into a future plant, but the parent plant has so stamped its own characteristics on that germ, that the plant produced will be, with occasional variations within narrow limits, an exact counterpart of its parent. A seed is inimitable by art. With all his knowledge of, and control over the materials and forces of nature, man cannot construct a seed. He may compound and combine his elements as he will, yet he will fall infinitely short of the accomplishment of this end. None but the Author of life Himself can endow it with vitality. Perhaps no object in nature more clearly and impressively teaches the existence of a Great, Living, First cause, than the tiny seed. The changes that take place in the seed during germination and the early growth of the plant, are full of interest to the student of nature. My object in this paper, is to glance at and to notice more particularly some of the conditions that affect these changes favorably and otherwise. A seed is composed essentially of three parts—the radix or root germ, the plumule or leaf germ, and a store of plant food laid up for the use of the plant during its early stages of growth. This store of plant food usually constitutes by far the larger proportion of the seed. In most seeds this consists largely of starch, besides which various seeds contain glutin, albumen, oils, gums, and other constituents in greater or less proportions. The starch is insoluble in cold water, hence the vitality of seeds is greatly prolonged under favorable circumstances. Just how long seeds will retain their vitality is an unsettled point. In order that healthy germination may take place, the seed must be placed under the influence of suitable portions of moisture, heat, and the oxygen of the atmosphere. By the absorption of moisture the seed swells and the oxygen of the air is admitted which combines with a portion of the substance of the seed forming carbonic acid gas which is given off to the surrounding medium. This process of combination is a true combustion, and by it a certain degree of heat is generated. But the greater part of the heat necessary for the germination of seeds, must be furnished from other sources. The amount of heat necessary for this purpose, varies with almost every different species of seed. Some alpine plants are known to begin their growth at the temperature of melting ice, while many tropical plants require a very high degree of heat for their germination. When the proper conditions of moisture, heat, and air are furnished, the process of germination begins, and then begin a series of interesting chemical changes. The starch being insoluble in cold water is not in a condition to minister directly to the wants

of the developing germ. Indeed starch, as such, cannot be appropriated by the plant to its use, but it must undergo very important changes before it is of any direct benefit to the plant. In order to produce these changes, a substance known as diastose is formed at the base of the germ. This is supposed to be produced at the expense of the glutin or albumen of the seed. The office of this substance is to convert the starch into grape-sugar, which is real food of the young plant. The wisdom and beauty of this arrangement is apparent to every reflecting mind. The food of the future plant is laid up in the form of insoluble starch, that remains intact for years, and even for centuries, under favorable conditions; but as soon as it is placed under suitable conditions for germination, it calls to its aid this new agent, diastose, that proceeds at once to convert the starch into sugar that is easily soluble, and which is the appropriate food of the germ. And further, as soon as this substance has completed its work by transforming all the starch, or so much as may be necessary to enable the plant to obtain its support from the soil and atmosphere, it is itself absorbed by the plant and appropriated to its use. The conditions of moisture, heat and air, are absolutely essential to germination, as that process cannot take place in the absence of either of them. But there are others that though perhaps not really necessary, yet have a very important bearing on germination. The first I shall notice is that solar light has a very injurious effect on the germination of seeds. We have already seen that during the process of germination, the seed absorbs oxygen which combining with the carbon of the seed is given off in the form of carbonic acid gas. Now it is found that in the presence of sunlight, living vegetables absorb carbonic acid, and give off oxygen, the very reverse of the operation that takes place during the development of the germ. Thus it will be seen, why seeds should be covered up in the dark. Nature generally observes this order, by scattering leaves over the fallen seeds, or by causing them to settle down into the soil, out of the reach of the rays of sunlight. But while the direct rays of solar light are injurious to the growing germ, it is found that certain rays known as the chemical rays, blue, violet, and green, when separated from the luminous rays, have a very decided effect in hastening the germination of seeds. These rays of light are thought to have a beneficial effect on seeds buried in the soil, by their power of penetrating to some depth, while the other rays not possessing this power of penetration are cut off. We find also,—and the wisdom of the arrangement is worthy of remark,—that these chemical rays, so much needed in the process of germination, predominate in the light during the spring months; and when the summer arrives, the luminous rays that have the maximum effect in the production of vegetable substances, are in excess; while in autumn, the calorific rays, that chiefly influence the development of the fruit, predominate. What better proof could we ask of both the wisdom and goodness of Him who has established laws for the government of all the works He has made?

By the use of differently colored glasses in greenhouses, florists may utilize a knowledge of these laws of light, in the accomplishment of the various operations in the production of plants. By having a department covered with blue glass for the germination of seeds, one covered with yellow glass for growing plants, and one covered with red for the production of flowers and fruit, I think these benefits might be secured. The agriculturist may also learn from the deleterious effect of light on the germination of seeds, that the sowing of grain broad-cast, is a wasteful practice, on account of the large amount of the seed that is left without a covering of soil, and consequently, exposed to the light. It is found in practice that it takes one-third more seed when sown broad-cast than when put in to a uniform depth with a drill.

Another substance that has a very important influence on the germination of seed and the early growth of plants is Electricity. Almost innumerable experiments during the last and present centuries concur in proving that vegetable growth is very greatly accelerated by the presence of electricity. The most of these experiments agree in teaching that positive electricity has a very beneficial effect in hastening germination, while negative electricity has the opposite effect, retarding or entirely preventing it. But in other instances negative electricity seems to have a more beneficial effect in hastening the process of germination than even positive. A knowledge of the accelerating effect of electricity on plant growth may readily be turned to important, practical account. Wires stretched at frequent intervals a short distance above fields of growing grain, have produced very marked results in its increased vigor and luxuriance. In some instances two and a

half times as much grain has been reaped from a piece of ground so treated, as could be in the absence of this electrical contrivance. In one case a plate of copper was buried at one end of a garden and a plate of zinc at the other, and they were connected by a wire buried in the ground. A row of potatoes planted directly over this wire, produced tubers two and half inches in diameter, when the adjoining rows had them only one half inch in diameter. Another practical benefit that may be derived from the stimulating effects of electricity is in the germination of old and dry seeds, that have to a great extent lost their vitality. It has been found that seed that would germinate with great difficulty, or fail entirely, under ordinary circumstances, grow readily and vigorously after having been electrified for some hours before planting.

EDITORIAL NOTES.

THE CHESS QUESTION.—We have the following from Prof. Asa Gray:

"BOTANIC GARDEN, CAMBRIDGE, MASS., *January 10th*, 1875.

"DEAR MR. MEEHAN:

"In my note from which you quote, I said the *Bromus* part 'might have been put in, or might have been caught in by the wind.' On this you say that the case I spoke of 'was not an ingenious trick.' How do you get that inference out of the facts of the case? Even if I had no opinion to offer in that one instance, would not a second case, coming from the same or similar source, in which fraud was proved, make it the likelier opinion that the first was also fictitious rather than accidental? And I cannot agree with you, that the business of a botanist was done when he had pronounced that part was *Bromus*, and part *Triticum*. Leaving out the Latin, everybody knew that before. The only question was, whether the *Bromus* grew there. The exposure would have been as complete, and more simple, if that had been ascertained before anything was published about it You may print this note. A. GRAY."

[We gave the whole of Dr. Gray's note. The expression, "from which you quote", might bear the interpretation that only a part was given. In that note the expression, "it was not cemented," was the ground of our inference, as our specimen *was* ingeniously cemented by gum.

We need not tell our readers that Mr. Meehan—for it is in his individual capacity, and not as editor of this magazine that he is speaking—feels that gross injustice has been done him by many who have commented on this matter. Even Dr. Gray's present letter is an illustration of this. There is no one in the world that we know of who would sooner do an act of kindness to another than Dr. Gray, and we know that the mere suspicion of doing injustice to another would give him pain. Yet we find him inadvertently writing as if we said "the business of a botanist was done when he had pronounced one part Bromus and one part Triticum." We said "the business of the Botanical Committee," not the "business of a botanist." In some cases it might make no difference,—in this case it makes a great deal. The specimen belonged to an institution, not to an individual—a "botanist." There are two Committees in that Institution; one with a microscope—one without. It was referred to the last. That Committee could not decide, but asked that *that* with the microscope should take it in hand, feeling that the point of junction ought to be microscopically examined, before any safe conclusion could be made. Their duty was ended simply because a microscope was needed, and in this Institution there is a microscopical section for just this work. "A" botanist is another affair. He expects to do his own microscopic work, before his job is done. We are quite sure Dr. Gray, on reflection, will see the difference.

That the exposure would have been as complete and more simple if the report of the Chairman of the Microscopical Committee had accompanied or soon followed Mr. Meehan's report on the appearances, is clear; but this is one of those things which Mr. M. could not foresee, and should hardly be held accountable for. Dr. Hunt did not make his report till several weeks afterwards; and he had excellent reasons therefor. We only claim that those engaged in this examination have exposed and laid bare a trick, which it is probable has been long played on people, and which none of them have before exposed. That other people would have done it as Dr. Gray suggests, in a more complete and simple way, is quite possible; and yet it is equally true that none of them have.

The misapprehension of facts which this whole chess case presents, is a mystery we shall not attempt to solve. No one said or thought of saying it was a "genuine case," no one said it

was a "proof of evolutionary views," no one thought of the scores of absurd things that have been put into their mouths. We thought it our duty to comment somewhat sharply on the *Agriculturist's* insinuation, that the writer of this affected superior wisdom; but after the following "statement of facts!!" from the *Mirror and Farmer*, we conclude it is hardly worth while to say any more:

"Some frisky farmer sent to some scientific men of Philadelphia a head of wheat, in which were seeds of chess or cheat. The scientific men examined it, and announced as an important discovery that wheat would certainly turn to chess. A long report of the discovery was published, and created much stir, until an interview with the sender of the wheat head revealed the fact, that he had ingeniously taken out the kernels of wheat and substituted chess seed."]

THE AMERICAN GARDEN is put out at "Observer's" remarks in the December number. That article was not written by either "an Englishman," or a "Philadelphian,"—it was not such an article as we should have written, as we prefer to take attacks good humoredly,—still our sense of fairplay could not refuse to admit "Observer's" article, under the great provocation. The A. G. intimates that we must be sore, at what it regards its "immense success." Not at all, neighbor. In this Horticultural field we have faith in the adage, "the more the merrier." That we would rather help than injure its success, we hope it will be convinced, when we tell it, free of all charge, that the essence of success is to keep a good temper.

BOTANY OF SOUTHERN UTAH.—Dr. C. C. Parry commences in the *American Naturalist* an account of the Botany of Southern Utah, which is to continue through several successive numbers. The following account of an Œnothera is pleasant as well as instructive reading:

With the disappearance of late spring frosts, which frequently continue to the latter part of April, and occasionally as late as early May, the intense heat of the lengthening days, rarely obscured by clouds, or tempered by showers, brings forward a rapid development of the more characteristic forms of vegetation. By May 1st, orchards had mostly dropped their blossoms; the fruit of the apricot and almond were developing, and strawberries beginning to ripen, giving to fields and gardens a summer aspect. In the open country an analogous feature is brought to view in the native vegetation. We accordingly note the appearance of several species of Œnothera, conspicuous among which is a large yellow-flowered one, which being undescribed, I take pleasure in dedicating to my esteemed friend, J. E. Johnson, Esq., as *Œnothera Johnsonii* n. sp. (See Appendix No. 64). Mr. Johnson, who has had this plant for many years in his garden, called my attention to the regularity and suddenness of its opening, from fifteen to twenty minutes after sunset. This opening process, as frequently observed by both of us, is accomplished by a shrinking downward of the valvular calyx, the accumulated tension at a certain point suddenly releasing the segments from below upwards, which, becoming reflexed, allows the closely-confined convolute corolla to unfold visibly, its petals expanding in about thirty seconds, to a horizontal position. Quite constantly, just at this time, a small bee, apparently on the watch, darts in and loads itself with the stringy, adhesive pollen, to be carried, probably, to another flower. Generally, soon after, another bee on the same quest lands on the same flower, and finding the pollen gone, travels quickly over the stigmatic arms and soon flies away. This process frequently repeated ensures cross-fertilization. Other *Œnotheræ* include a large white-flowered variety of the polymorphous *Œ albicaulis* (No 63); as a rarity we also meet with a very neat *Œ. primi veris* Gray (No. 65).

EXPERIMENTS IN VEGETABLE PHYSIOLOGY.—It always annoys us when in the discussion of horticultural questions, people fall back on what Mr. T. A. Knight or some other distinguished man said or did some hundred years ago, and this, not because we undervalue the labors of these admirable observers, but because we think it is not to our credit that we do not make at least some original observations for ourselves. This reproach is in a fair way to be removed by President Clark of Amherst, Mass., who for several years past has made his Agricultural College famous by the value of the experiments in plant life conducted there. In a recent lecture, giving the results, or some of the results of the year, we find some things which we will try to condense for our readers. We are indebted to the *Boston Cultivator* for our notes.

It may be that some of his points are too much abbreviated, and thus express what he does not mean. A speaker can never be held absolutely responsible for a newspaper report. He says, growth is the increase of cells, both in number and size;

an excellent definition. "All vegetable material is formed in the leaf and carried to its place by the circulation of the sap," requires some modification. Some figures are given as to the depth which roots will penetrate. An apple root was found 8 feet below the surface, and a clover 8 feet. No notice is taken in the *Cultivator's* report, that but a few roots descend. Only a few can be tempted to leave the surface. An Elm at Amherst had had its roots traced on the surface horizontally 75 feet from its trunk. A squash vine was carefully washed out of the soil. The branches were 12 or 15 feet long, and together aggregated 4000 feet, some roots had pushed out from the nodes, and one of them had 480 branches. All the roots put together made about 17 miles. About 1000 feet a day was the average aggregate of growth. The vital force is said to be the most active in the terminal or youngest inch of the vine; but this must mean that phase of vital force as exhibited in growth. Indeed we suppose growth is simply meant and not vital force, of which growth is but a mode. That "the office of nodal roots is to save the stem roots and the circulatory force the trouble of supplying the immense length of the vine with nutritient matter," we doubt. No facts are given in support of this statement. In the squash fruit the fibres run in cross directions, which saves it from cracking in its rapid growth. A squash was selected and found to increase 2 inches a day in circumference. A lifting apparatus was attached to the squash, but not described clearly enough to be understood well, but the result i. said to be "it supported six anvils, and several pails of sand, so adjusted on a lever that the pressure was 5000 lbs., and there it stood 10 days." A section of cork exudes from wounds on a squash stem.

Another squash vine pumped water 48½ feet high in 48 hours.

Interesting experiments in girdling trees were reported. President Clark girdled 100 the past year. A red maple, (*acer rubrum*) girdled in June, grew above the wound, but not below. One girdled in July healed over with cork and grew naturally. This was because the young cells had formed on the surface of the wood in the latter case and formed a connection for the sap over the passage.

Does wood form from the bark? Yes, said President Clark, for the bark of an elm was quartered and slipped aside in May, the wood was covered with a sheet of tin, and the bark replaced and covered with waxed cloths. The section was cut, this fall, and shown. The tin was covered with a wood deposit laid on from the bark.

A grape pumped a column of water 90 feet, and a Black Birch 100 feet. Roots (maple tree) seem to exert no pressure. One-half the weight of a tree is water.

NOTES ON CONIFERÆ.—The Coniferæ collected by the Wheeler Expedition of 1873, were placed in the hands of Mr. Josiah Hoopes, for determination. Among them he names Pinus monophylla. Dr. Rothrock accepts Mr. Hoopes' name, but under protest. He inclines to think it should be *Pinus edulis*. Mr. Hoopes is undoubtedly right. Pinus monophylla, P. Fremontiana, and P. edulis, are, we believe, one and the same thing, and in such cases the first name given to the plant is the one which prevails. It is a pity in this instance, as the tree has much oftener two leaves than one, and sometimes three. By the way, Dr. Rothrock refers to the tree as Pinus monophyllus, following what is evidently an oversight in the proof reading, in Torrey's notes, in Fremont's Report. *Monophyllus* is ungrammatical, *P. monophylla* is correct.

There is a disposition among English botanists to make numerous species of our American Coniferæ. Mr. Hoopes did good service in his "Book," by throwing many of these novelties back to their proper places. There will be plenty more work for him in a new edition. Pinus Jeffreyi may go back to P. ponderosa, and so on of many others. Then we have Picea bifolia and P. magnifica of Murray, and P. violacea of Roezl, which will probably have to go back to P. grandis as P. amabilis, P. lasiocarpa, and P. Parsonsiana have had to do, and we would be inclined to put P. concolor among these probabilities, only that we have more faith in Dr. Engelmann's powers of discrimination than in some others, though of course the best of botanists may be mistaken. That all these may be distinct forms well worthy of separate propagation, as we separate Tom Thumb, Geo. Peabody, or other arborvitæs in cultivation, is well enough, but no one wants to burthen Botany with specific names for these.

Another matter we may refer to here, is that the English papers speak of *Picea* concolor, *Engelmann*, but there is no such plant. It is *Abies* concolor *Engelmann*. It should be explained that originally the genus we now call Abies, was Picea; and the Picea, Abies. Most horticulturists, chiefly we think, through the great influence of Loudon, follow the change. Botany however is strict on the laws of priority, and if right in one case, it should be in all. Dr. Engelmann is always strenuous in behalf of right, and hence calls the firs *Abies*, and not Picea, and the spruces *Picea*, and not Abies. We know that Mr. Hoopes equally with ourselves, knowing that Dr. Engelmann is right, and that right should prevail, has been always disposed to "call things by their right names." But the error is so widely diffused, and maintained by the whole force of English horticultural literature, that we have shrunk from the confusion that would follow an attempt to enforce the rule.

We admire, however, the stand which Dr. Engelmann is making in behalf of correct rule in nomenclature, and if we could get any countenance from our English friends, so as to avoid too much confusion, would gladly aid in putting the matter right.

RESPIRATION AND NUTRITION IN PLANTS.—M. Corenwinder, says *Nature*, has contributed to a recent meeting of the Societe des Sciences, of Lille, an exhaustive series of observations on the processes of respiration and nutrition in plants. He supports M. Claude Bernard's view, that the process ordinarily known as the respiration of plants—the decomposition of the carbonic acid of the atmosphere—is really a process of digestion; and that simultaneously with this, plants carry on by day as well as by night, a true process of respiration, similar in all respects to that performed by animals, consisting in an oxidation of carbonaceous matters of their tissues. By a very careful series of analyses, performed mainly on the lilac and maple, Mr. Corenwinder determined that the proportion of nitrogenous matter in the leaves gradually and progressively diminishes from the time that they emerge from the bud till their fall; the porportion of carbonaceous matter increases very rapidly during April and May, and then remains nearly stationary till October; while that of the incombustible substance increases during the whole period of vegetation. He distinguishes, therefore, two periods in the vegetative season of the plant. The first period, when nitrogenous constituents predominate, is that during which respiration is the most active; the second, when the proportion of carbonaceous substance is relatively larger, is the period when respiration is comparatively feeble, the carbonic acid evolved being again almost entirely taken up by the chlorophyl, decomposed, and the carbon fixed in the true process of digestion.

Literature, Travels & Personal Notes.

COMMUNICATIONS.

HORTICULTURAL NOTES ABOUT NEWPORT, RHODE ISLAND.

BY RODERICK CAMPBELL.

In a recent visit to some of the principal places in this "Scarborough of America," as it has been called, I gathered a few facts of what I saw and noticed while there. My first visit was at the residence of the late Gardner Brewer, Esq. In this place there is a fine collection of the best species of Orchids, which, at the present day, grace and beautify the exhibition tables of Europe. The collection is not what may be termed large, but is a very select one, and all in the best order.

Mr. Burnett is evidently at home amongst his Orchids. Here are to be seen some good plants of Pandanus Veitchii, in fine health. In the Orchid house are some fine specimens of Anselia Africana in flower, Ærides, vandas, Cypripedium of sorts, some Cattelyas, and a good plant of that curious Orchid, Angræcum eburneum, a noble, strong growing plant, of which there are so many species. Many of these are handsome in growth, and ought to be in every collection. They are objects of interest, and give the Orchid house an attractive appearance, either in or out of flower. I noticed also Dendrobium, Odontoglossum, Epidendrum, Oncidium, besides a nice plant rightly named Queen of Orchids, Phalænopsis amabilis. There are also Nepenthes, consisting of N. distillatoria, N. Dominiana, with seven large pitchers, and a good plant of N. Rafflesiana, with nine pitchers. The roof of the Orchid house is covered with two

grand plants of Stephanotis florabunda and Allamanda nobilis, producing a fine effect, hanging down in festoons. This is more beneficial to Orchids than shading, as it is more in accordance with their native habit.

From the Orchid house we enter a stove, devoted to large specimens or half specimens. Here are some good plants of Marantas; Crotons, of which there is a large variety; Pandanus Veitchii utilis and Javanicum variegatum, fully seven to ten feet in height; Dracæna of sorts, Begonias, Beaucarnea recurvata, six feet high; besides a nice collection of Palms and Ferns. In this house there was a fine plant of Adiantum Farleyense, three by four feet, undoubtedly a grand specimen of good culture. Mr. Burnett informed me, that as yet there has not been found a fertile frond on this fine Fern, and he is in communication with most cultivators of it on this subject.

From this stove we enter another of smaller size, and kept cooler than the former, one reason being to keep plants for outdoor decoration. Another reason is, that when Mr. Brewer built this house, it was painted in every part with gas tar, even to the hot water pipes. The result was a loss of some fine plants, amounting to thousands of dollars. This house can only be used to advantage during the summer months.

We now enter another large span roof, divided in two; one part devoted to Roses, the larger part to Tree Ferns, Palms, Camellias, etc. In this house were two good plants of Dicksonia antarctica, five feet high; a nice pair of Alsophila Australis, eight feet high, and two grand specimens of Cyathea princeps, also Seaforthia elegans, Latanea Borbonica, running from eighteen inches to ten feet high. Also in this house were a nice lot of Cycas revoluta, and some good Yucca alœfolia variegata.

From this we enter a house fifteen by seventy feet, devoted to bedding plants—well stocked. Mr. Burnett had several pits filled with Echeverias, of sorts, for carpet bedding, which he carries out to good advantage on his exposed place, open to all the fury of the Atlantic winds. Cleanliness is the order of the day on this place, reflecting great credit on the able gardener in charge.

The next place visited, was that of Daniel Parrish, Esq. Here we found the gardener busy working on what one might term worn-out vines, preparing them for forcing. There are two large graperies and a fine Rose house on this place. Looking for matters worthy of interest, I directed my course to the residence or Hon. August Belmont. Mr. Slade, the gardener, kindly showed me everything under his charge. This place is extensive. The glass structures consist of four large vineries, two Peach houses 100 feet long, one fernery, two greenhouses, one stove and Orchid house, numerous pits for plants and vegetables, a Rose house and a Mushroom house. This place had been going down fast since Mr. Hunter, who built all the houses, left it; but Mr. Slade is bringing it round again.

The gardening department of this place might be improved. The proprietor is well known in connection with the turf. With the same interest taken in it by Mr. Belmont, it could be made the best place in Newport. In the stove was a nice mixed collection of plants. In the fernery were many specimens suitable for table decoration, all in a healthy state; in the greenhouse a mixed collection suitable for cut flowers.

From the latter we entered a large double span roofed house, and in it was the grandest display of Marechal Neil roses in flower I have ever seen since that famous plant of Mr. Harrison's, at Darlington, Durham, England. These, so far as I know, are only second to that. This plant in Mr. Slade's care, and that of Harrison's, are both on the Manetti stock. This Rose covered the entire roof of the double span house, and the buds hang down, opening half and full blown, like bells of the deepest and richest golden yellow. Mr. Caswell, a florist of Newport, claims to have the finest Marechal Neil roses here, but I think they must now yield the honors to Mr. Slade.

From the Rose house I went through the vineries and Peach houses, both worthy of interest here at this season, in their winter dress.

From here I went to the elegant villa of G. P. Whetmore, who can claim to have the finest country residence and grounds in the New England States. But I am not telling you, Mr. Editor, of fine houses, but about plants, etc., and I am sorry to say that all the graperies and plant houses on this fine place are not what they once were. With once an extreme range of glass, there are now only to be seen here two large Agaves, two good Palms, one Latania Borbonica and Cycas revoluta, two Yuccas alœfolia and a few Ferns.

From here I visited the residence of Mr. Russell and Mr. Travers. On both these places were mixed collections of bedding plants. Prominent among all were Geraniums, especially a variety called here "The Duchess," which is in fact the Duchess of Sutherland.

Here in Newport bedding out is very poor, as people are led by each other, with no originality of their own. The principal plants you see bedded out along the grand drive, or Bellevue Avenue, are Geraniums, Coleus, and beds and tubs of Hydrangea, all alike.

Among the respectable and reliable florists of Newport may be named Mr. Findlay, who has principally Roses, bedding plants and Grapes; Mr. Caswell, an ex-druggist and millionaire—Roses and Grapes; the old firm of Galvin & Geshertary—Roses and bedding plants; Mr. McLeish—Roses, bedding plants and Grapes; Mr. Fadden, Florist and Real Estate Agent. There are also numerous gentlemen's places of a third and fourth rate here.

In conclusion, horticulture at Newport is not so forward as it is at some other places, although there is great wealth reported, and many good families make their abode at this great resort, eight months out of twelve.

EDITORIAL NOTES.

INSECT-EATING PLANTS.—We have from Prof. C. V. Riley, a pamphlet copy of his observations on the insects of Sarracenia variolaris, read before the American Association at Hartford. The paper, with others by Canby, Gray, Mellichamp, Lemmon, Mrs. Treat and others, have attracted universal attention. It is by no means a settled belief, that the insects "digested" in the liquid found in the pitchers, are for the plant's benefit, any more than that when one is poisoned by a poison vine, it is for the benefit of the vine. Still it may come to this, and the progress of science in this direction is intensely watched.

INTELLIGENT GARDENERS.—Thomas Hitt, the author of a "treatise on fruit trees," published nearly a hundred and twenty years ago, was gardener to Lord Robert Manning, and in the preface to his book pays the following tribute to his employers: "The greatest part of my time I have had the honor to be a servant to some of that noble family (Duke of Rutland), who are all so willing to encourage a person who desires to improve his knowledge, that they never desire he should be so confined to labor, as to prevent his making proper observations on the works of nature. I now enjoy the like happiness under his grace's brothers, by having the gardens of the right honorable Lord Robert and Charles Manners committed to my care, under the direction of Lord James Manners, who has most leisure time to spend that way, and is very curious in his observations. They are all exceeding good masters, for I receive all the encouragement that one in my station can reasonably expect, and as much as I deserve."

It would be interesting to know how much of the eminently intelligent and useful lives so many English gardeners have led, is due to the kind encouragement of England's aristocracy. The writer of this knew of one boy, who, by the aid of "my Lady's page", evening by evening, studied books brought surreptitiously from the "tapestry room." The library was so extensive, that no thought occurred that for a few hours a book would be missed. But one evening just that event happened. The page told exactly how it occurred, and expected a reprimand. Instead of which a kind message was sent to the said boy, that "it was Lady H.'s wish that he should have free access to her library at any time." We know how gladly that privilege was availed of, and how much in after life—for his life was generally supposed to be a useful one—he felt the public owed to the one who thus early in life had so kindly encouraged him.

CHASE BRO.'S CATALOGUE.—*Improved German Asters.*—It is really wonderful how much the German Aster has been improved by modern florists. The Prussians seem especially to take the lead. In the beautifully illustrated catalogue of Chase Bros. and Woodward of Rochester, N. Y., before us, is a plate of singular beauty, representing the latest phase in their onward march.

BOTANY IN BOSTON.—The American *Agriculturist* has some interesting notes on botany in Boston. Dr. Asa Gray remains President of the Cambridge Botanical Department. Mr. Sereno Watson is curator of the Herbarium. Prof. Goodale, son of the well known horticulturist of Saco, of that name, has charge of the lecturing and general instruction in botany. W. G. Farlow is professor of botany in the Bussey Department, and pays especial attention to cryptogramic botany, and the fungoid diseases of plants; and Prof. C. S. Sargent has charge of the Botanic Garden. The *Agriculturist* also notes the increasing taste for botany in this country, a taste

which Prof. Thurber himself has done much to encourage.

THE GARDEN, by Mr. Robinson, was a great venture, as all know how great is the expense of building up such a work. It appears, however, to be a great success. It has a large circle of readers in this country, as well as in its own.

REVISION OF THE THISTLES.—From the Proceedings of American Arts and Sciences. By Dr. Asa Gray. The Thistle family has been one of peculiar difficulty to American botanists. They vary so, and in some respects the material has been so slender, that some errors have been made by the best botanists. Dr. Gray has now gone over the whole subject, and straightened out the crooked chain. He abandons the prevailing name *Cirsium*, and goes back to the Linnæan one of *Cnicus*, and makes many other changes. The Thistle family is one which makes itself known to every cultivator of the soil, and what is worth knowing at all is worth knowing well.

THE GARDENER'S MONTHLY.—Many of our cotemporaries publish the good things which their brethren or their correspondents say of them. This is right. Our encouragements of this character have been so warm and hearty this year, that we thought to do the same; but find they are too numerous. We thank our kind friends none the less. We are especially thankful for the extensive correspondence of the *Gardener's Monthly*. It is a source of pleasure to the editor to hear direct from his readers of their failures and of their successes, and though of course he has not the time to reply to these letters privately, he endeavors to make note of all that is of public interest for the columns of the magazine. The publisher is especially thankful for the efforts made by his friends to push the magazine in new directions, as is evinced by the large list of new subscribers. He trusts this kindness will be continued. One thing is forgotten sometimes, he says. In former years the *postage was paid to the Post Master;* now the law is to pay it instead to the publishers of the paper, and *they* pay it to the Post Master; but some forget to send it.

VICK'S CHROMO.—This season represents a window arrayed with plants, with a landscape in the distance, and in artistic taste and finish is equal to any of those issued in former years.

BOTANICAL AND HORTICULTURAL LECTURES.—Prof. Prentiss has been delivering a valuable course at the Cornell University. Those announced for February and March are as follows:

1. *On Fungology and the Disease of Plants.*

Feb. 2d—Mildew and Brand; 9th—Smut and Rust; 16th—Mould and Blight; 23d—The Uses of Fungi. March 2d—The Higher Fungi; 9th—Reproduction among the Lower Tribes of Plants; 16th—How the Lower Plants are Classified.

2. *On Arboriculture.*

Feb. 4th—Arboriculture in America; 11th—Principles and Practice of Arboriculture.

3 *On Landscage Gardening.*

Feb. 18th—Principles of the Art; 25th—What to Avoid. March 4th—What to Attain; 11th—Plants Considered with reference to Landscape Effect; 18th—The University Estate.

ROOT'S GARDEN MANUAL.—Rockford, Illinois. This is a seedsman's catalogue, yet so full of excellent practical suggestions adapted to Western gardeners, that we do our readers a favor in calling especial attention to it.

THE ORNAMENTAL AND USEFUL PLANTS OF MAINE.—By F. Lampson Scribner, of Augusta, Maine.—Those who busy themselves with local Floras, deserve more credit than they often get. They have to be more full in their accounts than the authors of general botanies are expected, or can afford to be; while the profits of such works are almost wholly in the knowledge that they are helping the science along. We trust that the author may have the encouragement the work deserves, and at some time find a call for a new and enlarged edition, for which Maine has abundant material.

HISTORY OF THE BLOOD-LEAVED PEACH.—Some time since we stated that there was a curious story afloat in the South as to the origin of the Blood-leaved Peach. We have since found the original in the *Vicksburg Herald* as follows:

In the blooming, beautiful, balmy May of 1863, one of these dreadful battle stained years never to be forgotten, General Tiligham fell, shot dead, at the battle of Champion Hill, gallantly struggling in defence of his cherished principles. His noble life ebbed away on the spot where he fell, and the sad earth drank his blood with greedy thirstiness. But upon that immediate spot grew a peach tree that had reached maturity, while its roots steeped themselves in the martyr's blood. Singular to relate the leaves and fruit of this tree are blood-red color. The tree was transplanted and is now in the orchard of Dr. J. L. Hebron, of this county. The propagations from the tree are of the same peculiar color. There is something very peculiar about this. We have seen the leaves and must confess they do look and even (to us) smell like blood. The fact can be witnessed by those taking the trouble.

LITERARY NOTES.

PERFUMES.—Our fair readers may be interested to learn where for the most part, the flowers grow the sweet perfume of which is found in those pretty *flacons* on their dressing-tables. The chief places of their growth are the south of France and Piedmont, namely, Montpellier, Grasse, Nimes, Cannes, and Nice; these two last especially are the paradise of Violets, and furnish a yearly product of about 13,000 lbs. of Violet blossoms. Nice produces a harvest of 100,000 lbs. of Orange blossoms, and Cannes as much again, and of a finer color; 500 lbs. of Orange blossoms yield about 2 lbs. of pure Neroli oil. At Cannes the Acacia thrives well, and produces yearly about 9,000 lbs. of Acacia blossoms. One great perfumery distillery at Cannes uses yearly 140,000 lbs. of Orange blossoms, 140,000 lbs. of Rose leaves, 32,000 lbs. of Jessamine blossoms, 20,000 lbs. of Violets, and 8,000 lbs. of Tuberoses, together with a great many other sweet herbs. The extraction of the ethereal oils, the small quantities of which are mixed in the flowers with such large quantities of other vegetable juices that it requires about 600 lbs. of Rose leaves to win one ounce of otto of Roses, demands a very careful treatment. The French, favored by their climate, are the most active, although not always the most careful preparers of perfumes; half of the world is furnished by this branch of their industry.—*Garden.*

HORTICULTURE IN JAPAN.—In a recent letter the Hon. Horace Capron says: Oranges, limes, lemons, grapes, persimmons, pears, and some blackberries, all very inferior, (excepting one variety of orange and one of grape,) were all they had. They have wonderful skill in dwarfing fruit-trees. All kinds are dwarfed without diminishing the size of the fruit. I think our fruit growers could learn much from the Japanese in this matter. I have seen acres of pear trees not more than 4 to 6 feet high. These trees were set out in rows, about the same distance intervening. At the height they want the trees to grow, say 4 or 6 feet, a lattice-work of small bamboo poles is built over the whole orchard. As soon as the shoots of the pear tree grow to this lattice, they are trained to run along it horizontally, and are confined to the poles by hempen strings. When first seen it looks like a grapery. The wind cannot shake the tree to disturb either the flowers or the fruits. The most perfect system of training and control over the new growth is in use, so that the sap of the tree, instead of being consumed in the production of a superabundant growth of new shoots, is directed to the growth and protection of the fruit.

Horticultural Societies.

COMMUNICATIONS.

CULTIVATION IN ENGLAND AND FRANCE.

ADDRESS BY J. JAY SMITH, PRESIDENT OF GERMANTOWN HORTICULTURAL SOCIETY.

A summer just passed in England and France by your President—his fourth visit to Europe—demands perhaps a few words as to what I witnessed in the horticultural and gardening world. I am happy to comply with the expressed wishes of my friends of this Society, by jotting down a very few things that courted observation, either from their novelty or permanent interest. Not much, however, that is new can be expected, for we have in the European journals so much information, that all who read must be fairly posted. My notes will be of a rambling kind, and perhaps only calculated for the passing hour.

The commercial interests of the garden and conservatory continue to exercise a powerful influence on public taste abroad. Nurserymen and gardeners constantly introduce new trees and plants, and they prove every year that the botanical riches of the world are by no means exhausted. An anecdote will illustrate the efforts made to keep up a supply that is new and

beautiful. A well-known caterer, whose specialty is ferns, sent out to South America an enthusiastic botanist to ferret out all that he could find that was new. He passed eighteen months in Brazil and other tropical regions, collecting and preserving whatever was desirable; but in returning he unwarily carried his valuable cargo through a cold climate, and every living plant was lost! Hastening to his home at midnight, immediately on his arrival in England, he called up his employer at that unseasonable hour, and told his sad story. He received the immediate reply: "See your family at once, and sail by the next ship to repeat your explorations!" This the poor fellow did, and he is now absent on his second experiment, no doubt wiser for his loss, but no less enthusiastic in his pursuit.

How, it may be asked, are such costly expeditions paid for? The answer is ready. Europe is full of plant cases of every caliber. A new fern or orchid, for instance, is soon propagated, and sells for ten guineas a plant, more or less, according to merit, and so of other plants and trees. There are many losses, it is true, but the average pays the capitalist well. Enthusiasm is still rife among the commercial gardeners, while their patrons have increased of late years almost beyond the supply. The word is, "Send me everything that is new."

The old firm of James Veitch & Sons, whom I select as an example, still flourishes, with all its old splendor and enthusiasm. The father is but lately deceased, but his sons are his worthy successors. Alfred, whom I best knew, is a gentleman by nature, a botanist by choice, a Christian worker by conviction, and an accurate and successful man. A view of his city place, situated as we would say only on a deep city lot or two, and consisting of a beautiful succession of plant receptacles, fern repositories, and greenhouses, all in the most exquisite order, is a treat which lives in the American eye and memory most powerfully. Tree ferns stand like sentinels at the corners and sides of beds in great numbers, like sentinels guarding treasures heretofore little known to us, and not one worth less than thirty guineas. The newer ferns here displayed, luxuriate in their proper atmospheres, and all is lovely, neat, and in perfect order. Foremen, almost grown gray in the service of the house, whose salaries advance with every year's attendance, each a lover of his business, and well informed on botanical and horticultural topics, are treasures of knowledge. To pass a morning with one of them, is not only delightful, but a privilege. One has to be somewhat posted to be able to enjoy their conversation. They have so much that has not yet been extensively sent out, that one's note book is rapidly filled. At my first visit the newer Gloxinias were in their glory. I am mistaken if this plant does not take a good premium at the next exhibition of our infant society. I saw no plant in general cultivation in which there appeared so vast an improvement, both in the richness of the colors, and the firmness of the flowers. The Veitch's, at that moment, had a Gloxinia show at Birmingham, that greatly delighted its appreciative audience. Some fine roots, their best, of course, found their way to a package most kindly forwarded to Liverpool.

We selected the next visit to our Chelsea friends, on the "happiest" day of the rose season. A large nursery some miles beyond the smoke of London, is devoted to roses, and golden and silver leaved shrubs, two items which the climate allows to be cultivated in the greatest perfection. This firm grew one hundred thousand standard roses last season, and had not nearly enough to fill their orders, which come from all parts of the empire, as well as gradually of late from America. They transport them in the fall to their destination, a plan that would not suit our climate. Here I may remark that I possess, in pretty good health, a few specimens, imported so long ago as the spring of 1865, proving that with care they survive our inclement winters, if carefully bound up, the buds and stems so protected as to shed the water. Mr. Veitch was so good as to send to our hotel huge, tightly packed bouquets, which were large and handsome enough to astonish even the experienced Londoners—a practice, by the way, to be recommended to our home florists; while to Liverpool, he forwarded a magnificent bouquet of rare Orchids, to ornament the cabin of the return voyage, and solace, as well as they could, the victims of the merciless sea.

The Messrs. Veitch, with some little encouragement, could and would make grand additions to the horticultural department of the Centennial Exhibition. This is exciting great interest in the hearts of the flower lovers. It is to be hoped that encouragement may be given, and that the partner already named may accompany his plants. He could also obtain grand specimens that have outgrown many continental greenhouses. England commands the world in

its horticultural departments, and supplies its demands nobly, as London rules the monetary world. A throb from Lombard Street makes or mars great fortunes in a day or an hour.

The partners Veitch have other nurseries in different places for trees, etc., and complete an order for about everything from their own resources. They are growing the Eucalyptus largely, but it will not bear our, nor probably the English average climate. At these nurseries will be found the greatest variety of Japan plants, the Acers especially, many of which, it will be good news, will flourish here. The stock includes quantities of the Umbrella Pine—quite hardy.

The Hollies comprise at least sixty distinct varieties, and it will be hard if we connot discover some of them to be hardy. We find names such as Best, Milkmaid, Waterer argentea, Argentea Marginata, Golden and Silver Queen, grown by the thousand; and Weeping Hollies—some variegated. In the department of variegated Coniferas there is wonderful beauty, and it seemed surprising that some wealthy planter or cemetery owners did not employ for large spaces these showy plants, in a climate where they flourish so luxuriantly. The larger variegated Conifers have not proved as yet a great success, nor can we hope for them here, it is feared. The smaller, such genera as Cupressus, Juniperus, Taxus, Retinospora and Thuia, with their creamy white and gold are most striking, when assembled in such numbers. Thuiopsis dolabrata is grand and noble in its growth. Juniperus pendula and Cryptomeria elegans are coming into favor. Ampelopsis Japonica and Veitchii are most interesting. Ligustrum Japonica, from Japan, is couspicuous amongst evergreen shrubs. But the list of desirable things, both in and out of the houses, would fill pages.

The firm is very proud of a new *red* Tea Rose called the *Duchess of Edinburgh*, which they are just sending out. It is a true Tea, and a great novelty. The scent of the tea is unmistakable. Their growth of Pampass Grass, some having 100 to 150 plumes, is wonderful. Each plant differs from its congeners, the whitest the best, and the female the most superb.

The Umbrella Pine and the new Japan Oaks must soon attract our planters. They may be obtained from Parsons of Flushing, who is rich in all hardy novelties, and will be able to tell which will not stand our climates and those that will.

In thus giving prominence to the Royal Exotic nurseries at Chelsea, I have only described a single establishment, taking it as the one near London I was most familiar with. England abounds with them. John Waterer & Sons will long be exemplars of the cultivated and hybridized Rhododendron, etc. It is understood they design to give us, in 1876, a taste of their grand collection under tents, so long the delight and admiration of the London exhibits.

Then we might enumerate dozens of other establishments, but time will only admit of a hasty glance at James Backhouse's place, very near, and now almost in York. He is the enthusiastic successor of his father, whose nurseries were formerly within the walls of York, on the site now occupied by the great railroad depot. He has removed enormous quantities of heavy rocks twenty miles by rail, and made a rock garden of about four acres, which must be the admiration of all visitors. Adjoining is an underground rock garden, to which all visitors to the place are not admitted. It also is a wonderful success, like the garden proper, with a stream of water running through it. Here the plants, especially the ferns, revel in a climate and moisture exactly tempered to their wants, and climb and wander in the most natural and charming luxuriance. The roof is of very thick, heavy glass, shaded to the exact point of light required, by curtains on the outside. A rare treat awaits the visitor fortunate enough to gain admittance. So great is the success of this whole rock garden, that an officer was sent from Kew Gardens to see it, and report on the propriety of doing something of the kind at Kew. He reported that the Government was scarcely rich enough to attempt the work, meaning, no doubt, that its appropriations would not meet the great outlay. Mr. Backhouse has a wonderful amount of taste; his new and old grounds would satisfy the wishes of any one who possessed a horticultural Aladdin's lamp. His example is now much followed in conservatories and greenhouses, where rock work and a little rivulet with gold fishes, are by no means uncommon. The rocks and the accompanying water are very beautiful. One frequently walks from a fine drawing room to the adjoining rock bowers. The stones and the accompanying water, often lighted up of an evening, are truly beautiful. The atmosphere, gladdened by the little water falls, gives a vivifying effect to nature's operations that exceeds the old style, as much as our neighboring McKean's modern

conservatory exceeds the house of his grandfather, exclusively devoted to lemon trees, which fifty years ago delighted our boyhood days at "Pratt's Garden," now in Fairmount Park.

In short, steam, with its quick voyages, has brought to the "tight-built little island" the most attractive productions of all climates. Science has studied their habits and wants, while taste has come to the rescue, to give the accumulated wealth of all regions their proper repose and due assortment, till, like the Berlin Museum, which contains more of Egypt than one can see in Egypt itself, such as we view now, they are better seen and more readily studied than could be accomplished by many years of foreign travel—indeed whole lives would be insufficient to otherwise see the collected wonders we find in their great plant cabinets, presided over by enthusiasts in their delightful art, controlled by taste, and happily patronized by an æsthetic public, constantly advancing in their knowledge and appreciation of the beautiful and ornamental; civilization, keeping pace with and assisting to make Christian homes beautiful and happy. England is studded with structures of all prices for the cultivation of fruits and flowers,* while the taste for cultivation extends often to the very poor, who have little gardens, and compete for much valued prizes.

SOMETHING MORE FROM KANSAS.

BY H. E. VAN DEMAN.

Taking courage from the fact that you thought it worth while to publish my former letter, I will write you another. I wish first to tell you of our recent happy meeting at Emporia.

The Kansas State Horticultural Society held its eight annual meeting at that place the third week of December last. There was a goodly number of our faithful members there, and a few from abroad, among whom was Mr. C. V. Riley, the Entomologist. You, who know him personally, will be sure that we were greatly favored in his presence. Despite the failures and plagues of the past year, there was a splendid show of Apples, and some very handsome Pears. Four tables, 4 by 14 feet, were loaded with beautiful specimens of these fruits. We have all been most agreeably surprised by the development of Apples on the trees that were stripped of leaves by the grasshoppers in August. I stated in my previous letter, that the fruit was about to shrivel and drop before ripening; but I now have to contradict what I then intimated. The fruit was below usual size, but more highly colored than I have ever seen it before, even in Kansas. In flavor it is a little inferior. I can safely say for Southern Kansas, that our winter Apples were not materially injured by the locusts. How or why the leafless trees perfected their fruit is a mystery to us. But I want to tell you that we had some few specimens of greenhouse plants at our meeting that were grown by the lovers of flowers at Emporia. Even in this remote corner of the ornamental gardening world, we have time and means to do a little indoor flower culture. We have not the means to launch out as you do in the East, but are working and waiting for better days.

Several papers were read at our meeting on the subject of home and its surroundings, which testified that there is a spirit of taste, and a desire to embellish our grounds, struggling beneath our restricted circumstances. We had over the usual discussion on pruning. Dr. J. Stayman is one who insists on never putting a knife to an orchard tree, from the time it is set as a root graft. Although his theory may seem rather extreme, yet it is true that he does succeed in producing good crops of good Apples, which is the desired result. He claims that pruning is detrimental to the growth of the tree, and to its fruitfulness. We must not condemn that against which we have not positive evidence. Let us try this thing.

The Society expects to be represented by some of its members, and specimens of fruit, at the Centennial Exhibition. We are not going to make any boast, but if we are not prevented, we hope to show you at Philadelphia that we can raise just as nice fruit in '76 as we did in '69. The following officers were elected for 1875: President, E. Gale, of Manhattan; Vice-President, Robert Miliken, of Emporia; Secretary, G. C. Brackett, of Lawrence; Treasurer, F. Wellhouse, of Leavenworth; Trustees, H. E. Van Deman, of Geneva; J. Stayman, of Leavenworth; and E. Snyder, of Highland.

*The Englishman is slow to take in novelties. New things, except in horticulture, are eschewed. I should hesitate, too, to use as forcible language as Mr. Gladstone employs in his late article on Ritualism, in the *Contemporary* Review for October last. He says:

"The general proposition is, that as a people, we are in the business of combining beauty with utility, singularly uninstructed, unaccomplished, unhandy;" and much more depreciatory of his own people.

The next semi-annual meeting will be held at Fort Scott, in June, and the annual meeting at Manhattan, in December next. We change place of meeting, and all who attend are entertained free of expense by the citizens during the meeting.

All our meetings are to us both enjoyable and profitable, and this was, if possible, more so than any of the preceding. You will, perhaps, get our reports, which will enable you to judge as to what we are doing, much better than anything I could say in this article. We are struggling on in hope of more plentiful harvests than we have had for two years past, but are thankful for what we have, even this year. The western and northern portions of the State were much more injured by the locusts than this. They were in a condition to be more easily affected too. Your printer made a slight mistake in my name, by inserting "J" where it should have been "H." But pardon me for my continued talk.

[Mr. V. has our pardon; but in view of his fault we must ask him to do penance by writing some more notes of the same sort! We value them highly.—Ed. G. M.]

EDITORIAL NOTES.

Horticultural Society of Western New York.—This Society has had a very successful meeting at Rochester. Mr. Barry, in his opening address, took occasion to note that the Pear blight, which for so long a time has operated so seriously against Pear planting, was now disappearing.

Among other interesting items in the report of the Committee on Native Fruits, we gather that the Chenango Strawberry Apple is becoming very generally the leading Apple of that section. Many promising seedlings of Apple, Pear, and other fruits, were spoken of as promising well. The Committee expect to see the Amsden Peach ripe in Rochester by the 1st of July, and "two or three weeks earlier than Hale's Early." Most of the reports are full of valuable information,—Mr. Ellwanger's on ornamental trees, especially so.

The subject of orchard management of the soil caused a lively discussion, as it always does. Mr. Chapin, Mr. Barry and Mr. Allis, were unqualifiedly in favor of stirring the soil and cropping orchards with light vegetables. Mr. Moody would plough lightly, so as not to go deep enough to injure the surface roots. Mr. Root would only stir up in stiff soil,—generally he would spade around each tree, and put the rest in clover and glass. Mr. Hooker was unqualifiedly for grass culture, as was Dr. Sylvester. He had, last year, 1000 barrels from ten acres. The orchard had been eighteen years in grass, and annually top dressed. Mr. Smith, of Syracuse, had found that when the products of the soil were returned to it, it made little difference whether grass was grown in the orchard or not.

In Pear culture generally, there was nothing specially new advanced. The Duchess for dwarf stocks, and the Bartlett for standard, are still regarded as the most profitable.

Atlanta (Georgia) Pomological Society.—Fruits for Georgia.—At a meeting of this Society last fall, it voted on the following: The Kittatinny as the best Blackberry; the Georgia Mammoth, a Georgia seedling, brought into notice by W. P. Robinson, nurseryman of Atlanta, as the second best; really the best of its season, being ten days earlier than the Kittatinny. The Lawton as the third best berry. The Hicks Everbearing was voted the best Mulberry, and really this is a wonderful fruit. The trees are loaded with fruit three to four months; fine for chickens and pigs. The Dowing Everbearing as second best. The berries are larger, but it continues in bearing not nearly so long.

Of Plums, the Wild Goose was voted as worthy of general cultivation. The Common Damson and Mogul received an equal number of votes as second best. There are many fine varieties, but the curculio destroys the fruit.

Of Pears, those ripening the last of June and early July were voted upon. The Beurre Giffard received the honor of being considered the best Pear, all considered, of its season.

Nurserymen's Protective Association.—The Western nurserymen have an association for mutual protection. Each member is furnished with a list of all horticulturists possible, with the standing and strength of each as far as known. Each year this list is revised. Efforts are made to keep the list clear of prejudice, which has damaged other efforts. Men get placed on bad lists often, because they will not yield to unjust demands. Extra care is taken in this Association, and it seems to be successful.

Norfolk Pomological and Horticultural Society—Pear Culture.—In a recent

address, Mr. G. F. B. Leighton, President of the Norfolk Horticultural and Pomological Society, having tried planting clover among his Pear trees, reports that he sowed seed among nine hundred trees in the spring of 1873. In May last, the foliage looked rather sickly, in comparison with those by their side, where clean culture had been adopted, and the clean culture trees held their superiority of appearance until July, when the trees among the clover advanced to equal appearance as those of clean culture. September gave the trees among the clover a decidedly better appearance than those of clean culture. October revealed the fact that the foliage remained two weeks longer on the trees among the clover than on those of clean culture.

THE AMERICAN POMOLOGICAL SOCIETY.—A number of gentlemen connected with the Illinois Horticultural Society and the American Pomological Society, and interested in the holding of the next meeting of the latter organization in Chicago met on Wednesday, Dec. 16th, to discuss the matter informally. Among the gentlemen present were Dr. E. S. Hull, President elect of the State Horticultural Society; Robert Douglass, Ex-President; O. B. Galusha, Secretary; W. C. Flagg, Secretary of the American Pomological Society; Messrs. Ellsworth, Starr, Worthington, Sanders, Earl, Cobb, and Mr. J. P. Reynolds, Ex-President of the State Board of Agriculture, and Secretary of the Inter-State Industrial Exposition.

Mr. Flagg stated the object of the meeting to be to ascertain the views of the residents as to what could be done to provide for a meeting of the Pomological Society of the United States, to be held in Chicago next September.

The members, by invitation of Mr. Reynolds, visited the Exposition building, to ascertain the practicability of holding the next session, and fair of the Pomological Society, in connection with the Exposition next year. There were various views presented, pro and con, and considerable discussion held as to the feasibility of the project, which finally resulted in the following resolution by Mr. Starr, which was adopted:

WHEREAS, It has been determined to hold the next meeting of the American Pomological Society in Chicago; therefore

Resolved, That a committee of five be appointed to report at the January meeting of the Executive Board of the Illinois State Horticultural Society upon the best place to hold the exposition of the United States Pomological Society.

The committee so appointed were:—Messrs. Reynolds, Worthington, Ellsworth, Emery and Flagg.

We give the above from the *Western Rural*, and may add that we hear from private sources, that no doubt is entertained that the Chicago meeting will be one of the best ever held.

THE FLORIDA FRUIT GROWERS' ASSOCIATION.—At the recent organization of the above-named Society, at Jacksonville, Florida, the following officers were elected for the ensuing year:

President—P. P. Bishop, San Mateo.

Vice-President—Harrison Reed, Jacksonville.

Secretary—Charles H. Walton, Tallahassee.

Assistant Secretary—J. W. Whitney, Jacksonville.

Corresponding Secretary—C. Codrington, Jacksonville.

Treasurer—C. Drew, Jacksonville.

STANDING COMMITTEES.

Executive Committee—P. P. Bishop, J. S. Adams, H. A. Corley, A. J. Curtis, J. H. Fowler.

Committee on Transportation—J. S. Adams, H. L. Hart, W. J. Woodward, E. E. Ropes, J. C. Drake.

Committee on Soils and Fertilizers—G. W. Means, J. H. Fry, William Reave, L. A. Hardee, E. R. Chadwick.

Committee on Fruits—F. L Dancy, C. Codrington, J. A. Harris, A. J. Bidwell, M. Martin.

Committee on Gardening—A. L. Eichelberger, James Burt, J. R. Bradford, A. J. Beach, E. Jamison.

Committee on Entomology—N. H. Moragne, John Westcott, L. H. Everitt, R. B. Hilton, O. J. Dillard.

Committee on Cotton and Cane—Thomas C. Lanier, C. D. Brigham, S. H. Owens, W. D. Bloxham, J. D. Starke.

Committee on Preparation for Market and Sale of Agricultural Products—H. R. Teasdale, D. Bowen, John O. Mathews, John Varnum, Myron Strong.

Committee on Statistics—C. H. Du Pont, G. J. Alden, Z. H. Mason, N. K. Sawyer, C. A. Cowgill.

The Gardener's Monthly,

DEVOTED TO

HORTICULTURE, ARBORICULTURE & RURAL AFFAIRS.

EDITED BY THOMAS MEEHAN.

Old Series—Vol. XVII. MARCH, 1875. New Series—Vol. VIII. No. 3

Flower Garden and Pleasure Ground.

SEASONABLE HINTS.

"When is the best time to commence mowing lawns," is the question often asked since mowing machines came into use. In old scythe times it was no question. There could be no mowing till the grass had made growth enough for the scythe to take hold of,—now we want to start as soon as the mower teeth will bite. There is no doubt but that since the introduction of lawn mowers, lawn management has become an art, it never was before, and that considerable knowledge and skill will be required to maintain a lawn long in good condition. If it is cut close and kept cut close, and early as well as often and close, the best of lawns will soon wear out. Roots of course make the green grass blades; but then the green grass blades are necessary to make roots, and if we give the green grass blades no chance to form roots, the plants soon become weak, and other vegetation gets the upper hand. We should not cut early, and when we do cut, keep the knives high, and this through the whole season. We think most people would find their grass keep longer in good health, if cut as high as consistent with a neat regular surface. It is worth while, since lawn mowers are to stay with us, to try if there are not some low creeping grasses that would do better than the tall kinds which did very well under the scythe. Perhaps the Buffalo grass or the Gamma grass of the West would do. Who will try, and report? The lawn must, of course, be well rolled before the grass begins to grow much; and if there are any uneven places, these must be filled with earth before rolling. The grass will soon grow through, and make things green again.

As soon as all danger of frost is gone, and the earth becomes a little dry, some flower garden work may begin.

Set out the annuals you may have got forward in windows or frames—that is, the hardy ones. The plan used to be to set out in a shower; but that plan is barbarous. No wonder with such old fogyish rules our handsome young ladies are disgusted with gardening. Let the girls lift the seedling carefully from the soil in the pots, set the roots in a saucer of water, take them to their assigned places in the garden, and from the water dibble them at once in. Cover for twenty-four hours with an inverted flower-pot—next day cover only six hours during the middle of the day,—next but an hour or so during hot sun, if there be any; and the plant is safe. Study the difference between hardy and tender annuals. The latter must be set out only in April. In the North—extreme north—also of course, our rules are too early. Go by the season, not the almanac. March is rather a treacherous month, even in our favored latitude. Plants that have been covered by leaves may be undressed if they show signs of growth, which is the best rule for uncovering all kinds of protected plants.

Prune Shrubs, Roses and Vines. Those which flower from young wood, cut in severely to make new growth vigorous. Tea, China, Bourbon and Noisette Roses are of this class. What are called annual flowering Roses, as Prairie Queen and so on, require much of last year's wood to make a good show of flowers. Hence, with these, thin out weak wood, and leave all the stronger.

Box edgings lay well now. Make the ground firm and level, plant deep, with tops not more than two inches above the ground. When box is used as an edging to flower beds set in grass; it must be kept in a few inches or the grass will get in among the box and be troublesome.

They who wish to grow plants in masses, if in separate beds, the colors all harmonizing together, should be sure beforehand that the plants are suited to their location. Many take the plants that they have seen used hundreds of miles away, or from some popular horticultural work, and many have failures in consequence. In our rambles among gardens last year, we saw many of these unfortunate cases,—a dozen beds, perhaps, with two or three failures—enough to spoil the whole design. The leaf plants are the best reliance for most of our climates, and of these the various forms of Coleus are among the safest; though the Irisenes and Achyranthuses are not far behind. For light golden borders, there is nothing yet better than the Golden Feverfew. For silver edgings the Centaurea ragusina is still the best, but keeps expensive where large quantities are required. Last year the Artemisia stellaris was in general use, and makes an excellent substitute. Where a little green with the white is desirable, the variegated Vinca major is very useful. Indeed in a garden of any taste, it is almost indispensable. Some of the succulents are coming into use as edgings for flower-beds, and especially the Echeverias. We shall probably see the Othonna crassifolia and the Mesembryanthemum cordifolium variegatum in use this year.

It is well worth a little study at this season, how to combine plants and flowers for summer gardening so as to produce some unique effect. Gardening as an art, is not simply growing pretty flowers,—the greatest skill is in the arrangement—of course one may spend hundreds of dollars on such work, and then again it need not cost five. We hope to see more of this than we have in the past.

COMMUNICATIONS.

NOTES ON HARDY PERENNIALS.

BY F. PARKMAN, JAMAICA PLAINS, MASS.

A Few Autumn Flowers.

As I write (September 6th), a mass of golden yellow, 6 or 8 feet in width, and as many feet above the ground, rises in the herbaceous garden against the green wall of shrubs and trees beyond. At a humbler height appear the gleaming panicles of crimson Phloxes, a spike or two of Tritoma, the tall purple spears of *Liatris pycnostachya*, and the white and red of Japan Lilies; but the mass of yellow rises above them all.

Two years ago, I imported from England an insignificant looking plant in a four-inch pot, a native, I believe, of this country, emigrating to the old world, where his merits found a recognition, which they had never found at home. Having thus reclaimed him, I planted him in a good soil at the back of a wide bed of perennials, where, this year, he made the display described above. *Rudbeckia nitida* is the name of the plant; and where a grand blaze of yellow is wanted on the lawn, or at the edge of the shrubbery, it would be hard to find its equal. The individual flowers have very large petals, of the clearest golden hue; and they are by no means to be despised as decorations of the hall, or the mantel. Another tall yellow autumn flower, equally clear, but not quite so deep in color, is *Helianthus decapetalus*, also an emigrant American. Like the other, it is well worth cultivating in a situation suited to it.

America is rich in fine autumn plants. The Hibiscus family, especially, of which four or five representatives are now in bloom here, deserves a great deal more attention than it has received. The reason of this neglect is obvious, but not creditable. In England, and all the northern parts of the continent, the summers are not warm enough to expand the flowers with certainty, before the frost destroys the buds. Hence we hear but little of it from beyond the Atlantic; and consequently slight it. If our warm summers prevailed in England, the hardy Hibiscus would at once take a high floral rank. Some of its varieties are among the most splendid of hardy perennials. Even our common species, *H. palustris*, is a very handsome plant. *H. Moscheutos*, a kindred species, is still handsomer. *H. militaris*, another native, is tall and stately, with bill-shaped flowers, white, shaded into a deep red centre. *H. roseus* comes from southern Europe. It is usually of a rose color, with a deep crimson centre. A great deal might be done by hybridizing these various species, which are all hardy here; and all bloom freely in common soil, provided it is deep and not very dry. There is a fine species from the Southern States, *H. speciosus*, which probably would not bear a northern winter. The plant is from 3 to 5 feet high, and the flowers 4 or 5 inches in diameter. I have a seedling, here, now in full bloom, which bears white blossoms, faintly tinged with flesh color, and upwards of 6 inches wide.

AMERICAN CRAB TREES.

BY J. STAUFFER.

In a ramble, last spring, I came across our native Pyrus coronaria, the American or Garland Crab Apple. Dr. Gray simply says, "that it is a small tree, soon smooth, with the mostly ovate leaves rounded or obscurely heart shaped at base, and inclined to be three-lobed." I may be mistaken; but so far as my observation goes, this beautiful tree is neglected shamefully. I hope you have met with it, as I have, in its native vigor and beauty, growing wild in a moistish and cool situation, in a rich soil of its native forest. A more beautiful object can not be found, when in full bloom, together with its delightful fragrance (early in spring). To see them in masses, and inhale their delicious odor, that perfumes the surroundings for miles,—I may say with an odor like the "Viola odorata," or, as some say, like that of the Raspberry.

There is no tree or shrub that can be planted on a lawn that is more beautiful and fragrant. Why is it that we do not find it in cultivation? True, the fruit is small and sour, but it makes one of the most delicious confections or preserves, when properly made, so that it is not ornamental only.

I find that Mr. Robert Furber introduced it in England as early as 1724, and it was deemed the prettiest flowering shrub in the nursery grounds of Messrs. Colvill, in the King's Road, Chelsea, in 1822.

This native seems to be overlooked by our writers on ornamental shrubbery. Its ordinary height is from 10 to 18 feet, with a bole of from 5 to 6 inches in diameter. Insulated trees are sometimes found in old cultivated spots, which measure from 25 to 30 feet in height, with a bole of from 12 to 15 inches in diameter. The profusion of dense clusters of rose-colored blossoms, of a large size, its beautiful foliage, its fragrance, all considered, make it an object worthy of attention; and from the pleasure derived, and the enjoyment of its fragrance, in its native wild situation, I cannot help but commend it to the lovers of the beautiful. If a native of our own forests, it deserves this tribute from your old friend.

[It is singular that in all the botanical excursions of the editor, he has never ran against this tree. If any good friend will send him a few seeds, he would esteem the favor. It is said to be abundant in Maryland.—Ed. G. M.]

GRACEFUL COMBINATION.

BY W. F. BASSETT, HAMMONTON, N. J.

The item in the *Gardener's Monthly*, under the above heading, calls to mind a fine instance of the kind among the hills of Massachusetts. In a position so sheltered by almost overhanging hills and tall trees, that the full sunshine never reached it, a Bitter Sweet (Celastrus scandens), had climbed to the top of a small Hemlock tree some 15 feet, and in the depth of winter the bright orange scarlet of the berries, intermingled with the green of the Hemlock, and with the snow-covered hillside for a back ground, produced a fine effect. In that instance the depth of shade protected the berries from the sunshine while frozen, and they retained this bright color for months after others in open situations were blackened and destroyed; and this is a "hint from nature," which is frequently illustrated here in New Jersey by the Hollies, which always exhibit their berries of a brighter red, and their leaves of a healthier green when situated in the depth of the forest.

QUERIES.

Magnolia Glauca.—*B.* says that so far as Philadelphia is concerned the Magnolia glauca grows very well in any good garden ground. We have not yet heard in regard to its growth in the far west,—and we suspect that where it does not do well it is only because, like so many other things in that section, it requires protection from keen cutting winds in winter.

The Teas Catalpa.—A correspondent tells us that he has seen pods on the catalpa twenty-six inches long, and one and a half inches wide. This is unusually large. The same correspondent says Mr. Teas proposes to call it Catalpa speciosa. We hope for his own sake, Mr. Teas will do nothing so foolish. We had better leave the task of giving botanical names to those who are botanists. If it is really a marked variety, the "Teas" Catalpa, or the "Richmond" Catalpa, or any other local name, will be a better distinction.

UTAH CATALPA.—Under this name some friend sends us an inquiry about a tree, which is *Chilopsis linearis*. It is a pity that such names get currency, as its real name is just as easy to speak as the innovation. Besides the plant is no more a Catalpa than it is a trumpet vine. Bignonia, Chilopsis and Catalpa, are all plants of the Bignoniaceous order. It is a pretty dwarf tree in its own region, Southern Utah, and although it seems to endure the hardest winter in Pennsylvania, has not yet shown a disposition to grow well, or make any great show.

PLANTING IN NEBRASKA.—"Spruce Street," New York, says: "My nephew has now 160 acres of land in Nebraska, 6 miles from Seward, two 80 acre pieces, separated by 80 acres lying between, and owned by somebody else.

"I have read in the *Monthly*, your article on 'Half Hardy Trees.' I fancy he could render his property more valuable, if he would plant widely a belt of trees on the weather quarter. Have you an idea what trees, how many to the rod, when, and where shall he take them from, and what would they cost?

"If this conundrum can be solved in a cheap way, I will tell him to plant.

"His neighbor has some cotton trees. They grow rapidly, I know, but are they not feeble, letting the wind through?"

[The last time we were in Nebraska we met a man on the Loup fork of the Platte, who was justly proud of exhibiting to us some walnuts he had gathered from trees raised there from nuts he had sown but seven years before. Considering how remarkably well they must do there, we do not know that any one could do better than plant the black walnut. The growth is rapid enough to make wind breaks within a reasonable time, while the very valuable timber is quite an item,—and then even the nuts will always pay for gathering. It is best probably to grow them direct from the nuts set in the places where they are to remain. Sow them say two or three in a hill like corn, so that they can be hoeharrowed both ways for a year or two. If more than one grows in each hill those not needed can be transplanted to other places. Of course these will be too thick in time but the thinnings will always be found useful, and then the trees grow better for this close companionship. The seeds must be carefully preserved for growing. Those sold in the stores for eating are oo dry.—ED. G. M.]

PYRACANTHA HEDGES.—*S. W.*, Shortcreek, Harrison County, Ohio, says:

I would like to know if the Pyracantha would be likely to stand a cold climate, say 42 degrees below zero.

I will just state my reasons for asking the above question. I own a small piece of land in Northern Iowa, which I would like to fence with Evergreen.

I want your candid opinion. I know that Osage is commonly used; I do not like it.

[It should be borne in mind that when people write of "Pyracantha Hedges" they may mean two different things. In the South it means the *Red berry* pyracantha, but this is of no use north of the Potomac. The Pyracantha Northern writers refer to is the *White berry* pyracantha, which, though but a variety of the other, is much hardier, and a closer grower. We doubt however whether it would stand 45° below zero in Northern Iowa, although it might here in the East. We have known it stand 20° below zero in Pennsylvania without injury, but have had no chance to note how much lower it would stand. We have seen isolated plants exposed to wind destroyed when plants under the same temperature close by, protected by one another in a hedge, have been uninjured. It is a slow grower, —taking more time than most other things to make a good hedge; but when once made it takes care of itself with little skill to manage it. It is hard to say whether it is or is not "better than osage orange." If there be skill enough to manage an osage orange hedge properly, no one need have any thing cheaper or better. It is only because so many people do not know and will never learn, that it becomes desirable to have some hedge plant, which even ignorance and neglect cannot destroy.—ED. G. M.]

RHODODENDRON STOCK.—*L.* asks: Tell me, if the Rhododendron maximum will do to graft the finer named varieties on, and do they unite with it readily, and should the leaves be taken off the graft or not?

[Rhododendron maximum makes one of the best of stocks. As to whether the leaves are to be taken off depends wholly on the season of the year when the grafting is done. Some graft with the plants in pots in a slight heat and moist atmosphere, in the summer season. In this case half ripe wood is used both for scion and stock. The branch to be grafted is headed back and of course its young leaves cut off, and the leaves of the scion are left on as much of them as we find will endure the atmosphere *without wilting*. The more leaves the better, if they do not wilt.—ED. G. M.]

RELATIVE HARDINESS OF EVERGREENS FROM COLORADO AND N. W. COAST.—A Correspondent inquires whether plants of Evergreen raised from Rocky Mountain seeds are hardier than plants of the same species raised from seed from the North-west coast. We really do not know. There is a prevalent impression that the Colorado plants are the hardiest, but we do not know of any careful experiment that has decided this.

HARDINESS OF RETINISPORA PLUMOSA.—*J. L.*, Lowellville, Ohio, says: I see in many catalogues and elsewhere that the Retinispora plumosa, is represented as rather tender. With me it is very hardy. It stands in a very exposed situation, and 26 degrees below zero did not cause it to lose an inch of wood, and the excessive drouth and hot sun of the past summer did not seem to hurt it. I think it as hardy as any evergreen we have. Mine is the aurea.

[J. L. is right. It will do any where that the American Arborvitæ will.—ED. G. M.]

ABIES DOUGLASSII.—The small half starved specimen of a branch sent by L. may be of this plant, but it is a mere guess. It is hardy enough in any part of Ohio, *if preserved from wind.*

NEW PLANTS.

THE YUCCA LONGIFOLIA: "*Petra Plant*" "*Spanish Dagger.*" Professor Buckley has the following in *Our Home Journal:* "This resembles the Yucca aloefolia, which is common in cultivation in the Gulf cotton States, but the Y. longifolia has leaves nearly one-third longer, a larger and more showy bunch of terminal flowers; besides its lower leaves are often pointed downwards. It is quite common in Western Texas, west and southwest of San Antonio, where it often attains the height of fifteen and twenty feet. It is also found in the mountainous region of San Saba and Burnet Counties, where it is smaller, seldom more than ten feet high. The last of March and in early April it has a large terminal bunch or raceme of white or cream white flowers, which are about three inches n diameter. It was first described and named by me in the Proceedings of the Academy of Natural Sciences of Philadelphia, in 1861, and is now admitted by botanists to be a very distinct species.

"Dr. W. G. Kingsbury, in the Third Annual San Antonio Fair Reports, in speaking of our native flowers, states: 'We have a plant, known to us as the 'Petra,' which is a great curiosity to strangers; it often grows to the height of twenty to twenty-five feet, has no branches, but is armed and protected by a series of sharp pointed, bayonet shaped leaves, from two to three feet in length. The caput of this gigantic plant is crowned in spring time with a pale yellow flower, magnificent in richness and of the dimensions of a flour barrel. This is a member of the Palmetto family, of which we have at least a dozen varieties.

Two citizens of San Antonio, spending a season in London, were induced to visit a gentleman's hot-house, a hundred miles distant, for the purpose of seeing a 'Century plant' in full bloom, the first it was said (by the owner and his friend) which had ever bloomed in England. So gigantic was the plant to English eyes, and so great the excitement, that thousands of people were visiting it daily. Arriving at the place, and paying fifty cents admission, our San Antonio friends were shown a very dwarfed specimen of the Texas 'Petra plant.'

"'The Petra plant' is not a member of the Palmetto family, but of the *Lily* tribe of plants. There is not a single species of Palmetto known which is a native of Western Texas, but the Yuccas abound to the extent of five or six species, all of which are well deserving of cultivation. We have measured leaves of *Yucca longifolia* ('Petra plant') which were more than four feet in length."

NEW ROSE—DUCHESS OF EDINBURGH, *Crimson Tea.*—Most Tea Roses are light—a dark one will be welcome. Messrs. Veitch & Sons say: "the color is a deep glowing crimson, very free flowering, and from its present appearance we have every reason to believe it will make as good a bedding variety as the Crimson China."

The Flowers are large and full, fine form and substance.

It was exhibited at the Royal Horticultural Society's Show on May 13th, when it received a first-class Certificate from the Floral Committee, and was greatly admired.

NEW SPIREA.—The *American Garden* of a

recent date, has the following bit of good news :

Mr. Thomas Hogg, in writing from Japan, states that he has found there a new shrubby Spiræa with long racemes of white, fragrant flowers ; and which, in his opinion, will be a decided acquisition to our list of hardy shrubs. He had thus far found but one plant, though he entertained the hope of finding others or of obtaining seeds.

AQUILEGIA CHRYSANTHA.—A few years ago the announcement of a *yellow* Aquilegia, created some excitement, it being a new color in cultivated columbines. It proves to be well adapted to cultivation, and remains in bloom much longer than the ordinary kinds. The spurs are very long in proportion to the size of the petals, and attract attention at once as well as does the novel color.

CHAMÆBATIA FOLIOLOSA.—About ten years ago I saw a small plant of this on a gentleman's lawn, and its exquisite foliage so charmed me that I at once resolved to add a specimen of it to my plant collection. I applied to many of our leading nurserymen in England for it, but could never succeed in obtaining a plant. The name occurs in many catalogues, but the reply to every inquiry made concerning it is the same, "regret we cannot supply it." How is this?—J. M. HAWKCHURCH, *Axminster*, in *Garden*.

AQUILEGIA CHRYSANTHA.

Greenhouse and House Gardening.

SEASONABLE HINTS.

One of the commonest of questions is, why room plants do not do well in cities? and the answer often comes, because of the dry air from the heater. But this is a mistake. The fault is from the burning of gas for lighting purposes. We know of plenty of rooms where the air is as dry as Sahara, but oil is used for light, and the flowers do as well as any room plants can do. If however curtains can be so arranged as to fall down between the "room" and the plants, before the gas is lighted, it is found that no injury results to the plants. Of course there must be outside shutters to the windows, or the shutting off of the gas fumes will also shut out the heat, and the shutters must be depended on for security against frost.

In having window plants in the bed of the window sills, this question of shutters is an annoying one in many cases. The opening and shutting of the windows require either a troublesome removal of the plants, or a danger of breaking them. All this can be remedied by having a moveable bottom for the plants to stand on, and this bottom working on a hinge on one side, and supported by a leg, when necessary, on the other. The whole bottom, with the plants on it, then comes out like an opening gate. This is still better if a castor be fixed on the bottom of the leg. The plants can then be set out of the way, and moved back again in an instant. Better still it is to have a small stand made with four legs all on these little wheels, sloping both ways, and with a shelving projection that will fit into the bottom of the window frame. This can then be shifted round every day, so that every other day each side will have the benefit of the full sun light; and every day a good view of the plants for the sitting room. The idea is so simple, that any ingenious carpenter or wire worker can carry it out.

COMMUNICATIONS.

HOT WATER AND STEAM.

BY F. W. POPPEY.

The heating of our greenhouses and conservatories by means of hot water is generally considered the cleanest, safest, and in the long run, cheapest mode of regulating the temperature for our plants. Steam would, in the same respects, undeniably be preferable, if it could be obtained by merely connecting the pipes which are to heat the greenhouses, with one furnishing steam to an establishment where it is continually required. But when steam has to be generated expressly, whenever heating becomes necessary, and then perhaps only moderately, the necessity of the almost constant attention to the fire and boiler might be a serious objection, except where the extent of the establishment will justify the employ of a special watch and fireman. In that case, the heating with steam would be considerably cheaper, and more effective than hot water, because one steam boiler would furnish more heat with less pipe than ten times the amount of water pipes would do. For, a 4-inch pipe contains per foot 150.72 cubic inches of water, and the same fuel required to keep this quantity of water at or near the boiling point will suffice to transform enough of it into steam filling 1700 feet of 4-inch pipe. If, then, in consequence of the severity of the weather, the water would have to be kept boiling, it would require constant feeding of the fire, but without a chance of increasing the temperature of the water beyond 212° Fah., whilst with the same attendance and the same quantity of fuel, steam could be produced, and, if necessary, its temperature increased to any degree required. With a hot water apparatus, therefore, we have to heat a much greater quantity of water than is required in a steam apparatus, and are helpless in case its volume is not sufficient to repel an attack of an exceptionally severe cold, whilst in ordinary weather we may cover our fires at ten or eleven P. M., and go to bed, when the steam man will have to stay up and 'tend his fire till he is relieved. In extreme cold nights, however, both are, as far as staying up and labor is concerned, on an equality, only the steam-man is sure to beat Jack Frost, whilst the water-man is not, unless he has more pipe than most of the time is required.

That the heat radiating from a hot water pipe is qualitatively different from that coming from a steam pipe is all nonsense. Heat is heat, and

everybody ought to know by this time that no more moisture comes through an iron pipe containing water, than through one containing steam. The only difference between the two is, that a hot water pipe radiates with a temperature of 212° Fah., and *less*, whilst a steam-filled pipe radiates with a temperature of 212° Fah., and *more*. On which side the positive advantage is, may be a matter of opinion or local circumstances, but such are the facts. In Germany, where in some parts of the country they are, in regard to the cold, similarly situated with us, they have introduced a combination of hot water and steam heating, which, from all accounts, appears to work satisfactorily.

NOTES ON A SUMMER'S TOUR.

BY WILLIAM SUTHERLAND, PHILADELPHIA.

On arriving at South Amboy, I paid a visit to the Greenhouses of R. H. Rathbun, Esq., which I found to consist of five plant houses and one grapery. Five of the houses were neatly arranged on the ridge and furrow system, the walls sunk in the ground, the floors paved with yellow bricks, and the whole of the houses heated with hot water. The benches were covered with small white sea gravel; the pots being all cleaned giving them a very neat appearance.

The gardener, Mr. John Hood, gave me every facility for examining the place. He explained to me before I entered the greenhouses, that as the place was comparatively a new one, I must not expect to see very large specimens. I found, however, that what the plants lacked in size, was more than made up by the choiceness of the collection; and was agreeably surprised, on entering one house, to see two specimens of Cycas revoluta with three feet stems, and two specimens of Cycas circinalis with two feet stems. These plants had just been imported, and one of each variety had begun to make a fine growth.

The Fern seemed to be a favorite plant here, and, judging from the innumerable seedlings, the gardener was fully up to the art of raising them.

I noticed (to me) a new way of growing the dwarf varieties of Echeveria and Sempervivum by suspending them in galvanized wire baskets. The baskets were stuffed with Sphagnum Moss, and all over the under side between the wires, as well as on top, the Echeverias had been introduced. At the time of my visit most of them were in flower, and they produced a very fine and novel effect. In addition to the Echeverias and Sempervivum, (of which there was a very fine collection,) I saw more succulents here than at any place that has been my good fortune to visit. Prominent among them I noticed some very fine Cereus, Pilocereus, Echinocereus, Mammillaria, Echinopsis, Stapelias, Haworthias, and Aloes, the latter class embraced upwards of 100 varieties, and so struck was I by the variety in shape, size, and color, that I asked Mr. Hood for a list of them, which he kindly furnished, remarking at the same time that they were the finest collection in the United States.

List of Aloes.

AGAVE.
albescens
albicans
albida
Americana
folia variegata
luteo-striatis
medio pictis
amœna
applanata
Beaucarnei
nana
Beaulueriana
Bessereriana
amœna
candida
comosa
longifolia
nigrispina
Bonnetti
Caribaea
Celsiana
chloracantha
cœrulescens
excelsa
Cordleroyii
brevifolia
dealbata
Dr. Smetiani
elegans
Ellemeetiana obovata
ensiformis atropurpureum
ferox
filifera
major
minor
viridis
Fiquelmonte
fœtida
Ghiesbrechtii
brevifolia
Gnedneyii
Gilbeyii
glaucescens
grandiolinetata
Gustaviana
horrida
lævior
nana
pygmæa

AGAVE.
hystrix
gracilis
glaucescens
compacta
inermis
Inghamii
ixtalioides
Jacobiana
Kevchovei
macrodantha
lætevirens marginata
Laguayiana
Leopoldi
candida
microcantha
mitraeformis
Nissoni
Ortgiesiana
brevifolia
Ousselghemiana alba picta
pebella
picta
Posselgeri
potatorum
Pifersdorfii
pallida
superba
Regelii
macrodantha
Richardsii
robusta
Salmiana
Scaberrima
Schedigera
Seemanii
Simsii
stenophylla
Troubetzroyana
univittata
obscura
recurvispina
xylonacantha
Verschaffelti
Xalapensis
Xylonacantha
lineata
cornuta
vittata
Yuccæfolia

I also noticed two very fine specimens of the Old Man cactus, Pilocereus senilis, the long hair

like appendage completely covering the plant. In another house I saw a very fine collection of Caladiums and Orchids. Of the latter collection there were small plants of nearly all the leading kinds of the old varieties. There were some very nice specimens. Another house was filled with Palms, Crotons, and Marantas. I also observed a very fine collection of Begonias, both ornamental leaf, and flowering varieties,—of the latter class I saw several hybrids of Boliviensis, which are likely to prove good bedding plants in some situations.

There was quite a number of Ficuses. Prominent among them was Ficus Cooperii and dealbata, and a variety resembling Ficus elastica, but with leaves very much larger, called (I think) Murrayana. On the outside there was a very fine bed of Mesembryanthemum cordifolia variegata, which is comparatively scarce as yet, but in my judgment is destined to become one of our most popular plants for hanging baskets and vases. Its bright purple flowers contrast with its white and green foliage, forming an effect which must be seen to be appreciated.

The Castor Oil Bean plants, and Cannas,—some twelve varieties of very distinct kinds,—seemed to bid defiance to the dry weather; but all else except the succulents showed the effect of continued drought.

CYPRIPEDIUM ROEZLII.

BY MANSFIELD MILTON, NORTH-EASTON, MASS.

This new and rare Cypripede was first flowered in cultivation, if I mistake not, in the collection of Mr. Such, of South Amboy. It is a very attractive species, a specimen being in flower here just now. The leaves grow about eighteen inches long and about one inch broad, of a light green color, from the centre of which rises the flower spike producing eight or ten flowers, one flower only being open at once, which lasts in a cool house, a good while in perfection. As soon as one flower decays another is ready to expand, and so keeps in flower for months.

The flower is large, the sepals being greenish white striped with brown, having an edge of pure white; the petals are narrow, about four inches long, of a bright red color, thickly set with dark red hairs towards the end; the sac is pale green inside with small brown spots; outside it is of a glossy brown color. It is very attractive and deserves a place in any collection.

Thunbergia Harrisii.—The beauty of the flowers of this plant and their adaptability for bouquets, make it deserving of special mention as a greenhouse plant. It is of scandent habit, the flowers being produced in racemes at the end of the shoots and in the axil of the leaves, they are gloxinia shaped, about four inches across, of a light blue color with a pure white throat.

It is best grown as a pot-plant and trained on a wire trellis, although when well cared for does well trained on a greenhouse rafter, but being very liable to become infested with mealy bug it is more difficult to clean than when grown in a pot. It does best in a pretty warm greenhouse, thriving best in a soil composed of turfy loam, leaf-mould and a little well decomposed manure. After flowering cut well back and start in a moist atmosphere, syringing overhead occasionally when growing. As it grows very fast, the shoots should be daily attended to, training into the desired shape.

As a florist-flower for winter use this should be more cultivated than generally seen; being a color so much wanted for cutting purposes, as also its free flowering qualities in a young state. It requires to be seen before a real knowledge of its beauty can be acquired, as any description which can be given is inadequate to convey a true idea of its actual beauty.

EDITORIAL NOTES.

TREATMENT OF FUCHSIAS.—The *Gardener's Chronicle* has this to say: "*Fuchsia* cuttings struck in August, from which by far the best and most satisfactory plants for next summer can be grown, should now, if not already done, be potted into 6 or 7-inch pots, and placed in a house just free from touching the glass, in a night temperature of 50°. Keep them tied up, and the leading shoots stopped, according to natural habit of the variety, for growing bushy or otherwise. Keep a look-out on plants so treated for red-spider, for, if any has been lurking upon them through the autumn it will in such a temperature live and injure their leaves. Old *Fuchsias* that have done flowering, and which can be brought into bloom early to precede the above plants, should be now partially dried off, but, if required early, they should not be kept dust-dry. They should be placed anywhere under glass where they will receive a little light, but not where they will get drip from other plants, which they will do if put under stages or similar places; in such situations the pots should be laid down on their sides."

ADIANTUM FARLEYENSE.—Probably one of the finest examples in the United Kingdom of the beautiful exotic Fern, Adiantum Farleyense, "The Queen of the Maiden-hair Ferns," was shown at the exhibition of the Stamford Horticultural Society, September 4. It was staged by Mr. Allsop, gr. to C. T. S. Birch Reynardson, Esq., Holywell Hall, Lincolnshire. Well grown, very healthy, and beautifully colored, this specimen must have measured nearly or quite three feet in diameter; and the boldly arched elegant fronds gave it a fine symmetrical appearance, which did not fail to excite the admiration of all who saw it. A single frond of this superb Fern is a sight to be thankful for; but it is when a large and well-grown example of it meets the eye, that one seems to fully appreciate and delight in its exquisite beauty and almost unrivalled elegance.—*Gardener's Chronicle.*

NEW PLANTS.

DOUBLE RHODANTHE MANGLESII.—For early spring blooming in pots, we have always had a partiality for this beautiful Australian "everlasting,"—which we take to be as good a word as the French *immortelle.* The Germans have now produced a variety in which all the disk florets are ligulate as well as the ray florets,—in popular language, *double.* We believe it goes by the name of the "Prince Bismark."

AZALEA—DUCHESS OF EDINBURGH.—A profuse blooming variety. of good habit, very promising as an exhibition variety; flowers large and bold, pure white, of excellent form and good substance. It is also a desirable variety for those who want early bloom, as it forces easily and well.—B. S. WILLIAMS.

AGAVE TAYLORII.—This beautiful and distinct hybrid is the result of a cross between *A. geminiflora* and *A. densiflora*, and was obtained by Mr. Taylor, who is so well known in connection with the celebrated collection of Cycadaceous plants at Lauderdale House, Highgate, and the result is both singular and beautiful. It is compact in habit, and forms a most elegant specimen; the leaves are from ten to twelve inches long, and half an inch broad, dark green on the upper side, slightly paler below; they are armed at the apex with a long, stout spine, and margined their entire length with pure white; in addition to this they are beautifully ornamented along their edges with long and broad white filaments, which add materially to the beauty of the plant. The close and compact habit of this variety will enable those having but limited accommodations to find room for it in their collections.—B. S. WILLIAMS.

HABROTHAMNUS ELEGANS ARGENTEA.—In this we have one of the most beautifully variegated greenhouse plants ever offered. It may be grown as an ornamental shrub or used for covering a wall or pillar in the greenhouse or conservatory, in the latter situation it is especially ornamental; the leaves are alternate, entire, oblong-lanceolate in shape, and acuminate about six inches in length by one in breadth; nearly the whole of the surface is soft creamy white, beautifully tinged with rose and relieved by irregular blotches of light green; the flowers are produced in dense racemes, tubular, about an inch in length and deep reddish purple in color, affording a splendid contrast to the delicate white of the foliage. It has been exhibited under the name of *H. Hawkshawiana*, and was awarded a First Class Certificate.—B. S. WILLIAMS.

PARTI-COLORED DAHLIA.—*W. B. K., Abingdon, Va.*, sends us a Dahlia seedling, in which all the outside petals were a rich crimson, and the inner ones pure white. The flower was a good one independently of its color. These parti-colored Dahlias are seldom constant. That is there will be flowers often, all of one or the other color. But if this should prove constant, it will be a valuable seedling.

DICHORISANDRA MOSAICA.—An extremely handsome plant, of dwarf habit; leaves are large, ground color of the upper side rich deep shining green, traversed with an innumerable quantity of paralleled transverse fine white lines; the under side is of a uniform deep purple. It also produces lovely rich azure flowers. *Native of Peru.*—B. S. WILLIAMS.

LOBELIA PUMILA GRANDIFLORA FLORA PLENA.—This is one of the greatest acquisitions of the season. It is a beautiful light blue color, resembling the shade of the Neopolitan Violet. The flowers are large, full and very double. It is a free bloomer, as well as a fine grower.—H. CHITTY.

APHELANDRA FASCINATOR.—This is a superb species, and, unlike most of the variegated leaved plants, produces a splendid inflorescence in addition to its leafage; the leaves are rich dark green, beautifully blended with silvery white, whilst the under side is of a uniform purplish violet; the spikes in bloom are very large, bright vermillion in color. Native of New Grenada.—B. S. WILLIAMS.

QUERIES.

EMPLOYMENT FOR LADIES.—"*A reader,*" *Madison, Wisconsin*, asks: "Will you be so kind as to inform me through the columns of your magazine, whether any of the large greenhouse establishments, East or West, employ ladies; if so, is the renumeration sufficient for the support of a lady and child, they having a small income. The lady being well acquainted with every branch of floriculture."

[In a very few cases, women are employed in greenhouses, but in such cases we believe they have not been paid as much as men, nor on the whole do we think the experiments which have been made in that way, have been sufficiently satisfactory either on the part of women to take such work, or employers to seek them. In bouquet making, and cut flower work in general, however, it is different. In this line many women find employment as waiters and saleswomen in flower and seed stores. Still more women are employed than in other branches, and in some few cases as clerks and book-keepers. So far as we can ascertain however, the wages are not generally the same as for men for similar services. This is not because of any indisposition to grant the principle that similar work ought to have similar pay, but because they do not like change, and women's labor is not regarded as of such permanent character in a general way as men's. For this reason men's labor is preferred to women's, unless the latter is cheaper. We do not know exactly what the average rate of wages is for women's work in these situations, but judging by appearances a careful person would be able to support herself and child. We should be glad to see more avenues of Horticultural employment open to women. We have thought it would serve this purpose by answering this query as we find the facts, with the difficulties and all indicated.]

VARIEGATED CARNATIONS.—Mr. Chitty, of Bellevue Nursery, Paterson, N. J., sends us a specimen and the following note: "Your correspondent writing from Dubuque in regard to Carnations with variegated foliage, reminds me that we have one which appeared during the past summer among a lot of the variety known as *La Purite Variegata*, it has the flowers of the good old sort, but the stems and foliage are distinctly striped with cream color. We have recently cut up the plant for propagation, but I send you a few leaves and part of the stem, which will be sufficient to give you an idea of its peculiarities of marking. It is the first attempt at variegation in the foliage of a Carnation that I have seen; there may be others about the country."

Fruit and Vegetable Gardening.

SEASONABLE HINTS.

When every one can grow things, there is not much profit. Profit comes from skill. He who has what every body wants, gets along,—while no matter how much one may have of what nobody needs, it is "a drug in the market." Of those things which all want, and few have to offer, is the Plum. But the curculio stands in the way. Any one who has knowledge enough to preserve plums from its attacks, and energy enough to use his knowledge, has a fat thing in a business way. The prize is surely worth contending for,—and we are surprised that so few aim at it. Some are looking for "a curculio proof variety," and in pursuit of this are introducing wild things, which it would almost disgrace a hog to touch. We doubt whether plum culture will ever amount to much in this direction. Then we have plans for trapping curculios,—but these are like mopping up the overflowing ocean. The true direction is in preventing them from attack-

ing the fruit. Jarring the trees, and collecting the fallen foes, does some good, *provided* it be continuously done; but it hardly pays unless the orchard is on a large scale, and the insects not particularly numerous in the vicinity. On the whole, one of the best plans is in training the trees so that they can be easily covered with cheap gauze. At the York meeting of the Pennsylvania Fruit Growers, Prof. Heiges exhibited photographs of branches laden with beautiful fruit. He has abundance, while his neighbors have none. He covers the fruit with strong whale oil soap, through a hydropult, *going over the trees after every heavy rain.* Scores of people have written that they have tried washes of this kind and failed,—and we think our Entomological friends laugh at the notion. They will most likely insist that it was "something" else which induced the curculio to let President Heiges' Plums alone. We don't know about this,—but we do know that Mr. Heiges is a man of sound practical common sense; and if we were disposed to compete for the great prize which assuredly awaits any one who will go into plum growing in earnest, we should be very much disposed to repeat his experiments on our trees.

In the vegetable garden we might give a hint in asparagus culture, that if very large stalks are desired the soil must be very rich, and the plants set as wide apart as rows of corn. It is to be observed that those who believe there are some varieties of asparagus that may be reproduced from seed, urge the necessity of planting very wide apart. We do not know that *very* large stalks are especially desirable, and for ordinary use would set the plants about twenty inches apart; about four inches beneath the surface is deep enough to set. Good deep soil is *generally* good; but if in a stiff soil, deepening it for asparagus, only makes a *well* into which the surrounding waters drain. It is much the better in such situations to plant in raised beds. The alleys between, then serve as surface ditches. Many failures in planting asparagus, arise from this depth of bed, under such circumstances. The plants rot from water about them.

In the open ground Peas and Potatoes receive the first attention. Then Beets and Carrots. Then Lettuce, Radish, Spinach, Onions, Leeks and Parsley. Beyond this, unless in more favored latitudes than Pennsylvania, little can be done till the first week in April. There is nothing gained in working soil until it has become warm and dry.

Those who have no Spinach sown in the fall should do that right away; no amount of stable manure but will be a benefit to it, though guano, in even smallish doses, will kill it. Guano produces excellent Cabbage, mixed with the ground while it is being dug for that crop. Cabbage, is ready; and Potatoes are better in before the beginning of next month, if the ground is not too wet; many plant Cabbage between the Potato rows.

Onions are better put in early, but the ground ought to be dry, and trodden or beaten firm when the sets are planted; the ground ought not to have rank manure—wood ashes and pure undunged loam will alone produce an excellent, crop.

To have Turnips good in spring they must be sown very early; they are hardy, and must be put in as soon as the ground can be caught right.

Parsley delights in a rich gravelly loam, and should be sown very early.

Parsnips, another crop which should receive early attention, also delights in a deep gravelly soil, but detests rank manure.

Lettuce and Radishes continue to sow at intervals.

Herbs of all kinds are best attended to at this season—a good collection is a good thing.

The Carrot will thrive in soil similar to the Beet; lime is an excellent manure for it—we use long Orange. Celery may be sown about the end of the month, in a bed of very light rich soil, and Tomatoes, Egg Plants and Peppers sown in pots or boxes, and forwarded. It is as bad to be too early with these as too late, as they become stunted.

In vegetable garden culture it must be remembered that we have to operate the reverse of what we do in fruit culture. A woody growth is what we require for fruit trees; but we need for vegetables a soft, spongy, succulent character, the very reverse of this. For this end the ground cannot be too deep, too rich, or too much cultivated. The hoe and the rake should be kept continually going, loosening the surface and admitting "air and light" as the old books used to say. There is not only an advantage in this for the direct benefit of the plant, but an early use of these tools keeps down the weeds, and thus we save labor. It is a great thing to be "forehanded" in the weed war.

COMMUNICATIONS.

APPLE—"DOBBIN'S SWEET."

BY A. HUIDEKOPER, MEADVILLE, PA.

The above apple has, although not a new one, not secured a notice on the pages of Downing; nor so far as I am aware, has it been described in any of the Horticultural journals.

Over a quarter of a century ago I got grafts of it from what was supposed to be the original tree in the garden of Captain Dobbins, on the Lake shore in the City of Erie, Pa. *Size*—In size and texture it resembles the Rambo, with the same tendency to be water cored. *Form*—Round, depressed with smooth deep cavity at eye and stem; calyx closed. *Color*—Yellow, with gray spots, skin smooth, becoming somewhat oily. *Quality*—Refreshing, juicy, slightly saccharine, good to very good. *Season*—From October to January. Tree a good grower and bears well.

VISIT TO A STRAWBERRY FORCING ESTABLISHMENT.

BY JAMES BARNES, EXMOUTH, ENGLAND.

A visit to Mr. John Westcott's fruit garden, one fine Spring-like day, afforded me great pleasure. The order and cleanliness of about nine acres of healthy fruit trees and general market gardening ground with its present prospects of fruit highly gratified me. The successful culture of the strawberry under glass absorbed my interest and attention very much, especially in observing the simple, but most successful, method of its cultivation. I have never yet seen this delicious and wholesome fruit brought to such perfection in my travels through a long practical and eventful life. In Mr. John Westcott's garden there are long narrow low pits or houses of glass heated with hot-water pipes, and stored with thousands of pots of strawberries, the perfection of which certainly does the grower the greatest credit. Mr. Westcott has made for some years a specialty of the strawberries under glass. In his method of culture he has studied and found out nature's ways. He does not cultivate his strawberry plants in large pots, neither are his plants large and robust, and with luxuriant foliage. The pots they are grown in are small as compared to those generally to be seen in use for strawberry culture; in fact they are what we used to call forty-eights and small thirty-twos, averaging at the summit from four inches to five and a half inches in diameter, and the same in depth. The plants are dwarf and sturdy, of small foliage and short foot stalks, the crown's-head or centre buds are large and firm. In size about the end a blackbird's or pigeon's egg. When placed in a house they burst out slowly, as they are assisted so to do, into sturdy flowering stems. Each stem in due time is first covered with strong buds, which assisted to open, and blossom strong, looking up cheerfully and prominently to the sun and light in such profusion and beauty that it is indeed an interesting and grand sight to behold. The next process in setting or fertilizing the blossom, in order to produce a heavy crop of fruit in all kinds of seasons—early or late—no matter if the weather be dark, windy, cold, or stormy—all of which many practical fruit cultivators have reasons to know something about. In early fruit culture many have observed failures in the bountiful setting and swelling off of a crop of strawberries; after, to all appearance, they had a glowing prospect of success. John Westcott is quite up, too, and at home in this most essential point. His strawberries blossom boldly, and look as happy as a May morn. They are quickly set, and so is every blossom. The floor of the house, or pit, is covered with cast blossoms like a healthy blooming cherry orchard on a fine and gentle windy, but late April morning. All being now beautifully set, and the fruit swelling fast, it gradually weighs down the branches to the edge of the pots, if not propped, staked, or supported in some way. This, however, is not much attended to here, the fruit being allowed to hang over the sides of the pots, to swell, &c. And that too in such profusion and abundance as I never beheld elsewhere. The swelling off—of such a crop of fruits is quite marvellous and the color and firmness of the fruit when finished are also surprising. Our practical men for the sake of their own, and their employer's interest should study Mr. Westcott's method. The fruit produced by him is so firm that there is no difficulty in packing it for London, Bath, Exeter, Taunton, and other markets. The flavor at various seasons is all that can be desired; if not, it would not so readily command a free sale and high prices. The varieties Mr. Westcott cultivates this season as his main crops are the Excelsior and the Claimant. The facts I have mentioned are well worthy of being proved by those interested in the strawberry culture. This can be done without encroaching or robbing Mr. Westcott of his invaluable time; every minute

of which is of great value to him, more particularly at this season of the year. Practical men could see and learn a useful lesson with their mind's eye open while there, without getting into long and tiresome yarns or hanging about prating on matters that have no reference to the subject in hand.

EDITORIAL NOTES.

THE ROT IN THE GRAPE.—*Our Home Journal*, of New Orleans, translated the whole of Professor Planchon's admirable report of his examination of American grapes,—the translation running through many successive numbers. This is what Mr. Planchon says about the rot:

In July, when very abundant rains are followed by violent bursts of sunshine, all of a sudden, the grapes, still green, scarcely more than semi-developed, have their grains burned with a brown stain on one side. This stain has an aureole, more or less deep in tint; below the stain the tissue becomes hardened, and the whole grain dries up or rots, according as the weather may be wet or dry. We might believe that this was a simple meteoric action, analagous to drouth, for instance, if we did not often see upon the pellicle of the stain small salient points, like pustules, whose nearly imperceptible orifice emits a wormy droplet of a gluey liquor, which the microscope reveals as containing the spores of a cryptogam of the group called by botanists *Pyronomycetes* or *Hypoxyles*. These organisms are often found with nourishing filaments, dissimulated upon the epidermis of plants, whilst the apparatus of fructification show themselves on the exterior.

The cryptogam of rot has been described by Messrs. Curtis and Berkley, under the name of *Phoma uvicola*; but the history of its evolution is still to be made, and until the present, nothing has been suggested to stop its ravages. Happily all grapes are not subject to it, but the *Catawba*, so precious in many respects, is, which makes it a very uncertain crop.

CHARLES DOWNING STRAWBERRY.—Mr. Vinney, of Worcester, Mass., gives this the following excellent character in the *Practical Farmer:*

The Charles Downing has been liked best of all new comers here, but it is not fit for long carriage or keeping. Customers were afraid to buy them at first on account of their light color, but this year the best families have called for them, as they found them less acid than the Wilson. They are an attractive-looking berry when picked fresh from the vines, and far superior to Boyden's No. 30, for a market berry in this section.

HALF POUND PEACHES.—The *Bucks County Intelligencer* of last autumn says:

By far the largest peaches we have seen this season were raised by Joseph Garner, of Doylestown township, near Castle Valley. They are of a late yellow-fleshed variety, rounder than the Crawford, but much larger. Two of them weighed more than a pound, and one shown us measured eleven inches in circumference. Mr. Garner has four trees of them, and as others grown from the stones of them produced similar fruit he thinks they are seedlings.

WHERE CAN WE GET THEM?—We frequently get applications as to where articles noticed in this magazine can be procured. It may be that sometimes a score or more people might have them,—and if we named one more than others, the latter would have just cause of complaint against us. As a matter of justice therefore all such matters must be strictly confined to our *advertising columns*. If not found there the reader may conclude, without writing to us, that the *article is not yet offered for sale.*

GARDEN LABELS.—In the olden times, wet days were great conveniences. It was the great periods for making labels by all hands. But machinery took up the job, and smoothed and notched them for us better than ever the jack knife could do. Still, wet days served to wire labels. Now an Ohio man has a machine which makes and wires them, and so far as labels are concerned "wet day's" occupation is wholly gone.

NEW FRUITS & VEGETABLES.

MENOCHER'S NO-CORE APPLE.—We have from L. S. Reid, New Florence, Pa., some samples of this, which proves it to be a very different fruit from the coreless one from Kittanning, and as it is an excellent fruit in every respect, and worthy of dissemination, we give a description of it to aid in its identification. Fruit heavy, large, varying from depressed globose to oblong, generally larger on one side, calyx closed in a wide somewhat irregular basin. Stem an inch in length in our specimens, slender, in a deep russety basin. Skin greenish yellow, splashed, and often almost covered with crimson; over which are thickly scattered very large epidermal dots. The flesh is of the texture, color, and general character of the Baldwin. Generally there is no core, but once in a while there is a small scale, and we found in several apples, one imperfect and one perfect though small seed.

The Kittanning no-core is flatter, not so large, more irregular, has no regular basin or calyx sepals, and the epidermal dots are smaller, and open mouths, which few of these have. We append what Mr. Reid says of Menocher's no-core.

"I intend to ship by express a small box of specimens of winter apples, as promised in a former note, to your address, but I am sorry that by carelessness on my part, the No-Cores are in very bad order. In the first place they had to be shaken from the large old tree on which they grew, and being large, (as you will find them to be), they were badly bruised with the fall; and still worse, by an unexpected sudden freeze they were badly frosted, even slightly frozen to the heart, which has occasioned premature ripening.

"Not '*Nabon's*,' as appears in the *Gardener's Monthly* of November; but Mabon's Long Keeper, which you will find in the bottom of the box, were also slightly frozen, but appear as firm as ever The tree upon which they grew, (and the only tree of the kind I believe in existence) is so old, and so much on the decline that its fruit is small at best compared with what it was thirty years ago; and as we have experienced the severest drouth the past summer ever known in this section, all apples here are much smaller than usual. I have not fit specimens of the apple originating in my father's orchard, nor of Menocher's Best Winter; but will send you such as I have that you may judge of the flavor of these two varieties.

"You will find the two last named varieties in the middle of the box, and the 'No-Cores' next to the lid. They are here in Ligoneer Valley called 'Menocher's No-Core.' It ought to be called Menocher's Small Core, as those I have examined this season nearly all have a little kind of core, and some of them a seed chaff, but no seed. However my family are of opinion that apples got from Mr. Menocher other years had not near so much the appearance of a core as those of this season.

"Please find mixed among the 'No Cores,' another seedling from a very old and dilapidated tree in my father's old orchard; perhaps about eighty years old, nothing but a few brambly shoots from the old trunk remaining. When I was a boy fifty years ago these apples grew to a very pretty size, and though dwindled down to their present diminutive size, they still continue to be smooth and clear of specks, and keep well, and to my taste are among the best flavored winter apples I find, and are highly appreciated by Mr. Alexander's family who now own the old homestead, notwithstanding there is a great variety of the best grafted fruit of the country on the same farm.

"Please give your opinion freely respecting these different seedlings, and oblige your friend."

[*Menocher's Best Winter* is a medium sized (rather large) apple—very sweet—and at least equal to the best of the season. Years ago we should have given a description of it, and recommended its dissemination without hesitation, but the number of good apples is now so large that one renders no service to pomology by haste in describing new ones. Still we think so well of this one, that we recommend a careful comparison with popular kinds of the same season, to ascertain if it has any superior points.

The other seedlings are good, but not superior to others on our lists.—ED G. M.]

THE GOLDEN TROPHY is said to be a sport from the ordinary Trophy tomato, and partakes of the excellent quality of its parent in every respect.

PYRUS MAULEI.—By some accident our printer separated this from our article last month:

WE believe that the *Pyrus Japonica* does not fruit often in England; here it does, often in great abundance. The aroma is as grateful as the P. Maulei is represented to be. Until the past few days, however, we had never known of any one attempting to make use of them, but we now know that they make an excellent 'marmalade.' However, Dr. Masters has recently decided that it is a distinct species from P. Japonica, and this settles the question. We shall look for its introduction here with much interest.

QUERIES.

TRIPS.—*R. H. N., Springfield, Illinois*, writes: "I have for many years been greatly annoyed by myriads of thrips, which every season seriously injure my outdoor and indoor grapes, and damage, destroy or prevent, the growth of many kinds of trees and other plants.

I have tried about all known remedies with but little success. If the *Gardener's Monthly* or

any of its correspondents, will suggest a practical means of their destruction, a great favor will be conferred on many horticulturists, for which none will be more thankful than myself."

PRESERVING GRAPES.—*J. E W.* 108 *Broadway, New York*, writes: I notice on page 13, of your January number of *Gardener's Monthly*, under the head of "Grapes—late keeping," you speak (South Down article does,) of changing water. Now please inform me how the grapes are kept, with the help of water.

I kept the "Iona and Isabella" till about Christmas, by laying the grapes on a sort of wire gridirons made for that purpose, in single layers and placing them in my cold room. But they shrivelled some.

[In England of late years a very successful plan of keeping grapes by water has been discovered. A piece of the wood of the vine is cut off with the bunch, and placed in a vial of water, —the vials sunk in wooden shelves, made for the purpose. In cool rooms, grapes will keep till spring in this way.—ED. G. M.]

SWEET POTATOES.—*I. M. De P., Crawfordsville, Indiana*, asks: "Where can I get the most information on growing Sweet and Irish Potatoes? also the most information on irrigation?"

[We do not know of any special works on these subjects. Our columns are freely open to any inquiries regarding special topics connected with these or any other vegetable on which information is desired.]

VINE BORDERS.—The following note from Mr. Corbett came too late for the purpose requested:

"When you revise my article on 'The formation of Vine Borders,' please add the words bone dust, or half inch bones. As it stands now the four last words are left out; namely, half inch bones. Other words read thus 'A concrete of lime.' Please write lime and sand.

"If the alterations can be made so as to bring them in their proper place, do so."

FRUIT CULTURE IN MICHIGAN.—*H. M. Bidwell, Secretary South Haven, Michigan, Pomological Society*, says: Our coldest weather was January 9th, six degrees below zero. The next will be our 20th annual crop of peaches.

FORD'S CLUSTER TOMATO.—*A. A. B, Coburg, Ontario.* We never recommend one seedsman more than another. It is a western variety, and no doubt any of the leading western seedsmen could get it for you.

DWARF PEAR CULTURE.—*Messrs. T. G. Yeomans & Sons* write as follows: We like these brief communications, and wish we had more of them. They tell a long story in a few words.

"Our Dwarf Pear Orchard, *in grass*, gave us over eight hundred barrels of very choice pears in 1873, and between five hundred and six hundred barrels *fine* fruit in 1874."

And yet some people write that "Dwarf Pears are a failure," our opinion is that barbarous modes of culture are always failures whether with Dwarf Pears or anything else.—ED. G. M.

Editorial.

MODERN TREE PLANTING.

If our readers will remember what we have said to them at various times about vital power, and about the immediate causes of death in plants, they will be able to so apply the knowledge to transplanting trees, as to make the operation an absolute certainty. Indeed the progress of knowledge in this direction is so great of late years, that we regard it as a reproach to any one's intelligence not to be able to say at once whether a tree will or will not live after transplanting, provided the necessary conditions of success are complied with.

The first requisite is to judge of the degree of vital power a tree possesses. Scientists tell us that we cannot define vital power. It makes no difference for our purposes. If two trees are growing side by side, in about the same circumstances, and one has yellowish leaves, a stunted growth, and a hide bound stem, while the other is green, vigorous, and clean; we may say that one has a higher vital power—a greater hold on

life,—and this is proved by the fact that if the two trees meet with equally unfavorable circumstances, the former will be the first to die. Transplanting is a great blow to the vital principle,—as much so as any of the causes which produce yellow leaves or hide bound stems,—and if two trees of equal age and size are moved, though the operation is alike in both instances, the low conditioned tree may die, while the other does well. This is often the reason why some large trees fail in removal. The larger the tree, as every one knows, the greater the risk. Therefore it is one of the first points in forming a judgment as to the chances of moving a large tree, to be able to decide how active the vital principle may be.

Unless this vital principle is strong we conclude at once there is to be some risk in transplanting the large tree. Then we must remember that moisture is an essential element in vitality. When a tree is dead it is dry, and half dead when half dry. We have to take care that every chance possible for drawing water from the earth is given to the tree, and every aid afforded it that will help to keep the moisture from escaping through the branches, until the vital principle recovers from the transplanting shock. This principle has been recognized to some extent by European planters, but still very imperfectly. We have been told often how they transplant large trees in France, and have seen illustrations showing how it was done, with now and then an American imitator, "who has been there," but who is entirely ignorant of the fact that the operation of moving large trees is much more successful in his own country than in any in the world. This French plan is to swathe the trunks in straw or hay bands, and to keep them soaked with water. This to be sure is a slight benefit, just as when a man cannot take food, he has been kept alive a little while by soaking the body in nourishing liquids. But in these trees there is very little evaporation from old trunks. It is the soft and weak branches that lose the tree's moisture, and the *less vital these branches are the more easily does the moisture pass away.* Tons may escape from these, for every few pounds that go out from the trunk,—and it is to these evaporating branchlets that the great care of the transplanter is to be directed. The weaker the branches or branchlets are, the sooner they are liable to die. In a heavy freeze in the winter the weak branchlets die first,—under a heavy summer's drouth, it is the same thing,—and in transplanting if any one will carefully watch the effects, it is the small twigs which die long before the main stem does. In transplanting, therefore, whenever it is necessary to cut anything away, it should be the weak branchlets, and not the strong branches. Yet this is rarely thought of. Many a man is mortified when desiring to have a large tree removed, the operator tells him that to be successful, most of the head has to be cut away. He thinks, and rightly thinks, he may as well begin with a young tree. The saw is brought out, and the head cut ruthlessly away, and the stump is called a "large tree." Now this is not only unnecessary but an injury. In the largest tree, no other implement for pruning is necessary than a strong pruning knife, guided by a strong arm perhaps in some cases. Every small twig should be cut away, leaving a small spur near the main branch; but all the vigorous main branches should be left,—only perhaps in some cases, shortening the last year's growth from the tops of them. One cannot insist too strongly on this, and we repeat it, to cut out all the branchlets, and leave the main branches, is one of the best conditions of success.

We need scarcely say much about preserving the roots, for these are the pumps which draw in the water supply. Every reader of the *Gardener's Monthly* knows by this time that the old woody stuff immediately about the trunk of the tree can scarcely be called roots. They were roots once, but with age they are little more than old bones from which the marrow has long since dried. The *roots*, which are recognized as such by the tree itself, are the two or three year old ones, that are at the circumference of the growth circle, and generally about as far out as the branches extend. The old ball of earth system, that takes away the old bones of roots, and leaves in the earth the young nerves and muscles, is ridiculous in the light of modern knowledge. A "ball of earth" is useful to keep young and tender roots from drying, when we have the roots to keep from drying,—but when we leave the roots in the ground, and take the "ball" instead, it is absurd. They who want all the roots start and make a deep ditch—say two or three feet deep—around about the point where the young roots are, and then approach the trunk with a stout fork by the process known to the laborer as "undermining." This plan does not take long to do when done right, and time is an element of success in this that the longer the

roots are exposed, the more likely they are to be injured. Still when covered with earth—that is when dirty—they do not dry very soon,—and even here we may give a good hint. Many keep a water pot—and sprinkle the roots from time to time as the work is in progress; but this washes the dirt from the roots, and causes them to dry out almost immediately. It is best to let the muddy water stick to the roots, and trust to shade from the sun and shelter from wind to keep the earth from drying.

These are the principles now kept in view by American planters of large trees. By them large trees are now moved as successfully as small ones, and at a low cost that would have astonished the gardener of former days.

Natural History and Science.

COMMUNICATIONS.

AMONG THE CALIFORNIAN BOTANISTS.

BY JAMES S. LIPPINCOTT.

A residence of ten months duration in California afforded me opportunity to become acquainted with many of the remarkable plants peculiar to that State; and with several of her adopted sons who have made her flora an object of especial study. If the botanical enthusiasm may anywhere rightfully possess its student, surely California's claim to this prerogative will not be questioned by any one who has passed many months among her infinite spread of flowers, which in early spring render that State almost one continuous "field of the cloth of gold." Five hundred acres in one body, covered densely by the California poppy, *Eschscholtzia* well known to our readers, and too brilliant for mortal gaze, might have been seen near Los Angeles, in March of the year just closed. Hundreds of acres of *Burrielia chrysostomia* or the golden mouthed, adorned and varied by beds of blue *Phacelia* as regularly shaped and as neatly trimmed as if they had obeyed a gardener's hand, delighted us as we approached Los Angeles from its port of San Pedro. Her *Dodecatheons*, which in profusion adorn the low hills of Paradise Valley near San Diego, and the *Calochortus* or Mariposa lilies, which lend so great a charm to the trip to the Yosemite, must be seen at home if one would appreciate their exquisite beauty of form and color.

We were not surprised to find her botanists, inspired with a zeal for collecting and studying her flora, as much surpassing our Eastern students as does their field, that to which we have been limited on the Altantic border. Among these, in whom we became more especially interested, we may name Professor H. N. Bolander, of San Francisco, Dr. William P. Gibbons, of Alamedo, and the late Hiram G. Bloomer, Director of the Museum of the California Academy of Sciences.

Professor H. N. Bolander has for many years been one of the most active botanists on the coast, and from 1861 to 1867 was connected with the Geological Survey, as State Botanist. During his term of office and yearly since, he traversed the Northern and Middle sections, making extensive pedestrian excursions, and has been rewarded by the discovery of several hundred plants new to science. He has indeed been the largest contributor to our knowledge of the rich flora of California, and his extraordinary enthusiam and success have received fitting acknowledgment at the hands of the Eastern Botanists who have studied his collections. Professor Bolander has added five new genera of plants, one of which, *Bolandra*, appropriately commemorates his services to science, while nearly one hundred and fifty species of Phænogams, Mosses and Lichens, have taken their specific name from him. In and about 1866, he collected and distributed about five hundred species of Californian plants, and in 1870 was published by A. Roman & Co., of San Francisco, "*a Catalogue of Plants, growing in the vicinity of San Francisco,*" of which he is the author. The term vicinity is stretched to the extreme of its elasticity, and is made to extend about one hundred miles North and South of the Golden Gate. This catalogue contains the names of nearly all the Phænogamous and Cryptogamous plants within the range indicated, and in the absence of a text

book of the Californian Flora, is exceedingly valuable.

For several years past Professor Bolander has filled the very important and responsible position of Superintendent of Public Instruction in California. His term of office will soon expire, or has already concluded, and he is about to devote his extensive and accurate knowledge of the Californian Flora to the growth and dissemination of her many ornamental plants. He has erected propagating houses and will soon be prepared to supply a demand for her beautiful bulbous rooted plants, her ornamental shrubs and peculiar coniferous trees. To the study of the last named, Professor Bolander has given especial attention, and has succeeded in determining the numerous varieties, and fixing the true character of the species to which they belong. The distribution of seeds of native growth will also receive special attention at his hands. Professor Bolander is a gentleman of fine presence, of manners courteous and affable, with whom every Eastern botanist visiting California should at once become acquainted. His residence is in San Francisco.

EDITORIAL NOTES.

YELLOWS IN THE PEACH.—A correspondent of the *American Farmer* says:

"If the 'Yellows in the Peach,' is caused by a fungus on the root, why does not this disease show itself in Apricot and Plum trees, budded or grafted upon Peach roots?"

It is easy to ask questions,—not so easy to answer. It takes time to find out things,—and chiefly because there are thousands who write and talk, to every one who patiently experiments and observes. It is quite likely there are very good reasons why a fungus on a peach root will not affect a plum or apricot grafted on that stock. There are many vital things quite as curious as this one, about which—at least so far as we know—we have all to profess ignorance. For instance, we say this pear or that pear will not do on this or that soil,—and yet these pears are all grafted on pear stocks—seedlings of all sorts and kinds. One would suppose it was the *roots* and not the kinds grafted on them that had the selection of food, yet we see in these instances that the roots are under the influence of the variety grafted on it. So great is this influence on the roots, that often the whole character of their growth is changed. If we take seedlings from a hundred different apples, in which the roots are all different, and on these graft 50 Maiden's Blush, and 50 Rhode Island Greenings, when the trees are dug up, a good nurseryman will pick out the fifty of each by their roots alone. It is easy to ask how is this? Again we graft a White Doyenne with cracked fruit, with a Bartlett, and the Bartlett does not crack,—yet the same elements nourish one as the other, so far as we know. Why? All we can say is that those who find the solution to these problems are welcome to the use of our pages.

VARIETIES IN ASPARAGUS.—It is a matter well worth a careful examination, whether there are more than one variety of asparagus. It is well known that the variety known as Lesher's Mammoth, is simply seed from Lesher's garden, which happened to be so constituted as to produce large "grass." Mr. Lesher never pretended, that we ever knew, that his original seed was from any other than common asparagus. As we understand it, Mr. Conover's is of the same character. We believe, a package of seed came from the Agricultural Department, and his plants are from this seed. Both Mr. Lesher and Mr. Conover produce large asparagus,—but no larger we think than we have seen ordinary asparagus grow. Still there is no reason why seeds should not be sold from these beds; as we have no doubt but that seed from well grown plants will always have a tendency to produce better stock than seeds from rubbish. Heredity is a well recoginized law. If they are simply this and not seminal varieties, as the world understands it, it will not be long however before they revert to the original condition. We note that Professor Thurber, who is good authority on these matters, regards these plants as distinct varieties, and remarks that the fact that there are two varieties of Spinach, (which is also diœcious) takes away from the impossibility of asparagus breaking away also. In this sense we have never doubted the "possibility," as any one must know that there are distinct breeds among diœcious cattle,—but we suppose this requires great care to effect. The impossibility which we contend for is that any new variety of asparagus should appear by the chance process of numbers of seeds, as we understand is claimed for the Conover, the Lesher, and other kinds of asparagus. We have already referred to the fact that there are two varieties of asparagus, the green top and the

purple top, and this we take to be analogous to the round and prickly spinage. The whole subject is interesting, and we hope it will be further looked into.

WEARING OUT OF VARIETIES.—The Golden Pippin Apple which Thomas A. Knight asserted many years ago was "dying out," and which was one of the strongest facts in his celebrated theory, is said by a correspondent of the *Gardener's Chronicle*, to be doing as well in England to day as any other variety. At Sudbury House, it is the "healthiest on the place, and crops abundantly with elegant fruit." The subject has received a new interest recently, through a contribution of Professor Asa Gray to the *New York Tribune*, showing rather the possibilities of the subject, than offering anything new. M. Jean Sisley of Lyons, the well known raiser of Double Geraniums, has written to Professor Gray in reference to his paper. Mr. S. suggests that all forms in nature have a limit. This is true, and we suppose on this understanding all would agree that "varieties wear out." But we believe it was not in his extended sense that Mr. Knight offered his "theory." The question has been ably handled years ago by correspondents of the *Gardener's Monthly*, and we think a suggestion once made that the Red Dutch Currant, the Jerusalem Artichoke, or Bananas, would continue to give us Currants, Artichokes, or Bananas though not raised from seed, just as long in all probability as if they were, has not yet been met by any weightier probability.

BOTANIC GARDEN IN CHICAGO.—Active steps are being taken to have a Botanic Garden in Chicago, in connection with one of the public Parks. From the character of the men who have hold of it, the garden will be a credit to the City.

DO PLANTS ABSORB MOISTURE?—The *Garden* says: "It has recently been shown by M. Baillon that the leaves of plants are capable of absorbing water. He has been experimenting by sowing peas in a box of such a construction that the plants can be immersed in water without the roots or the soil in which they are growing becoming damp. He has kept peas alive for two months without giving the roots any water whatever, the soil being virtually quite dry."

Objection might be made, that in this case the moisture in the peas had no chance to evaporate, —unless M. Baillon's experiments—a full account of which we have not seen,—permitted of evaporation between the immersions. The experiment is easily repeated. Will some of our readers try?

WEAKENING EFFECTS OF PRUNING.—Our readers will remember that we have often pointed out, that *growth* is not a mark of high vital power,—and that though a branch seems to throw out stronger shoots after being pruned, the effort is rather an exhausting one. In proof of this we have at various times referred to street trees often headed back,—willows when grown as oziers,—osage when grown as hedges,—which never grow as stout and always die more readily under adverse circumstances. We believe we have been alone in these observations, but we have recently found the following note in the *Gardener's Chronicle*:

"During the past autumn we saw at Blythefield, the seat of Lord Bagot, a very remarkable illustration of the effect of close pruning on the constitution of a plant, as compared with a free extension of its growth. In one part of the pleasure grounds was a Hornbeam hedge of considerable age, and about 8 feet high, presenting the usual appearance of a hedge of this kind, that is to say, the individual trees bore a thicket of slender twigs, and their stems were perhaps barely as stout as one's wrist. From some cause or other the end tree of this line of Hornbeams had been allowed to grow unmolested, and while the constantly pruned plants were no larger than above indicated, the freely grown tree was a fine umbrageous specimen with a thick trunk, and a head at least 40 feet high. It formed a capital illustration of the truth, that constant repression is exhausting. There is, of course, nothing very remarkable in the fact re-recorded, nor does it teach any new lesson, but the accidental juxtaposition of the hedge and the tree brought out in strong contrast the different effects of the two systems of pruning."

ZERO IN ENGLAND—so it is said the Thermometer has registered the past winter.

PUGNACITY OF THE ENGLISH SPARROW.—An impression prevails that the English sparrow is quarrelsome; and is driving away our native birds. We have had occasion to note frequently the Snow bird and the Sparrow together this winter, and though rations were scarce there was no indications of hostility between them. On the contrary they seemed to be on quite friendly terms. We think there is some mistake in this popular impression, that they drive other birds away.

FORESTS AND RAIN FALL.—As we have given what purports to be positive and exact figures that there is no influence on the general climate by trees,—it is but fair that we give the positive and exact figures on the other side. Here are some:

"MM. Fautrat and Sartiaux have lately presented to the French Academy the results of certain experiments to test the disputed question whether forests increase or diminish the rainfall. Over the center of the Halette Forest they fixed the pluviometer, psychrometer, etc.; a similar set of instruments under similar conditions being placed above clear ground, 300 meters distant. Between February and July the total rainfall above the forest was 192.5 mm, above the clear ground 177 mm, or 15.5 mm. in favor of the forest. As regards degree of saturation, the psychrometer above the forest showed an excess of 1.3 per cent over the other; thus confirming their conclusion, that forests are vast apparatuses of condensation."

MOVEMENT OF THE SAP IN PLANTS.—Dr. M'Nab, of Dublin, has been making a further series of experiments on the amount of transpiration from the leaves of plants and on the ascent of sap through the stem, with the following results; the plants experimented on being the Cherry Laurel (Prunus laurocerasus), Privet, and Elm:—1. That under favorable circumstances a rate of ascent of 40 inches in the hour can be obtained. 2. That, contrary to the generally received opinion, direct experiment has shown that the upward rapid current of sap does not cease in the evening. 3. That checking the transpiration for a short time by placing the branch in darkness does not materially retard the rapid current of water. 4. That the removal of the cortical tissues does not impede the rapid current in the stem, which moves only through the wood portion of the fibro vascular bundles. 5. That a well marked rapid flow of fluid will take place in a stem after the removal of the leaves. 6. That fluid will rapidly flow downwards as well as upwards in the wood portion of the fibro-vascular bundles, as seen in a branch in which lithium citrate was applied at the top. 7. That pressure of mercury does not exert any very marked influence on the rapidity of flow, in the one experiment made with a pressure of 110.53 grammes of mercury. Dr. M'Nab points out with great force the disadvantage under which research in vegetable physiology labors in this country, from the fact that neither at Dublin nor elsewhere is there a physiological laboratory in connection with a botanical garden, a conjunction always necessary for the carrying out of original research. Physiological botany may, indeed, be said to be comparatively at a standstill in this country on this account. Some time ago, the idea was mooted of adding a laboratory to the herbarium at Kew, but, from some inexplicable cause, the project was abandoned.—*Garden.*

QUERIES.

THUJA PLICATA.—A correspondent inquires if this is the Nootka Sound cypress, by which we suppose he means the Cupressus Nutkæensis, or Thujopsis borealis of some authors. It is quite another thing. *T. plicata* is but a synonym of the common arborvitæ of the Pacific coast, Thuja gigantea; though we believe in some English lists forms of the common American arborvitæ have been offered as T. plicata.

AGAVE VIVIPARA.—A correspondent inquires the native country of this plant. It is from Mexico.

CRACKING OF THE PEAR.—*P. H. F.* says: "I see by looking over the *Monthly*, 1860, page 94, a suggestion by Mr. Stauffer, the Entomologist, that the cracking of the pear might be owing to the larva of a very minute insect. What have you learned about the disease, and what is your opinion about the cause?"

[Knowledge of course progresses with the accumulation of new facts, and we hardly suppose in the light of new experiences, Mr. Stauffer thinks so now.—ED. G. M.]

DO PLANTS NEED WATER?—A correspondent says: "I have been much interested in your scientific views. I buy the *Monthly* bound at the end of the year. Will you give your reasons for thinking that roots absorb only watery vapor? If so, why such general need for firm potting?"

[If any one thinks plants need *water*, he can try by stopping up the hole in the bottom of a flower pot, in which a plant is growing. This will be one of the best ways of learning that the essence of all good culture is to get rid of the water in the soil as soon as possible. This is the great principle that underlies the practice of underdraining land. We want moist air in the

soil, not water. "Firm potting" favors a large amount of air spaces. If soil is moderately dry, the more we "pound" it, the more we pulverize it,—and pulverization means dividing into minute particles. The more particles the more spaces—the more spaces, the more porous is the mass. Every pore contains air, and this air is moist air, and it is on this moisture that the plants draw. There is no difference in the manner by which a root draws moisture from the atmosphere under the ground and that by which a root of an air plant draws moisture above the ground. If you take the earth in which a healthy plant is growing, and handle it you will find no *water* in it; but you will find it *moist* enough to dampen a piece of paper perhaps. We do not know that any amount of pressure would squeeze *water* out of some soils in which plants grow healthy, though possibly moist air might be so compressed as to make *water*. Indeed the matter seems so clear to us, that we supposed it would only be necessary to state it as we have, to ensure conviction. And we wonder very much that writers still continue to use the word *water*, when they speak of the necessary conditions in the food of plants.—Ed. G. M.]

Literature, Travels & Personal Notes.

COMMUNICATIONS.

RECOLLECTIONS OF AUSTRALIA.

BY W. T. HARDING, AGRICULTURAL COLLEGE, COLUMBUS, OHIO.

When the morning dawned, a view from the elevated ridge where we passed the night, revealed a grand panorama of the Diggings. Having a letter of introduction to present to C. M. Hall, Esq., Her Majesty's Commissioner, I thought it best, for sanitary reasons as well as etiquette, to put the best face on for the occasion. To dandify was out of the question. And whatever Chesterfieldian graces we might inwardly possess, we certainly bore but little resemblance externally, to the cut of Beau Brummel.

In the ravine below, meandered a babbling brook, known by the pretty name of "Cut-throat Creek," which gently coursed through the charming glen of "Murderer's Gulch," to the alluvial plains of "Split-skull Flats;" and on to "Dead man's Valley."

Who could refuse to bathe in the "Pool of Siloam," in the "Waters of Jordan," or "Babel's stream," if the opportunity offered? We doubt if any of the readers could or would even object to take a bath in such Arcadian streams as these. Here was romantic scenery, in its wildest grandeur, with all the sylvan delights of a landscape, equal to the finest artistic conceptions of a Gainsborough or Turner, and in primeval beauty, far surpassing either Long Branch, Newport, or Saratoga. But neither belles nor beauxs were there. Only three travel-stained wayfarers "paddled in the burn," to enjoy their morning's ablutions. Like most of the forest rivulets, the water was shallow; nevertheless, there was sufficient for all detergent purposes, to make us cleaner, if not better men. Our toilet over, each shouldered his pannier, strapped knapsack fashion, and carried across the shoulders; marched along through the tented field. Early as it was, the dwellers in tents were up and at it, eager to find the big nugget, which had tempted them to come thousands of miles to unearth. As we walked along, the naturalist remarked, how much the shrubs reminded him of the gooseberry and currant bushes he so loved to be among when a boy, in the old gardens of Devonshire; and where he hoped, ere long, to enjoy them again. And he added, I would willingly give a guinea, for a ten minutes feast among the little Golden Drops, or big Crown Bobs, so sweet, and the rich black currants, which grew in the old parson's garden at Plymouth. The shrubs he had reference to, were Hibbertia grossulariofolia, or gooseberry leaved Hibbertias, of loose, or trailing habit; and Pimelia drupacea, a very free flowering dwarf shrub, producing abundance of fruit, resembling small cherries, or big black currants. The first named were numerous, with a few of H. dentata, well known as an excellent bright yellow flowering greenhouse climber.

In a little garden patch, near a miner's wigwam, were several handsome bushes of Templetonia glauca, an elegant little evergreen shrub, covered with a profusion of beautiful crimson flowers; and Eutaxia myrtifolia, a modest little shrub, with orange colored flowers; Calothamnus villosa, a showy shrub, attaining to about six feet high, and bearing a mass of gorgeous scarlet flowers. Indigofera angulata, a very attractive plant, often growing twelve feet high. The beautiful Sida pulchella, with the no less charming lilac flowering Mirbelia reticulata, and the rather scarce Darwinia fascicularis, is an uncommonly pretty red flowering decumbent shrub: and the well known greenhouse favorite, Swainsonia galegæfolia alba; and other equally interesting shrubs and herbaceous plants. I felt convinced that the owner was of the same profession as the writer. The many choice things within his garden, were all correctly named, with labels in the orthodox fashion; while several were neatly staked, and *skilfully* trained, in the best style in vogue in first-class plant establishments in Europe. Who ever has had a hand in training plants for such exhibitions as Chiswick, and Regent's Park, London, will understand what is ment by *skilful training*. For instance, as things of beauty, what could surpass the pot roses there? They were gorgeously grand, and far sweeter than ever bloomed in the Gardens of Gul, in "the clime of the East." Pelargoniums, too, each plant a paragon, arrayed in all their glory of brilliant coloring; and the no less splendid Azaleas, every one a perfect specimen, supporting a pyramid of lovely flowers, and the exquisitely beautiful Ericas and Epacris, blushing with a suffusion of loveliness, than which, nothing floral could well excel. All models of symmetry, evincing good culture. The few species named will suffice for illustration, but no pen-picturing of mine, can present them to the mind's eye, with half the charms they really possess.

Before us was the Commissioner's tent; at the front of which, a red-coated soldier paced his lonely rounds. We soon ascertained there was no admittance to that important functionary, for some time. Even the missive I bore, would not "open sesame," before office hours. From the appearance of things, we felt assured that the Union Jack would not wave over us, while breakfasting with Her Britannic Majesty's Commissioner of the gold mines. So accepted an invite from Boniface, mine host of "The Old House at Home," near by. We were evidently in luck's way for once, for not only did we fare sumptuously at the "The Old House," which by the way, was a new canvas tent, but there fell in with a party of teamsters, about to return with their empty wagons to Melbourne. So embracing the opportunity, I sent down a package in care of Mr. Garvis, who promised to ship it to Adelaide, on his arrival at the port. A promise he faithfully performed. All being ready for the journey, we accompanied the wagon train some distance beyond the diggings, where we with many regrets, bid farewell to our good friend, with a heartfelt warm adieu. I had lost a friend for whom I felt the warmest regards. My heart seemed to go with him, as I watched him through the forest, until he disappeared in the distance. As I stood leaning against the trunk of a Pisonia grandis, listening to the last rumbling sound of the wagon wheels, I observed at my feet, and spreading among the bushes, one of the richest of nature's carpets. The ground colors were various shades of green, while slightly rising above was a floral pattern of red, white, and blue. The beauteous markings were somewhat evenly blended, and were composed of the lovely little Leschenaultia formosa, red, L. biloba, blue; with here and there, like snow-flakes scattered among them, were the pure white florets of Monotoca alba. A little beyond, was the curiously formed Hakea suaveiolens, very sweet scented, if not beautiful; and among the branches above, was Tecoma australis, rambling wildly in a clump of Acacias, Banksias, and Dryandras. How much the pretty pale red lips and dark purple throat of the Tecoma flowers resembled a Gloxina. It is an old time favorite greenhouse climber, often seen covering the back walls and rafters of the old style plant houses in Europe. Near by was the peculiar evergreen shrub, Lasiopetalon ferruginium, with a mass of glossy flowers, spreading over and closely covering both stems and foliage like a woolly fleece. The interesting little Orchid, Glossodia minor, a coy beauty in "bonnie blue," looked like "a timid wee thing" among the more garish beauties around, as it peered through a bed of the exquisitely beautiful fern, Pteris scaberrula. It seemed like a gathering of old acquaintances around me, as I recognized them one by one, and repeated their once familiar names. What a train of recollections came with them, of the days of yore! They seemed to whisper hopes of happiness, and tales of distant lands.

While quietly and happily communing with Nature, my reverie was disturbed by a strange gabble of Babel-like tongues; which seemed to spread through the bush. A long acquaintance with the denizens of the forest somewhat accustomed me to the unearthly shrieks, hoots, and yells of the feathered tribe, whose discordant noises are really distressing to sensitive ears. Especially is it painful to those who were nurtured in the land of song, where the wood note, sweet and wild, of many a forest bird, greets them with their soft sweet carols. One naturally expects to hear better music from performers attired in such brilliant plumage. But the jargon is not the din of bird gabble, which gradually increases and becomes lounder, as a long file of "Heathen Chinee," emerge through the bushes, and march by. In true Oriental fashion, just as John Chinaman is pictured on the tea chests, the almond eyed, pig-tailed celestials, passed on. Neither were they lacking the long bamboo pole, (which seemed rather inconvenient in the forest,) and like a long scale beam, balance over the shoulder, and attached to each end were any number of bags, bundles, gongs, boxes, mining tools, etc. Their leader, perhaps a lineal descendant of the great Whang-ti, or Confucius, and dressed in better style than his followers, stepped jauntily along at the head. He, certainly, was in light marching order, and carried but a medium sized package, probably the cash, opium, Bhang, or Shamshu. Making me a profound salam, and saying chin, chin, he passed out of sight. I believe the Chinamen fared better at the Australian mines, than their brethren did in California. With all their peculiarities, they were a peaceable, frugal, and industrious people, and no doubt, many of them returned to the Flowery Land, as rich as Mandarins.

EDITORIAL NOTES.

THE ROSEDALE NURSERIES.—We observe with some regret, that after this season, Mr. Buist will retire from the nursery business,—and yet the public can hardly expect further service from one who has done so much for it. Horticulture owes much to many, but to none more than to Mr. Buist, whose life has been spent wholly in the cause. Though out of the business, we trust he may have many "remaining years" among us to enjoy the floral pleasures he has helped so many others to.

HISTORY OF THE NARCISSUS.—A remarkably interesting history of the Narcissus is given in Mr. Robinson's *Garden*, by Mr. J. C. Nevin. The "Hoop petticoat Narcissus" belongs to Narcissus Bulbocodium, a native of the Mediterranean and Northern Africa,—the common Daffodil, is N. Pseudo-Narcissus, and is from England and the North of Europe. The sweet scented Narcissus is N. odorus of Linnæus, and is from Spain and the South of France. The Jonquil is N. Jonquilla, and native of the same country as the last. The Common or Poet's Narcissus, and which was once the young man who thought himself so pretty, and thus became an awful warning to the young fops of the present day, is the N. Poeticus. Mr. Nevin describes and gives notes of 22 species, and figures of most of them.

POPULAR SCIENCE MONTHLY.—The February number contains a portrait of the celebrated blind naturalist, Francis Huber, with a sketch of his life and wonderful discoveries in the knowledge of Bees. The account is like a romance. We do not know that we ever read a paper more calculated to put people in love with a study of nature than this life of Huber. A study of Birds nests, by Abbott in the same number, is of a similar character.

THE CANADA FARMER.—This excellent Monthly bears the same relation to Canadian Agriculture, that the *Country Gentleman* does to that of the United States. We value it as highly as any agricultural paper that comes before us. It is now in its 12th year.

THANKS—Are due to many of our cotemporaries, and especially to the *Maine Farmer*, for kindly notices of our work. It is a pleasure to us to feel that during so many years we have retained their good opinion, which we shall strive to merit to the last.

THE HOME FLORIST.—By Elias Long, Buffalo, New York. One of the most common questions put to a nurseryman by those who do their own gardening, is where can I find a cheap and yet practical guide to the culture of common flowers, and those little matters of gardening which practiced florists are supposed to know, but "we do not?" This little book of Mr. Long's is just the thing for them. We regard it as calculated to be of immense service to floriculture, and we cordially recommend the book to our readers.

There is one point in it which will make it popular with florists and seedsmen, who may desire to sell the book to their customers. Though it is written by a member of a popular nursery firm, there is no reference to the firm in it. It is simply what it professes to be—*The Home Florist*, intended to travel on its own merits alone. The copy sent us we presented to a lady friend, who emphatically assures us it is just what she wants.

BULLETIN OF THE TORREY BOTANICAL CLUB. This is one of the most unpretending, yet one of the most useful of any botanical serials published. The Torrey Botanical Club is an association of Botanists in and around New York City; but the Bulletin publishes anything of universal as well as of local interest. Prof. Thurber is president since Dr. Torrey's death. With the last number issued is a photograph of this distinguished man.

PETER HENDERSON'S CATALOGUE.—With this appears this season colored illustrations of the following new Roses: Louis Gigot; Mad. Capuline; Mad. de St. Joseph; Douglass; Mad. St. Dennis; Marie Duchere; Mad. Margottin; Marie Sisley, Mad. Kuster; La Nankin; La Jonquil; La Phœnix.

WHAT IS EXPECTED OF A GARDENER.—The following curious law report is from the *Gardener's Weekly Magazine*:

"The *Hampshire Independent* repórts, from the chronicles of the Newport (Isle of Wight) County Court, a case of material interest to gardeners generally, and to under-gardeners in particular. A young man named Ridge was engaged by W. A. Glynn, Esq., of Fairy Hill, as under-gardener, at the munificent wage of 14s. per week; but the employer, evidently seized with a fit of remorse, shortly advanced his weekly remuneration by the addition of another shilling. Ridge came out of Gloucestershire, and it was agreed that if he remained at Fairy Hill a year should receive £1 for his traveling expenses; doubtless a safe, but scarcely a liberal, condition. During his engagement he was put to clean out the spouts round the farm buildings, and also to sift some ten or twelve loads of ashes, evidently for farm use. This work he refused to perform, taking his stand upon the principle that he was engaged to do an under-gardener's duties, and not the clean-out of spouts around farm buildings, and the screening of several loads of ashes, was properly the work of an unskilled laborer, and not that of a skilled under-gardener. Thereupon his employer waxed wroth, and being a justice of the peace, at once displayed his notions of *justice* by discharging Ridge at a moment's notice. Ridge accordingly took exception to Mr. Glynn's notions of equity, and he therefore laid a complaint in the Newport County Court, before that able lawyer, Judge Gall, the plaintiff claiming 12s. 6d. for remainder of week's wages due, and his 20s. for expenses in coming from Gloucestershire. This latter sum the judge told him that he could not recover, as the conditions attached had not been fulfilled; but he gave him judgment for 12s. 6d. wages due, clearly stating, 'he took it that an under-gardener was a *skilled* person, and sifting ashes did not come within his province. It was a laborer's work. As both parties stood upon their strict rights, he held that sifting cinders was not proper work for under-gardeners.' No doubt this is a somewhat extreme case, as, whilst it is seldom that gardeners have to perform unskilled farm work, it is also equally certain that there are few under-gardeners who would refuse to sift a few cinders for the garden fires occasionally. Nevertheless, the judgment affords distinct proof that in the eye of the law gardening is a skilled profession."

THE SOUTHERN APPLE AND PEACH CULTURIST.—By James Fitz. Published by Randolph & English, Richmond, Va., 1872. Though so long before the public this has but just made its appearance on our table,—but though late we welcome it, as we do everything calculated to improve the horticulture of the Southern States. Our country is so large that a work devoted to the wants of the whole is well nigh impossible,—and hence it is essential that we have good works devoted to special sectional needs. So far the South has produced few local works,—or if it has they have fallen out of our regular line of observation. This book contains over 300 pages, and is beautifully gotten up,—better indeed than some of our Northern Horticultural works, were, one would suppose from the greater prospect of good sales—horticulturists being more numerous—there would be more inducement for literary taste.

In regard to the matter of the book, it seems to us that any thing that any Southern man or woman desires to know about the apple or the peach, will be found within its pages. It embraces not only the classical history, but an account of the minutest details of culture. One of the peculiar and special features of the book is its lists of fruits adapted to the many localities that the work is intended to serve. We should expect to see the book in every Southern horti-

cultural library, and it will be valuable as a reference in any Northern one.

GORDON'S PINETUM.—The new edition will soon be issued from the press. This will give the latest information about Coniferous plants.

DOUGLASS & SONS Catalogue, Waukegan, Ill. We are often asked to "notice our catalogue," by good friends, whom we would gladly serve; but there are too many for our space. We cannot in fairness do for one what we have no room to do for all. But here is one we have not been asked to notice,—and we do so only because we want to commend the effort which it exhibits, of trying to put rare and expensive evergreens within the reach of every one.

HANDBOOK OF THE KANSAS AGRICULTURAL COLLEGE at Manhattan, gives an excellent account of the doings of the Institution. Botany, horticulture, and agriculture, have eminent prominence among the branches taught. J. A. Anderson is President of the Institution. Women are educated here equally with men.

EDUCATION.—C. C. Cochran, Central High School, Pittsburg, Pa., asks us:

"1. What, in your opinion, are the most radical defects in our present system of education?

"2. How can these defects be remedied?

"3. What effect would a wise system of Technical education have upon our Commercial Manufacturing, Mining and Agricultural interests?

"4. To what extent do other countries absorb our trade? Give instances, and as far as possible, statistics."

Our idea is that children are taught to *remember* too much, and to *think* to little,—they hear more than they ought (for reading is only hearing at second hand) and do not see enough; and then they have every thing found for them, instead of being encouraged to find out things for themselves. In brief they are *educated* too much, and *directed* too little. Again they are at school too long. One who has no knowledge of labor till he is a man, will want to live the rest of his days by his wits, rather than his hands, which is not a wholesome condition of society.

TOBACCO.—The *Lancet* tells of are markable instance of tolerance by the human system of the excessive use of tobacco which is afforded in the case of M. Klaes, of Rotterdam. This gentleman, who was known as the "King of Smokers," died some time since, in his 80th year, and is said to have consumed during his long life more than 4 tons of tobacco. The ruling passion was apparent in the will of the deceased, in his eccentric request that his oak coffin might be lined with the cedar of his old cigar-boxes, and that a box of French Caporal and a packet of old Dutch Tobacco might be placed at his foot, and by the side of his body his favorite pipe, together with matches, flint and steel, and tinder.

THE SOCIAL VISITOR, is a new monthly issued by Prof. Knowlton, Buffalo, N. Y., and of which the first number is just to hand. It seems especially aimed at diffusing a substantial knowledge of practical things among young people.

EATING FOR STRENGTH.—By Dr. Holbrook, published by Wood & Holbrook, New York. To one who is in health, food is a matter of little concern. What the generality of mankind have found eatable, he takes as it offers. There are of course special likes and dislikes to which all are subject, but as a matter for special study in relation to growth or strength, it is one of secondary concern. Good health takes all and is satisfied,—sickness wants and wonders, and is hard to please.

"Eating for Strength," as a title, hardly does justice to this little book. There is very much in it that will interest those who eat for pleasure as well.

PROGRESS IN OUR KNOWLEDGE OF NATURE.—The following beautiful passage occurs in a speech of Hon. Marshal P. Wilder, recently made before the New England Historical and Genealogical Society. It is pleasant to reflect that in the great march of knowledge, those who love plants and flowers hold no mean position:

"Never before has the attention of the civilized world been so thoroughly aroused in efforts to promote investigation and discovery, and to enlarge the sphere of human knowledge. Every day brings to light acquisitions which surprise mankind. Nor are these confined to earth, air and water; but man, ever restless man, not content to harness the lightning for his use, directs his vision to the skies, and, as it were, compels the celestial orbs to unveil themselves to his eye, and to transmit their image and substance to earth. Nor does he, in his desire for more light and knowledge, hesitate to enter the very council chamber of nature's laboratory, and seizing the secrets of her wonder-working power, learns how she paints the lily, perfumes the rose, and from the tiny seed raises the monarch of the forest recording by its own tissues as correctly as the chronologist an age anterior to the birth of our Saviour."

ELLWANGER & BARRY'S CATALOGUES.—We have occasionally called attention to the remarkable degree of excellence which American catalogues have over Europeans. Here is another illustration. In a set before us, we note that the number of pages are two hundred and twenty-five. Can European firms show anything like this?

REPORT OF THE DIRECTORS OF THE ARNOLD ARBORETUM OF THE HARVARD UNIVERSITY.—Under the Direction of Professor Sargent this is fast becoming the best arboretum on this continent. The list in this pamphlet of those now growing is quite large, though only dating from September, 1872.

Horticultural Societies.

COMMUNICATIONS.

CULTIVATION IN ENGLAND AND FRANCE.

ADDRESS BY J. JAY SMITH, PRESIDENT OF GERMANTOWN HORTICULTURAL SOCIETY.

(*Concluded from page* 59.)

Many wealthy persons, even the highest in title, dispose of their surplus fruit, and it is not uncommon to hear that this surplus pays all expenses in a country where the regular wages of a good gardener is but twenty-one shillings a week; and often not a penny for extra work is expended on places with one gardener, who cares for an acre or two, as well as a grapery, peach house, wall fruit, and any quantity of flowers, a fernery, and a small vegetable garden. The latter is often very restricted in its contents, two vegetables at a time satisfying the family, and these, according to our tastes, not the best.

They have a poor insipid article in their vegetable marrow, which looks well when cooked and is simply ornamental. To enter into particulars: A dinner at a first-class hotel, say at a watering place of celebrity where there is a table d'hote, is good enough if it has two vegetables, and rarely do we see more. Potatoes cooked in a single mode and vegetable marrow one day, and string beans about as good as saw dust, for variety, the next, without the marrow, and in the early season sometimes green peas, which are dear. For a whole month at Saltburn, near Scarboro, which it proposes to rival, we never saw salad, beets, lima beans (there they do not grow), squashes, egg plants, salsify, ochre, or spinach. Some of these, it is true, were not in season, but the substitutes were. Celery is a scarce article, as the gardens show; carrots, onions, and parsnips but little grown in comparison; as for sweet potatoes, our universal favorite, they are utterly unknown and unthought of.

One day I saw that the fates had been propitious in calling out field mushrooms; a nice boy brought a fine basketful of this blushing and delightful esculent; I staid a moment expecting that the whole invoice would be eagerly snatched up by our good landlady; no such thing! She purchased a pint for three pence, and we had that day on the bill of fare the novelty of "beef-steak avec champignons;" nobody detected the taste in the diluted dish. We must thank the English for demonstrating emphatically that a woman "can't keep a hotel!" Many of them seem to study only the discomfort of their guests. Why place a woman to command the men, in a position she does not understand?

It would be curious to ascertain what our cousins did eat before the potato was introduced; to this day they don't know how to fry it. Cranberries they have barely heard of, and they do not use them; the same perhaps may be said of the caterers of some ocean steamers, where this acceptable article, celery, onions and fruit, so much craved by the sick and disgusted, are too rare. Oysters in the shell could be served the whole voyage out from America to Liverpool, as was proved by an enterprising Philadelphian, who sent them opened, to our end of the table to the close of the trip. When will caterers learn that a small expenditure will bring a return of a thousand per cent.

But while we can decry the English table for its want of variety in vegetables, it is fair to add that the salmon is so plentiful, and their mutton

so good, that they go a considerable way to reconcile the stranger to his great privations. I happened into the gentlemen's smoking room of the Illinois on the last day of the return voyage. It reminded me of Carlyle's "tobacco parliament" of old Frederick, but the conversation was not of war or statesmanship; it was not of the Fine Arts, nor was it of books, or greenhouses, or of rock work. Each member of the "parliament" was confessing; confessing his needs and prospects of an appetite on landing. One passenger declared most decidedly that he would rush for oysters; a second thought egg plants would be his first choice, but he said thoughtfully and plaintively, "one can get them properly cooked only at home." Reed birds were voted for by some of the honorable members, but a good Yankee got the laugh to himself for invoking a *pumpkin pie.* Alas! the sorrow, if not tears, that peaches would be over! And here let us remark that a good peach picked from the peach-house at the happy and ripe moment is a good and commendable article. I saw many trees that produced each an average of eight dozen, ripe and handsome. A peach and a Seckle pear are good only *when ripe.* I caught a handsome dame and her two daughters anxiously placing a net under their peach trees indoors, to prevent the fruit from falling on the ground far enough to bruise and open them. As to fine grapes indoors, there is apparently scarcely an end to the luxury; the climate admits of their remaining in a ripe state a long time on the vines; a few, daily, for months are better than a vast surplus all at once Great success attends the cultivation of the pine apple; an English pine being better than one gathered in its native tropics. But enough of gastronomic subjects though they are important even to the traveler, and should be to the English, who partake of at least four meals a day with wonderful appetite.

The cultivation of evergreens is still a hobby with many, but not so much so as formerly. Probably the Deodara takes the precedence, the climate about London rendering it in its spring dress particularly unrivalled. I expected to find gentlemen founding new places, planting many of the noblest tree so adapted to the climate, the Cedar of Lebanon, but I saw few of modern date. Those that have the admiration of the world are not numerous, and were planted in the time of Cromwell, to commemorate his reign, said one intelligent Englishman. This tree grows too slow for the modern planter, and takes too much space in small grounds; but its absence in many fine places visited, seemed lamentable. Is it a piece of vanity in your narrator, if he just hints to you that he has left in more than one English County, specimens of this noblest of trees, which some of your great-grandsons may yet smoke a pipe under?

And now, how to describe the difference between the English garden and that of America in this latitude! In the first place we have no substitute for their broad leaved evergreens, as the *Aucuba Japonica;* now vastly improved by the finding of the male plant, and consequently berries of a good color, much enjoyed by the birds; and the Laurel, especially the Portugal, which make such fine panorama of undergrowth; and then the Rhododendron flourishes in the vicinity of London, and south of it with a luxuriance and variety unknown here. The Mountain Laurel of our State rivals it as one plant of one color, but hybridised and Himalayan plants of all shades, and in banks of thousands upon thousands, we can scarcely hope to attain, nor are we able to domesticate our native so as to be so unapproachably healthy and beautiful. We can and do have these plants, but, alas! in what a different condition, state of health and diffusion in private homes! A poor fellow condemned to death had a friend consigned to pass the last night of his earthly existence in his cell, to come to him. When asked what he said to enliven the immediate prospects of a horrible death, he said, he told the condemned man "*Pooh, pooh! never mind!*" We are apt to say "never mind" and pooh, pooh the facts of the case, but it remains true that we are short in Rhododendrous, compensated however somewhat by other advantages. As a general remark I would say our people do not give sufficient encouragement to the nurserymen.

The "Italian garden," as it is called, is much in vogue. Novel patterns for the beds are studied largely, planted with choice colors combined in every form. When in bloom the effect is excellent; it has taken the place of what but recently was thought to be a permanent institution—the ribbon gardening—but which has been found monotonous and less pleasing.

In France a very little advance can be discovered in horticultural matters. Their parks are still very imperfectly planted; evergreens either do not succeed well, or are not admired. The poor Bois de Boulogne, so near Paris, suffered se-

riously during the siege; some old trees remain, but young plants of a most monotonous succession of the same kinds prevail. Yet it is a noble drive, its waterfall, and its lakes still admirable; but France has long wanted a Louden, a Paxton, or a Downing to lead the public taste; indifference seems to be the prevalent difficulty to advancing. In small flower beds and in rose culture, the French still hold their own, but what cannot we pardon in a people who feel that they are living on the edge of a volcano which at any moment may belch fire, and sulphur, and extinguish all their labor! A people that only the other day were eating the animals of their grand Acclimatization garden, and bought steaks of elephant, kangaroo, lions, and tigers, and so forth, and rejoiced in potage of cats and dogs, if even such a luxury was attainable. The wife of our concierge had a favorite cat that she was determined to preserve alive during the siege, and never permitted it to descend to the street where a sentinel was posted. One morning, however, the animal was not to be found! Our witty Frenchwoman suspected the sentinel, and determined to know if he was the "cannibal," as she called him! Approaching the sentinel she deplored her loss, and pitied the happy devourer of her pet, for, said she, that cat had the small pox! Ah! Sacre, said the guard, if I had known that I would not have eaten her! The thief was ingeniously detected. She declared that her fellow servants, left with her in charge of the property, looked like "parchment mummies," when the Prussians marched away; they had existed on an ounce of meat each, which was left at the door by the municipal government each morning. Alas, poor France! she is almost beyond praying for; and yet to a visitor's eye there is almost the same Paris he saw years ago; the equipages are as showy as ever, and not unfrequently drawn by four horses in high condition. The streets are still gay, the shops most attractive, and folly reigns as of old; a little subdued by sad memories perhaps, and the absence of a profligate and expensive court; you are as liable to fraud and deception as ever, and yet there is an undertone of improved thoughtfulness in society while the Protestants are exerting themselves with good effect to insure reform. But, Oh! the mortified Frenchman; get into his inner man, and you find a concentration of disgust which must always follow a nation that attempts to live without God, and which elevates to power the wicked as a preference over the good.

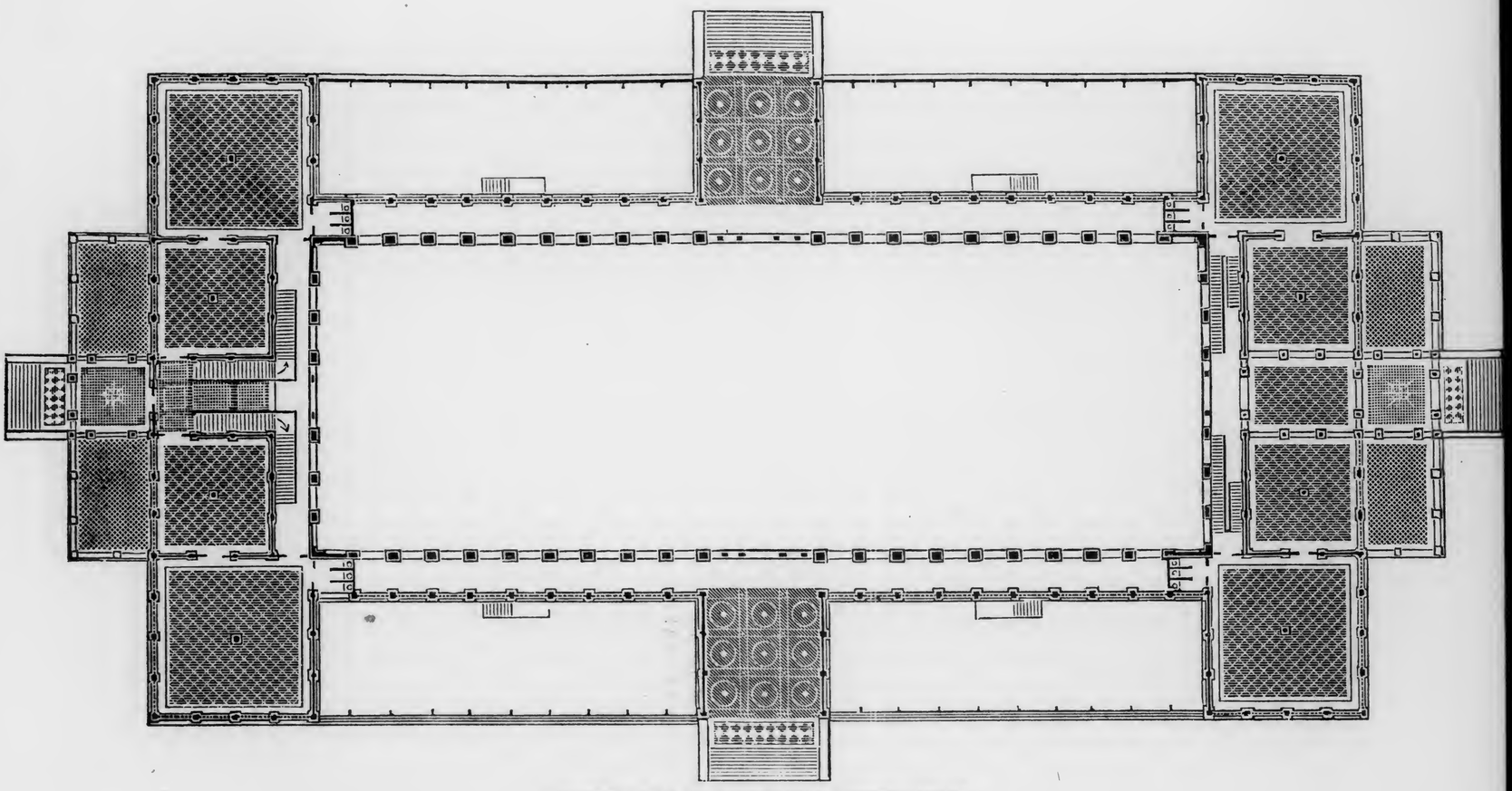
As to the cost of things in general. We used to think Old England was dreadfully, unbearably taxed, but the reverse is the fact to-day; the taxes at home are probably more than double on real estate, and we all know the prices of clothes, etc. It is a fact that bricks have been sold not very long since for fourteen shillings the thousand, while they were twelve and fourteen dollars here. No secret that we pay twice or thrice as much for many things as they cost in Europe. This is partly owing to the late war, and so far we ought to be content; but we are also overborne by unprincipled rings and jobbers, and wicked men rule over us. Reform should be, and perhaps is, now the plan.

I am old enough to remember Europe when there were no railroads; it is now bisected with them, and everybody seems to be set in motion. They have induced new modes of employing time, and new amusements. Not the least interesting is the Aquarium with its living prisoners at home in confinement. The Brighton Aquarium is much visited; quite 20,000 persons, mostly excursionists, went in on the day we saw it. The proprietors were just proclaiming a new and great attraction—they had received alive, ninety of the great odd looking horse-shoe crabs from the Jersey coast.

But I must close the note book, having detained you too long. I will only add that such a trip is refreshing and informing, and I would advise my friends who have any particular point to study, to follow good examples, for in Europe is assembled almost everything in the way of art and culture, may I say, except vegetables.

EDITORIAL NOTES.

THE CENTENNIAL CONSERVATORY.—Just as we go to press the Centennial Commissioners have received from the engraver and sent us the following plan of the Great Conservatory for the Centennial Exhibition. We suppose our readers know by this time, that nothing has failed in the carrying out of this great World's Fair. Its very magnitude created incredulity and consequent coldness at first, but the whole world has taken faith in it, and it is no longer in doubt that it will be the great event of the age. It is a permanent structure not paid for by the Centennial funds but by the City of Philadelphia.



GROUND PLAN OF CENTENNIAL CONSERVATORY.

CENTENNIAL CONSERVATORY, FAIRMOUNT PARK, PHILADELPHIA.

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.—*Worm in an Apple.* At the meeting of February 2d, Professor Joseph Leidy referred to a worm found in an apple, by Dr. Kerr, of York, Pa., and said that it was the *Mermis albicans*, and that it was a parasite of the codling moth. He was very glad to see the specimen, as the one he had first seen many years ago, and which was preserved in the collection of the Academy, had been taken from the mouth of a child, and at that time it was a mystery how it came there. But now he could understand that the child might have been eating an apple. It must be rare for them to be found in the apple; they usually follow the larvæ to the ground. The worm was several inches in length, colorless, and as fine as a thread of silk.

—*On Increased Power in Plants to Resist Cold.* At the meeting of February 9th, Mr. Thomas Meehan referred to a tuber of Solanum Fendleri, exhibited by him some months ago, and which had taken a departure towards those of the common potato. He had offered some suggestions in relation to the possibility of a common origin of these two species, but among the improbabilities he had classed the power of resisting cold, as, while the common potato was easily destroyed by frost, Fendler's potato endured without injury a temperature of zero. He had been under the impression that whatever changes plants might experience in the course of ages, the adaptation to special temperatures was nearly if not quite unchangeable. A recent experience, however, suggested the possibility of more change than he had supposed. During the very low temperature with the high wind of a few weeks ago, the frost to the extent of two degrees or so, and for a short time, got into a greenhouse with blooming plants, some of which were injured by it. Among these were Calla Æthiopica, Browallia elata, Bouvardias, Begonias and some others. The light frost in the case of all but the first named, destroyed the leaves but left the flowers uninjured. The flowers in their several parts are but metamorphosed leaves, and thus we see that with the morphological advance of the leaf to a petal came an increased physiological power to resist cold. In the case of the Calla the flowers as well as the leaves were destroyed, illustrating the same law, as the spathe of this flower is but a leaf very slightly differentiated, and consequently more subject to the laws regulating leaf life. There was nothing quite new in these observations, as all must remember that when the first light frost killed the Dahlias, Chrysanthemums and other tender plants, the petals would often remain uninjured after the leaves had been blackened by frost; and also the fact that when the leaves of plants became still more highly metamorphosed, and became seeds, those of the tenderest plants would often endure considerable cold. Thus the seeds of the common Convolvulus or Morning Glory, and of the Balsam or Lady's Slipper, as it is called in American gardens, would live out in the earth with us and grow in the spring, though the plants would be killed by a single degree of frost.

The subject is attracting some attention just now through a paper of Professor De Candolle, abstracts of which are now going through scientific serials, in which he is made to say that in the many changes which species have encountered through the course of ages, the peculiar adaptation to special temperatures has been among the least changeable of characters. Of course what are known as theories of evolution hardly find a parallel in the cases he had referred to. Evolution deals with the modification of organs. It is still the same organ though changed in form. The modified leaf is still a leaf, though it may come to be specifically distinct from its parent. In the cases he brought forward it was an absolute change of one organ to another organ. Yet he thought it was impossible to conceive of evolutionary movements wholly independent of morphological laws. However he offered the facts for whatever they might be worth, and the suggestions on them, only as leading to thought on the greater question.

AMERICAN POMOLOGICAL SOCIETY.—The Biennial meeting will take place this year in Chicago on the 8th of September. The Society will be the guests of the Illinois State Horticultural Society. From all we can learn the event promises to be one of great interest. The western men are working energetically to this end.

WESTERN HORTICULTURAL SOCIETIES.—We are indebted to many good friends for abstracts and newspaper accounts of many of these, which seem to have been unusually interesting and well attended this year. Though not able to use them all immediately, good use will be made of them in time.

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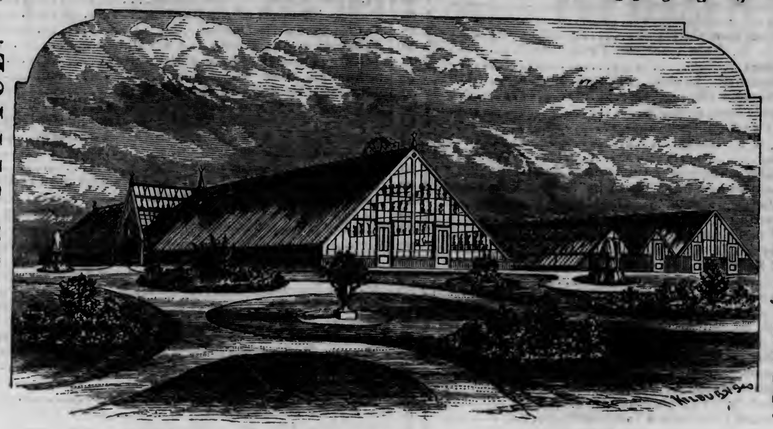

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The Gardener's Monthly,

DEVOTED TO

HORTICULTURE, ARBORICULTURE & RURAL AFFAIRS.

EDITED BY THOMAS MEEHAN.

Old Series—Vol. XVII. APRIL, 1875. New Series—Vol. VIII. No. 4

Flower Garden and Pleasure Ground.

SEASONABLE HINTS.

As the season for work has now arrived we shall go into no extended detail, but offer the following brief suggestions, which may aid the unpracticed gardener:

Prepare ground for planting. Soil loosened two feet deep dries out less in summer than soil one foot deep. Rich soil grows a tree larger in one year than a poor soil will in three. Under-drained soil is cooler in summer than soil not under-drained. The feeding roots of trees come near the surface: therefore plant no deeper than necessary to keep the tree in the soil. If there be danger of its blowing over, stake it, but don't plant deep. One stake set at an angle is as good as two set perpendicular. Straw or mat set around a tree keeps the bark from rubbing. Large stones placed around a transplanted tree are often better than a stake. They keep the soil moist, admit the air, and encourage surface roots. Shorten the shoots at transplanting. This induces growth, and growth produces roots; and with new roots your tree is safe for another season. Unpruned trees produce leaves, but little growth, and less new roots.

Place broad-leaved evergreens where they will get no sun in winter, yet away from where the roots of trees will make the ground dry in summer. Deep soil, but shallow planting, is all important for them. In transplanting, take care of the roots. Good roots are of more importance than good "balls." Balls of earth are useful in keeping fibres moist; but don't sacrifice the best fibres five or six feet from the tree for the few fibres in the ball at the base. When roots are rather dry, after filling a portion o soil, pour in water freely. After all has settled away, fill in lightly the balance of the soil, and let it rest for a few days. This is as a remedy, not as a rule; for watering this way cools the soil, ultimately hardens it, and in other respects works to the injury of the transplanted tree.

Unless inside of a round ring, or circular walk, don't plant trees or shrubs in formal clumps. They are abominations in the eyes of persons of taste. Meaningless irregularities form the opposite extreme. Remember, "art is nature better understood."

COMMUNICATIONS.

THE ART OF PLANTING.

BY J. C., CHELSEA, MASSACHUSETTS.

As the subject of planting is engaging the attention of the most intelligent men in the country, both for ornament and use, it may not be amiss to take a glance at the subject.

It is acknowledged that Mr. Repton was among the first who reduced landscape gardening to what is now, a practical science; but when we think of the changes and improvements that have taken place since the commencement of the present century, it must be confessed that great progress has been made in that time.

In the olden time it was considered that the acme of perfection was reached when a belting of equal width, in straight lines, and generally of the same sort was planted, as may still be seen in many of the popular places in Europe. Mr. Repton's ideas seemed to be, that the view from the mansion should not extend beyond the

domain of the owner, and ar anged his planta tions accordingly. The great art of planting, in my opinion, is to make such an arrangement of the plantations, as to prevent any one from finding where one property ends, and another begins, thereby making a continuous landscape. Even as late as the middle of the last century, there were some places laid out on the principle of straight lines, but yet the distant views were taken advantage of. When we contrast the straight lines of the past, with the clumps and groups of modern taste, the improvement is so conspicuous that it is seen and acknowledged at once, for although there is not so much ground planted, the object is attained both as regards shade, shelter, and change of views, and makes the lawn have a more extensive appearance, and what is of more importance, creates greater variety. It must be understood that the planting requires to be arranged so as to suit the locality, both as regards what is unsightly and ought to be hid, and preserving every desirable view whether it be of the mountain or the sea, the city with its church spires, or the village hamlet.

PRUNING FRUITS AND EVERGREENS.

BY F. R. ELLIOTT.

You will please excuse me, but when I read and a thought occurs, my inclination to scribble it out with a hope that it may induce another thought, and impress toward advancement of rural life pursuits, prevails, and I write.

Now, I go to some of your seasonable hints, and commend again and again to your readers, your words touching the skill required to prune flowering shrubs. You illustrate correctly with the Forsythia. Would you not have improved on this by saying that a summer pruning of it, almost as soon as its early blooms are off, of the old wood, and, again, a pinching from time to time of the most vigorous shoots, a rubbing away of the feeble ones, etc., would be better than the winter cutting ?

As you say, the too common practice is to prune and leave the plant or shrub in a stiff rounded or conical form, without a line of easy flowering grace, and as it grows it is like most of the bouquets or rather masses of flowers put up and sold as bouquets in the market. There is none of nature's mingling, grouping irregularity with harmony and grace. Our lilacs again nearly all need the summer pruning, and so all the early blooming spiraes. The Altheas, Syringas, Viburnums, Japan Quince, and perhaps Weigelas may, if the operator will follow the idea you have given, be pruned in winter.

While on this pruning question, let me say a word touching the pruning of Evergreens. It is the common practice to use the hedge shears and cut into stiff lines. All perhaps will, with the Arborvitæ, but no other evergreen should have shears applied to it, if natural beauty, compact form and reduction of size be the object. Every other variety should be gone over, say just at the time its buds are swelling in the Spring, and with a knife or pair of hand shears cutting out here and there a prominent branch, cutting it back to a bud or the spreading junction of two shoots of last year's growth ; then again to have just the ends clipped to a bud. But all this to you is known, and I rejoice at your words on pruning, for it is one of the least understood by the people and possibly less so by the majority of workmen employed.

PUBLIC SQUARES AND GARDENS.

BY F. W. POPPEY, POUGHKEEPSIE, NEW YORK.

This subject has been discussed in so many spoken remarks and written articles, that the still prevailing indifference or malpractice of city authorities in the management of public squares and gardens is difficult to account for, because these councils or commissions are not always entirely composed of persons unfit for the position.

The views expressed in two former articles of this magazine (page 46, 1874, and page 2, 1875,) in respect to the condition and amelioration of the public squares of Philadelphia, might with equal force be applied to those of most, if not all, other cities in the Union, and decidedly not less so to those of the great Metropolis, New York, in spite of all the money which has been spent under the pretext of *improving* the squares, which are of all forms and shapes, P. P. P. enumerates, except the circular. As *Tax Payer* says, *every skillful gardener feels disgusted as he walks through the squares*, and it is not only true of skillful gardeners, but of every other man, whose æsthetic feeling has been cultivated to a grade a little above that of a South Sea Islander's.

Most city squares are neither useful nor ornamental ; they are not only *a slur on our civilization*, but an insult and a fraud on the public in general, and those tax payers who live around them especially. Why, however, commercial

gardeners should raise their voices against this abuse above those of others, I cannot understand, but wish to be permitted to ask the question : *What are Horticultural Societies for ?* I think it should be their object rather to see that skillful gardeners were intrusted with the improvements in their line, and to cultivate the taste and the interest of the public in such matters, by urging the improving of public gardens, squares, streets and promenades. In doing that, they would do perhaps more good, than by awarding paltry prizes for the exhibition of things, no better generally than any one might buy in any common market the day before. As much as I agree with both P. P. P. and " Tax Payer " in their general views of the matter I cannot refrain from expressing my differing with them in some particulars. P. P. P. says, there should be only one row of trees all around the squares, four feet from the curbstone of the sidewalk. To this I say Amen. But he also proposes to preserve the railings and to grant the privilege of entering only to the few, who could afford and be willing to pay a nominal fee, of course inadequate to the cost of the keeping of what *the people pay for the people.* No, Mr. P. P. P., it is too exclusive ! We ought to make our public squares such places of resort, that the public, of which even *ladies of refinement* form but a part, will frequent them by day and in the evenings, as they do in other parts of the civilized world, where the " People " is not formed of two component classes.

Tear down your railings and up your outer-sidewalk, (say four feet) have the approaches at the corners, improve and lay out the inner space in *harmony with the character* of the surrounding buildings ; then, on fine summer evenings have good music and the whole ablaze with lights and it will require but a homœopathic dose of Police-force to keep the *low, degraded portion of our citizens from using it as a hiding place.* In this way the truth and force of *Tax Payer's* remark, that the *Councils have lacked good taste and the knowledge of the refining influence, which ornamental gardening has upon the people* will be fully demonstrated and the *public squares be an honor to a city and a mark of our civilized and refined taste.* The cultured foreign visitors will no longer be shocked by the cheerless and slovenly aspect, which our neglected or ridiculously *improved* (?) Squares and City Parks wear.

It is well for the United States to invite the people of the world to a Centennial Celebration in Philadelphia,—and it would do no harm to Philadelphia to have her public squares in keeping with the occasion.

[We think the difficulties that surround this subject of public improvements, are deeper than any of our correspondents perceive. It is very easy to say why is not this thing done or the other ? To blame " Commercial Gardeners," or "Horticultural Societies," or the "People,"—but their side of the case is just as strong as the other when presented. We admit these articles, however, as perhaps in a " free country " like ours one of the best modes of getting parks and squares improved is to let the " public " know that intelligent people believe their present condition is scandalous and disgraceful.—Ed. G. M.]

COUNTRY LIFE.

BY F. W. POPPEY.

The allusion to an article recently published in the *Country Gentleman*, expressing the idea of *gardeners to superintend both garden and farm, so as to make the farm pay and the garden beautiful*, will, I earnestly hope, cause gardeners to think about it ; and if those who are not yet able to take the exclusive charge of a country place, could be induced to qualify themselves for the task, the auspices of both gardeners and owners of country places would be greatly improved, and a more satisfactory condition of both parties effected. Unfortunately reforms in most cases, are difficult to accomplish, but in this I think it will be comparatively easy, for there are already gardeners who would accept situations of such a character, and be sure to give more satisfaction to the employer than that derived under the sometimes ridiculous, but always objectionable arrangement of employing a gardener and a farmer on a place, by far too small for an application of the principle of *division of labor.* In those instances we mostly find a second or third rate gardener trudging about the place, with little satisfaction to any one.

And now the farmer ! What shall we say about him, a man who undertakes to *farm* for wages ? A farmer, I venture to opine, who has no personal or material interest in the economy ; who is directed and hampered in his ways and means by considerations and orders, is an anomaly. And what, I ask, does all the farming on such places generally amount to after all ? Certainly to no more than any man of but ordinary intelligence and a little practical sense would be fully able to attend to. Now a gentleman owning a country place must, himself, take some in-

terest in its management and economy, and consequently either already *know* something about it or be willing to learn, otherwise there is no sense in the mere possession of a place. If the former is the case, then in calculating expense and return, he will find that paying and housing *two* men, of which neither one is exactly what he ought to be, because of their relative position and things generally, cost more than double what one would, and with less satisfaction at that. Whether he should, therefore, do without a gardener or without a farmer, will be easy for him to decide. That farmers generally, and such as go for hire, certainly know little or nothing about flowers, fruit, and keeping a place neat and attractive, is a well-known fact, and so the gentleman will have to choose between going either without almost every thing that might make his place inviting during the fair season at least, or doing without a farmer, whom he will soon find so much easier to dispense with, as he will be sure to see that now-a-days that sort of farming, which our fathers in their days, more or less profitably could practice, is altogether out of the question.

In former times, to own a farm, and to live permanently or occasionally on it, was quite a different thing from what it is now. Then, its management was more a subject of routine and country life, not yet seasoned so much with our modern city indispensabilities and impossibilities. We can no longer manage a farm according to a certain catechism, or to fixed rules, but must principally employ *common* sense, together with a *correct* sense for comfort and refinement, as each individual case may suggest. A gentleman's farm or country place, as a matter of course, will, under all circumstances, have to be managed differently from that of a professional farmer or an estate, which is calculated and maintained to yield a revenue, constituting the sole interest of the owner. The object of a country gentleman is to combine the *utile cum dulce*, and that object may certainly be attained better by his co-operating with an intelligent gardener, who, employing his practical experience and personal attendance to all operations, will act more as the proprietor's minister, advisor and comptroller, than as a common menial, ever ready to jump at higher wages; for he will, by direct and more intimate intercourse with his employer share considerably in the moral and intellectual satisfaction derived from the result of their combined intelligent labors.

[We are glad to find this subject occupies the attention of our correspondents. It is not without its difficulties. There is no doubt but that if one wants the best gardening, or the best farming, he must keep both departments distinct. He must have a gardener *and* a farmer. But there are thousands of gentlemen in this country who are not wealthy enough, or do not think it prudent to invest too much in higher art in gardening; but who would have much more than they do, if it did not cost so much, or if they were not bothered with innumerable details. A farm, or even part of a garden, under a judicious gardener, made to pay a portion of the expenses of the garden proper, would, we think, invite many more to country life than now venture on it, and it is well worth the attention of our shrewdest gardeners how far this can be done. The movement must come from intelligent gardeners, of course. The great point is to save country life from harrassing details, and harrassing and heavy expenses, and yet to offer something creditable both on the garden and the farm.—Ed. G. M.]

QUERIES.

The Red Buckeye.—*George S. Woodruff, Ivy Hill Greenhouses, Mt. Airy, Philadelphia*, writes:

"Perhaps every one else knows, but is the 'Red Buckeye' hardy here, and is it used for an ornamental shrub? In Louisiana it blooms from April to July; at least I have seen it in blossom in those months, but perhaps different plants. The dark, glossy leaves are alone very handsome and contrast finely with the brilliant flowers."

[Not that we know of, has this ever been in cultivation about here. There is a "Red Buckeye" grown, but it is a red variety of Æsculus *flava*, the Ohio Buckeye. The Red Buckeye referred to by our correspondent is Æsculus Pavia. Its neighbor, Æ. parviflora, does very well.—Ed. G. M.]

La France Rose.—*S. S. P., Philadelphia*, writes:—"In looking over the new catalogues issued by Florists for the year 1875, I notice they persist in classing 'La France' and its types amongst 'Hybrid Perpetuals.' They are no such thing, as any grower can readily discern; besides which, any one looking over Van Houtte's catalogue, will find them classed as they should be, 'Hybrid Noisettes.' Now why is it and why need we grovel in ignorance, and be compelled to go to foreign growers for information which our own florists should be able to give us; or is it that I am ignorant?"

Large Box Trees.—*A correspondent, Baltimore, Md.*, writes:—"I would be much obliged by an answer to the following question, if you can find time and space for the purpose:

"Having been a subscriber to the *Monthly* since 1867, it would be strange if I did not understand to a certain extent, the principle of removing evergreens successfully. I have, however, two 'Boxwoods,' for the removal of which, perhaps, on account of their size, ordinary rules will not suffice. They are planted at the front door; are forty-three years old, and eight feet across; and have so spread that they nearly meet across the steps. They must be taken away or very severely trimmed. I do not like to lose them entirely, as they are the largest in the neighborhood, and were planted by my mother. Can I remove them with any certainty of success, and *how*? I can transplant deciduous trees and not lose two per cent., but have had no experience with evergreens more than two years old. If they cannot be removed successfully can I reduce them to half their present diameter without materially injuring them?"

[As a rule the Box moves better than most trees. It has a heavy mass of fibrous roots. The large trees no doubt can be removed safely. Under the circumstances it is worth the trial. Cut out all the least vital branches as recommended in the last number in Editorial on transplanting.—Ed. G. M.]

Elms, Grasshoppers, Etc.—*J. R. D., Lincoln, Nebraska*, says:—"As one fool can purchase more goods than twenty wise men can sell, so one reader, if he chooses to be contrary, can ask vastly more questions than twenty first-rate editors can answer. And not only more questions but harder ones. This by way of excuse and self-appreciation. Now for the questions:

"Will there be as many worms to contend with next summer as usual, after this long spell of hard frost? and, if any, on what kinds does it tell most? and do the eggs of grasshoppers stand cheerfully five to twenty-five degrees below zero?

If you give these questions up like hard conundrums, I am sure I shall be the last man to find fault with you. Thus I now come nearer to your own line, and beg to ask:

"Is the American Linden, the American Beech, and the American Elm a variety of the European Linden, the English Beech, and the English Elm, or have they actually been found to exist here when Europeans first landed?

"Lastly, have these American Lindens, Elms, etc., kept up their American character when, for a length of time, they had been acclimatized in Europe?"

[It is not in the usual order of things for Nebraska to suffer as she did last year. Here in the East we have often too much rain, or too little, or something else in turn. We would as soon settle in Nebraska to-day if we wanted to settle anywhere, as we would any time since its first settlement so far as these chances are concerned. Frost will not destroy grasshopper eggs, nor the larvæ of noxious insects. Their "fat" keeps them warm. They live on this as the bears do. But they have other enemies. Spring rains are worse than frosts.

The American forms of the trees you refer to are not quite the same as the European forms. They were here when the first settlers landed. They are regarded by botanists as distinct species. Though in the light of what is now known as the evolutionary doctrine, they probably had a common origin far back in time. It must have been a long time back, as it is now near a hundred and fifty years or more since European forms have been growing here, and American forms been growing in Europe, though side by side with each other they keep each to its peculiarities without any disposition to encroach on those of each other.—Ed. G. M.]

Willows and Cypress.—*F. R. Elliott* says:—"I note my friend Harding speaks of Willows. Please let me ask him if he has seen the many trees in central New Jersey? And once more a question, will you not tell us something of the Deciduous Cypress in the old Bartram Garden. It seems to me there is in its history that which would be well to have renewed in the *Monthly*."

[The Deciduous Cypress in the Bartram Botanic Garden is still hale and hearty, but has not increased any to speak of in size or growth of late years. Fifteen years ago it was about twenty-two feet in circumference, and is about that now. There is no particular history con-

nected with it, except, that like so many of the trees there, it was brought from the South by the Bartrams, and is perhaps the oldest cultivated tree of the kind in America.—Ed. G. M.]

Management of Larches.—A Baltimore subscriber asks: "I have been growing some Larches, Scotch pines, and Norway spruces to form a windscreen on the North and West sides of the house. They will be three years old in spring and once removed. I want to plant four rows of them. How close ought they to be planted in the rows, and how distant ought the rows to be from each other?

"When I removed the Larches last spring I headed back the most of them. Some then formed a nice leader and grew well; others would not form a leader but each limb would grow horizontally, some of them making 18 to 24 inches of new wood. How must I proceed to secure a leader, when I transplant permanently next April?

"Would it be advisable to cut back at transplanting, those which have a good leader? I planted them last spring in a piece of low moist ground and they grew finely; but when I make the permanent planting in the spring it will be in high and dry ground. Would it be advisable to run a small stream of water in a shallow channel along the rows in very dry weather; and, if so, should it be done continuously or only occasionally? or would it be better to depend on thorough mulching?"

[In planting wind screens, trees are usually set eight or ten feet apart, and can be thinned out as they grow larger. It is very hard to make the Larch replace a lost leader. The only chance is to cut the main stem and upper branches back pretty severely,—and even then it may be necessary to tie up a side branch to form the leader,—leaving part of the main stem for a year or so to serve as a stake to tie the purposed leader too. Larches may have the side branches sheared to some extent at transplanting,—in view of the difficulty in getting a new leader it is best not to cut that much. Fall is always the best time to transplant Larch trees. They must be moved very early in spring to succeed. The Larch likes high ground, and if it makes a fair start, will not want much watering the year after transplanting.—Ed. G. M.]

Lawns.—Mr. Elliott writes: "Glad to see again your caution about barnyard manure as an indication of weeds; you should also say, use no street sweepings, for they are all full of weed seeds. Your former words advising well rotted mould spread over an inch or less in depth was one of the best advices. My practice, however, has been in early winter to sow fine bone meal, then in, say February, use salt, and soon after the grass starts in spring, plaster. The quantity of each depends upon the condition of the lawn and what has before been applied; if much manure has been used, more salt can be used than where little has been, and less plaster is needed."

Greenhouse and House Gardening.

COMMUNICATIONS.

THE PELARGONIUM.

BY GEORGE CORBETT, COLLEGE HILL, CINCINNATI, OHIO.

In reply to E. L. H. in February number, who is anxious to produce such fine show Pelargoniums as he saw in London, I will give him my experience, having grown them for exhibition in England.

I would advise E. L. H. having a stock on hand, to proceed at once. Stopping and training are the things most essential at this period of their growth. Unless required for early blooming, their stopping should be discontinued. The general way of tying down plants and fixing trellises, is by means of a wire around the pot beneath the rim. But this plan may well be discarded. Instruct the potter to make the ordinary rim of the pot a little broader and perforate the same with small holes 2 inches apart, this will enable the cultivator to tie down the shoots rapidly and conveniently. The great benefit to be derived from this method, I think must be

apparent to all. No trellis or stakes will be required until a proper base of action is formed; this must he done by careful pinching, and tying down the leading shoots to the edge of the pot. When this is accomplished and the plant extends, add the usual crinoline trellis, simply two or more supports placed across the top of the pot and tied to the holes beneath; the wire hoops can be put round and extend according to the diameter of the plant. Pinching should be discontinued in good time, at least three months before the time of exhibition arrives, and not shifted later than this. The Pelargonium does not require large pots. An 8 inch pot will grow a plant 4 feet in diameter. When the plants become pot bound, assist them liberally with manure water, not in too strong a state, or it will produce over luxuriance in the foliage at the expense of flower. Fumigate frequently and slightly until the flowers begin to expand, when it must be discontinued, or the flowers will fail in quantity. The plants must not under any circumstances lack water at this stage of their growth, or the foliage will suffer in consequence. After flowering, keep them well exposed to the sun. In order to have the wood thoroughly matured, give only enough water to keep the wood plump. In September those that flowered early should be cut down where large plants are desired. The current year's shoots should be shortened back, to within four eyes of where cut to last year. Let the soil become moderately dry before cutting down, or the roots will be likely to suffer. The plants should then be removed under cover either to a good light pit or frame, giving plenty of air. Syringe slightly every afternoon until they have broken, and till then give no more water than just enough to keep the soil in a healthy condition. The plants should then be shaken out and transferred to pots two inches smaller. Trim the roots a little and get nearly all the soil so as to admit as much new as possible. Use good yellow loam, with a liberal quantity of rotten dung added such as has been exposed to the air and free from worms, add sand in proportion to what the soil naturally contains; a very little is required. The chief point is to pot thoroughly hard; they delight in the soil being made quite solid. When so treated they make double the roots that plants loosely potted do. These latter always grow too much into leaf, making shoots much longer in the joints than they ought. Give only enough water to keep the soil moist, for if too wet they become elongated in branch and leaf with little disposition to root freely, a condition that must be avoided. Their winter quarters should be in a good light house, near the glass, so as to keep their growth as short and stout as possible. A temperature of 45°, giving air on favorable occasions, pinching and training as previously advised.

NOTES ON MARANTA MAKOYANA & MESEMBRYANTHEMUM CORDIFOLIUM VARIEGATUM.

BY J. H., SOUTH AMBOY, N. J.

Among the popular novelties of recent introduction, entitled to a prominent place, is this lovely Maranta. It is a fine addition to this splendid class of ornamental foliage plants admirably adapted for planting in a Fern or Wardin case. The leaf stalks are slender, erect, and of a reddish purple. The ground color on the upper surface of the leaf is a greenish yellow traversed by veins of dark green, beautifully ornamented on each side of the midrib by oblong blotches nearly two inches in length and of a deep full green. These blotches are very decided and well defined, showing handsomely on the under surface which is a wine red, given to the whole plant a very distinct and attractive character, equal to if not surpassing the gorgeous splendor of Maranta Veitchii or Lindenii. There are also some novelties deserving attention, as being particularly suitable for carpet bedding, such as Mesembryanthemum Cordifolium variegatum. A plant that has only to be seen to be admired and to become a universal favorite. It is undoubtedly the best variegated foliage bedding plant that has yet been introduced. I do not make this statement upon the strength of what I have heard read or conjectured, but upon the result of a practical test, under no very favorable auspices. I planted it out late in the season in one of the hottest, dryest positions possible along with a collection of other succulents. During the dry weather we had in the past summer, in this locality such excellent bedding succulents as Echeveria pumilla, E. secunda, and E. secunda glauca, shrivelled and turned brown and finally had to be taken up. This gem remained in perfect health, its innumerable crystal like specks glistening in the sunshine. An object replete with beauty. It has been proved that spring struck cuttings are very superior to those that are struck in autumn.

THE ADVANCING PROGRESS OF OUR ORNAMENTAL HORTICULTURE.

BY CHRONICLER.

The interest which the public take in ornamental horticulture, manifests itself in numerous artificial designs for the decorations of dwelling rooms, gardening, city yards, suburban gardens and parks. The number, beauty and variety of those designs are yearly increasing. Much ingenuity in design and execution are displayed in their manufacture. In most of the large seed stores, they look very interestingly beautiful. Of terra cotta ware there are statues, vases, tree stump imitations, and basins of many sizes and forms; some are elaborated with flowers and figures. Of rustic work, there are stands with basins, hanging baskets, wall brackets, crosses, and seats of various sizes and shapes, all with much outside figurings. Of wire and willow ware, there are hanging baskets, cages, &c., very elegant. There are fancy and highly polished ferneries, tubs, basins, pots, troughs, &c., for growing ferns, palms, sedums, bulbs, &c. The porcelain wares, are vases, bowls, &c., for holding bouquets of fresh cut flowers, dried everlasting flowers, ornamental grasses and straw oddities, all of various sizes, shapes, and colorings, and are very beautiful. All these designs of different materials and makes, are admirably suited for garden adornment, and add elegance to other improvements; certifying, that "variety gives beauty to gardening." By them millions of our citizens all over the land, have been induced to grow plants who never would have done so without them.

The hollow wares for growing fancy and curious plants, are beautiful when filled with such plants, and form a something to *love* and *care for* all the dreary days of winter; and with the expanding fancy pot covers, a lady's parlor garden, looks as neat as any part of the establishment. All ladies of taste have their *parlor gardens;* in the windows of the poorest, plain plants are now seen, though often in home-made pots and hanging baskets.

All the above mentioned artificial ornaments, have created a love of growing plants, even by those who have no grounds, and they have greatly promoted the advancing progress of our ornamental horticulture.

EDITORIAL NOTES.

EPIPHYLLUM TRUNCATUM.—Few plants are more desirable for window culture than the varieties of this plant,—and we wonder it is not more often seen. The *Gardener's Chronicle* has this paragraph:

"One of the prettiest features of the great conservatory at Chatsworth during the autumn and winter months is the grand display of Epiphyllums of the truncatum type. When it is explained that there are numerous monstrous hanging baskets filled with them, and that one side bench, for the entire length of the building, is almost wholly occupied by them, some faint idea of the pictural effect of these plants may be realised. The baskets are large, probably a yard in diameter, and are covered at top and bottom with the Epiphyllum, so that in the blooming season they are a mass of bloom. On the stage they are grown in pots, some as dwarfs, some as standards, and some worked on stocks trained up the rafters. Amongst the most striking varieties were violaceum grandiflorum, Ruckerianum, spectabile superbum, and Bridgesianum. There were also when we saw them some promising seedlings, and Mr. Speed has taken up the crossing of these plants, in the hope of gaining improvements on existing kinds."

In another number of the *Chronicle* appears the following: "The Epiphyllum truncatum may be employed in a variety of ways as a decorative plant. At Knowsley we saw tufts of it ornamenting the roof of a plant stove. It was worked on the Pereskia, which was first trained as a creeper and then grafted at intervals with the Epiphyllum. The masses of flower were very effective, and all the more so, perhaps, from their appearing to grow out of nothing, the Pereskia stem not being at all prominent."

DOUBLE DAISIES.—The English Daisy—Gowan of the Scotch poets—has been improved from time to time. Just now the "Victoria" strain is becoming popular in Europe. They are very beautiful in American spring gardening; but are somewhat difficult to get through our hot dry summers Under the moisture of a hot bed sash, they get through very well, or in any similar place where they will not be subjected to a very dry summer air.

CLIMBING JULES MARGOTTIN ROSE.—This is a sport from the old kind, and a very valuable climbing rose.

LOVE OF CURIOUS PLANTS.—So show the encouragement which English nurserymen receive, it is stated that one of them expects to sell over 1000 plants of the venus fly-trap this season.

NEW PLANTS.

CRISPED PELARGONIUM, QUEEN VICTORIA.—As our readers know by this time our botanists are unable to find any valid distinction between that class known in old times as the horse shoe or fish Geraniums and the old Pelargoniums that were once the glory of every early summer show. They are all now Pelargoniums, and the other class instead of being bedding Geraniums are "Zonale" Pelargoniums,—though large numbers have no "zones" or "horse shoes" on their leaves. There is no blame to botanists,—they have to follow the truth in all cases, no matter what temporary inconvenience may be caused thereby. Yet it was so nice in practice to distinguish the two great classes in that way. We now have to explain always what we mean by a "Pelargonium." Those we refer to to-day

CRISPED PELARGONIUM—"QUEEN VICTORIA."

are not of the old scarlet "Fish," or "Zonale" class, but of the "other." It promises to be of great interest as the founder of a new race of that class. Mr. Chitty, of the Bellevue Nurseries, thus describes it:

This magnificent Pelargonium represents a new type of this valuable flower known as the frilled or crimped edged type. To say that this variety is handsome conveys but a faint idea of its marvelous beauty. The flowers are not double, but from the peculiar crispy petals, their extra number, and great fullness of form, have the appearance of being so. The color is a rich vermilion, all the petals being broadly margined with pure white, and the upper ones blotched with maroon; the flowers are produced in immence trusses; the plants flower quite small and continue long in flower. This is the most valuable market variety ever introduced, as it is also one of the very best for general decorative purposes.

COCHLIOSTEMA JACOBIANA.—This superb Commelinaceous plant, in growth is somewhat like a large Bromelia or Anthurium. The leaves are from two to four feet in length, and some four or five inches in breadth, sheathing at the base and obtusely pointed at the apex, bright green, margined with purplish-brown; the flowers are borne upon large spikes, and are deep blue and violet, and, in addition, they are beautifully set off with large pinkish bracts. Native of Ecuador.—*B. S. Williams.*

QUERIES.

POT GERANIUMS.—Subscriber, Olney, Illinois, asks: "What Geraniums of dwarf habit and fine form are most suitable for pot plants?"

The Geranium list is a very large one, and it is difficult to say which are the best; the following are good: Master Christine, Mademoiselle Neilson, Christabel, Belle Helene, Leonidas, Black Dwarf, Louis Vieullot, Madam Van Houtte, and Bridesmaid.

CULTURE OF THE CYCLAMEN.—Subscriber, Cleveland, Ohio. We have an article on this plant from a correspondent which we hope to give next month,—and which will give the desired information.

A SUBSCRIBER OF OLNEY, ILLS., asks: "Which are the best six window plants, of handsome habit of growth, and for long continued flowering during the winter season?"

[Chinese Primroses, Zonale Geraniums, Tree Carnations, Heliotrope if there is light enough, Cyclamens, and the common Abutilon will make six easy to procure, and easy to grow.]

VIOLET CULTURE.—*D. L., Avondale, Ohio,* says: "I have a bed of violets under glass in frame, and they fail to give any satisfaction; the foliage and buds seem to grow well enough, but the buds fail to open, and rot at the time they should develop. With kind wishes to you and your magazine."

[Violets often become "blind" from being kept too warm and close. Give them air on every fine day, and they will no doubt come out all right.—ED. G. M.]

ADIANTUM FARLEYENSE.—*George Corbett, Cincinnati, Ohio,* says: "I notice in the February number, Mr. Campbell remarks this Fern has not as yet produced a fertile frond with Mr. Burnett. I have always been under the impression that it never produces fertile fronds; and has never been raised from spores, only by divisions. This is a supposed fact discovered in England in 1871. The same year the price of the plant advanced considerably in consequence. With me it has always produced barren fronds."

KEROSENE OIL FOR INSECTS.—*J. M. W. Kitchen, Morristown, N. J.,* says: "I see by your February number of *Gardener's Monthly* that you don't quite understand how to use kerosene oil to destroy insects. The simple plan is just to make some moderately strong soap suds, and mix a little oil with it. It readily combines with the soap suds, and thus it can be applied uniformly with a syringe. This composition is the best thing for mealy bugs that I have heard of, and I believe is the invention Henry Bird, of Newark, N. J. It should be used in dilution suited to the nature of the plants requiring the treatment."

EVERGREENS AS POT PLANTS.—*S.* asks for six best. Supposing it to be pot plants for window culture, take an Orange or Lemon—an Italian Myrtle, a Laurustinus, gold blotched Euonymus japonicus, Euonymus radicans, and Ardisia crenulata.

PLANTS FOR A SITTING ROOM.—*R. Warren, Md.,* says: "We have been trying to grow flowers in the sitting room windows, but do not succeed as we would like with any plants except the Calla or Richardia, the Wax Plant and the Cactus. The Calla grows splendidly, sometimes the stem and leaf measuring more than 4½ feet, and the flower is larger than any I ever saw, except some show plants in the window of one of our city florists. Some seasons each plant will have as many as ten flowers, commencing in October. When we brought the Cactus in the house in the Fall it had more than thirty buds on it, but they all fell off. Once, and only once, we had a scarlet sage that bloomed splendidly all winter; but we have no success with Verbenas, Heliotrope or Geraniums—though Geraniums will do well in a room next to the one in which there is fire. Are there any other plants that will do well in a sitting room?"

[All the plants named ought to do well in a sitting room. It is probable the room is lighted by gas, in which case there is generally enough escapes to injure the plants.—ED. G. M.]

BEGONIA BULBLETS.—Geo. S. Woodruff, Mt. Airy, Phila., says: "In reference to the note of your correspondent of South Amboy, regarding 'self propagation' of *Begonia Sutherlandii* by tubers formed at the joints, I remember seeing in a little English book, Popular Greenhouse Botany, published in 1857, a notice of an old deciduous greenhouse variety, *B. discolor*, of which it is said: little buds appear on the stem at the axils of the leaves, then drop to the ground when ripe, and if covered with soil, produce young Begonias, &c."

WINDOW FOLIAGE PLANTS.—*S.* asks for the best six foliage plants adapted to winter window culture. Taking it for granted that something very easy to grow and to procure is desired, we should say—variegated Veronica Speciosa, or some of the variegated varieties of the shrubby Australian species,—variegated Agapanthus umbellatus; Abutilon Thompsoni,—Epiphyllum truncatum grafted,—Tradescantia discolor, and Aralia papyrifera.

Fruit and Vegetable Gardening.

COMMUNICATIONS.

FRUIT CULTURE AT THE NORTH.

BY J. H. H., DOVER, N. H.

It may seem a cold locality to write from upon this subject, yet I do so from a town situated north of the 43d parallel of latitude, seventy miles almost directly north of Boston, near a large manufacturing village, upon a soil heavy and well adapted to the pear. I am writing this at a season when the thermometer often sinks 10 or 15 degrees below zero, when the brooks and ponds are frozen almost solid, and the earth has become, through the agency of Jack Frost, as hard and unyielding as the granite rock, and every twig upon every bush and tree is stiffened by the same old fellow, and the whole country covered with snow, has more the appearance of a scene in the arctic region than one in the centre of the temperate zone. This is no inviting picture for the horticulturist; yet with all the discouragements and drawbacks which our cold climate presents we have faith in fruit culture and we believe that New Hampshire can boast of as fine orchards of apples and pears as any other region situated the same; and further, that we are doing something with grapes, and are conceited enough to think that grapes are to be a paying crop even here. We have not so large an area of productive land as the Middle States, have much more severe winters, and it must not be expected that our success will be as great in fruit raising. Yet often in the winter, for three months, the ground is covered with snow protecting the tender roots of trees and plants, so that when spring comes they come out in fine condition. There are lands in New Hampshire so situated that they are of but little use for agricultural purposes, but which would be well adapted to fruit culture; there are hill sides so rocky that it is almost impossible to plough them, but where the apple tree will flourish and bear abundantly in grass, thus proving here at least the theory of Mr. Meehan, that under some conditions fruit trees will thrive better where the grass is allowed to grow around them. And

now we think that a radical change would be beneficial with many of our small farmers, at least, near our large cities and villages, if instead of raising so many of the coarser vegetables more attention were paid to the culture of fruit, particularly the small fruits, much more profit would accrue to them.

ORANGE APPLE.

BY CHARLES DOWNING.

In the *Gardener's Monthly* of 1873, page 343, Mr. Blodget gives an outline and description of the Orange Apple, saying "it is not known in Eastern New York or Pennsylvania, nor can I find it described in Downing's list," but if he will turn to page 258 of Downing's last edition 1869 or '72, he will there find it described as "Lowell" with Orange as a synonym, including a half dozen other synonyms. He will also find it in Thomas, Elliott, Barry's, and other fruit books, and in nearly all the descriptive fruit catalogues issued in New York and the adjoining states. When reading Mr. Blodget's description of the Orange Apple I was quite certain it was the Lowell, and to be positive I wrote to Mr. Miller, near Sugar Grove, (Mr. Blodget's orchard,) in September last, for specimens of Orange Apple, which he kindly sent me, and which were identical with the Lowell. It is a distinct apple, and not easily mistaken or confounded with other kinds.

RIPLEY APPLE.

BY W. C. FLAGG, MORO, ILL.

Referring to *Gardener's Monthly*, February, page 47, just received. I wrote the notice of the Ripley apple. J. S. Peers, of Collinsville, Madison County, called my attention to it. It is, I think, a desirable fruit. It was reported upon to some effect in the American Pomological Society Report in 1871.

The Illinois State Horticultural Society, with Dr. Hull as President, will be the society in charge of our American Pomological Society meeting at Chicago, in September. The Missouri, Iowa, Nebraska, Wisconsin, Minnesota, Indiana, Michigan, Ohio, and Virginia Societies at least have already expressed a desire to "lend a hand," and if we have a favorable season we shall have a fine exhibition. I presume the time of meeting will be fixed at September 8th, and it has been decided to secure separate halls and hold an entirely independent exhibition.

DWARF PEARS IN GRASS.

BY T. G YEOMANS, WALWORTH, N. J.

In connection with the culture of Pear orchards in grass, I would refer to a statement of W. C. Barry made at the January meeting of Western New York Horticultural Society, that "he had seen Mr. Yeomans' orchard, that the trees made but little growth and did not appear vigorous. Believed orchards kept in grass will run out," etc.

I would say that the season when he saw my orchard was a very dry one, (1873); that they had a heavy crop of fruit amounting to over 800 barrels, and of so fine a quality that the whole amount of waste pears amounted to less than 20 bushels. That the past year 1874, they produced over 500 barrels and made a very fine growth, the new wood averaging 1, 2, 3, and sometimes 4 feet on trees in grass, and over 20 years planted. This is very satisfactory to me; and shows much more growth and vigor than any other of the fruit trees I have, which have been planted as long.

THE BRIGHTON GRAPE.

BY T. T. SOUTHWICK.

I want to say a word regarding this new grape. I have seen nothing since the Iona that has pleased me so much. I have had the pleasure of testing the fruit of the parent vine for two or three seasons past. The quality is better—very much better to my taste—than Delaware. Both bunch and berry are large and fine, and very handsome. The fruit ripens very early. Should the vine prove to be hardy and healthy, and I think it will, I am disposed to think we have got "*The Grape.*"

KIRKLAND APPLE.

BY E. P. P., CHICAGO.

It is the 16th day of February, and I have before me an apple which grew in 1873. It is still about one-fourth sound; January 15th it was wholly sound except the print of a finger where it had been pressed. The 1st of December, 1874, it was hard and smooth, but not full size. In August of 1874 it was large, full, and fair. It grew in Clinton, New York, is what we call a Kirkland apple, named after Dominie Kirkland, Missionary to the Oneida Tribe, by whom the tree was raised from seed. The apple averages in size, and resembles in shape the yellow Bellefleur. It is in quality good; in keeping extraordinary. I have often eaten it as late as July, in excellent flavor. The tree is remarkably hard and tough wood; always taking a globular form; bark bright yellowish shade. The old tree must be at least 80 or 90 years old, and still bears a few barrels every alternate year.

EDITORIAL NOTES.

BLACKBERRY FOR HIGH NORTHERN REGIONS.—The *Gardener's Chronicle* suggests that the Rubus arcticus would be well worthy of culture in high northern regions. The fruit is excellent.

SIR JOSPEH PAXTON STRAWBERRY is considered the best of the new varieties raised last year in England.

NEW SEEDLING APPLES.—Our readers will have noticed that we have discouraged the introduction of new seedling apples of late years, unless there is clear proof that there is in some respects an advance on those we have. The *Gardener's Chronicle* is taking the same course in England. It says "it is extremely difficult to make any advance on those we have."

ORCHARD MANAGEMENT IN ENGLAND.—Many years ago when in England we noticed that fruit trees grown in the ordinary vegetable gardens were subject to disease, and short-lived, —while those in grass, cared for, and annually top dressed, were all that any one could wish for,—and it was because we found this experience confirmed by American observation, that we have so strongly urged this method of culture. A correspondent of the Dublin *Gardener's Record* gives the following. What more could the warmest advocate of a "clean surface" want?

"In the columns of the *Garden* it is stated that Blenheim Orange Apples, grown in an orchard, at Perryfield, Godstone, Surrey, weighed, when gathered, nineteen or twenty ounces each, and fifty on the same tree were each over one pound. Mr. Richardson, the gardener at Perryfield, states that the productiveness of the orchard in question is remarkable, the trees every season for twenty years being loaded with fruit, even when scarcely any exists in the neighborhood. They are planted on a bed of clay in which there are here and there small nodules of ironstone and flint, and are top-dressed every other year with stable-dung. Provide good shelter—an important point (says Mr. Richardson)—manure well, and prune every year, and plenty of fruit will be the result. All through this district, and away along to Kent, the Blenheim Orange Apples grow very fine indeed, and it is, in fact, one of the staple apples of the district. In Kent they look for a good crop every second year, but if the advice of Mr. Richardson were applied annually it might happen that a good crop would result each year."

NEW FRUITS & VEGETABLES.

MARKET QUEEN APPLE.—*Mr. Stearns, of Cobden, Ill.*, says: This comparatively new and valuable apple was lately brought to notice in Southern Illinois. The sprout was taken from the root of an old orchard, the trees of which were brought from South Carolina many years ago. The apple is very large, oblong, tapering to the eye; has a very rich, dark red color, with a beautiful bloom. One of the best keepers, quality first rate; pronounced by all to be the most magnificent Apple known; tree very hardy, prolific, and annual bearer. I have seen it bearing good crops in three different orchards when all other varieties had failed. This shows its hardiness over other varieties. Trees very scarce and high.

NEW PEAS continue to attract attention in England. Every year "the greatest pea ever known" appears regularly. This year Messrs. Veitch say: "Culverwell's Prolific Marrow" is "that same;" while Mr. Laxton has no doubt "Dr. Hogg," "Supplanter," or some other of his new ones, are the real "first best." There is no doubt perfection is prolific in the Pea.

AMERICAN POTATOES IN ENGLAND.—Our seedlings still find good sales in England. Thorburn's Early Paragon is extensively in demand this season.

NEW CELERY.—In our country Red Celery is neglected. The Whites are only popular. In England it is the reverse. He who gets a good Red, has a good prize. The Leicester Red is said to be the "best of all celeries" in England.

MCINTOSH RED APPLE.—Good hardy apples, adapted to the extreme north, are not yet so common as with other classes wherein it is al-

most a crime to introduce another without some one can say we have none like it. Perhaps therefore the following may have an interest:

G. A. Clough, in the Vermont *Farmer*, speaks in praise of an apple he found, under this name, in Matilda, Dundas County, Canada. The parent tree originated near where it now stands some seventy years ago, and has borne every year since the oldest inhabitants can remember, and is still perfectly hardy, the apple being also good in every respect. It has been propagated from, and distributed in the neighborhood, and evidence is given "of the most positive character as to hardiness, productiveness and longevity of the tree, and quality, size and keeping properties of the apple. Also, there is another peculiarity about this variety—the limbs seem to be different from any other tree I ever saw; they come out like pins, and never split down."

SOUVENIR DU CONGRESS PEAR, which we recently figured, with Beurre de l'Assomption, the *Gardener's Chronicle* regards as the best of recently introduced European Pears.

NEW FOREIGN GRAPE, GOLDEN QUEEN.—The *Gardener's Chronicle* says:—By far the most important introduction of the past year, and again it is amongst *Grapes*—and again have we to thank our indefatigable friend, Mr. Pearson, for his splendid new Grape, Mrs. Pearson. This delicious Grape is of the same origin as Golden Queen, which was noticed last year. It is a seedling from the Alicante crossed with Ferdinand de Lesseps, and so partakes of a good deal of the peculiar Strawberry-like flavor of that variety. The bunches are large; berries of medium size, roundish oval, of a fine amber color; the flesh firm, juicy, and exceedingly rich. This may be noted as one of the finest white Grapes yet introduced. It has not only been awarded a First-class Certifiate, but received Mr. Alfred Smee's prize as the best new fruit of the year.

HENDERSON'S EARLY SUMMER CABBAGE is regarded as among the earliest of all large varieties.

NEW PEACH.—A very late variety. Leatherbury's Lake. The 1st Premium was awarded to this Peach by the Pennsylvania Horticultural Society, October 23, 1872. The *Fruit Recorder* of November, 1872, thus describes it: "The Peaches were duly received, and without exception, are the finest specimen of a late sort we have ever seen or tasted. The specimens measured from eight to eight and one-half inches in circumference, and were of a paleish yellow color, tinged with a rich scarlet over the largest portion of the Peach. Pitts very small. Flesh three-fourths to one inch thick, and of a light yellow, tinged with red. Near the pit, exceedingly juicy and rich.

CARTER'S GREEN GAGE TOMATO.—Messrs. Carter say of this: We have much pleasure in offering, for the first time, our New Tomato, "Carter's Green Gage." It was exhibited before the Fruit Committee of the Royal Horticultural Society, on Wednesday, October 7th, 1874, and awarded a First-class Certificate for its very fine flavor and clearly defined and distinct charaeter. It is very prolific, bearing clusters of fruit of a beautiful citron color, irregularly pencilled with steel-colored flakes on the upper surface, which renders it very ornamental. In a raw state it has the agreeable acid of an American Cranberry, with a fine sugary flavor. This variety, selected by us at our own Seed Farms, from Hathaway's Excelsior, is very early, and ripens readily in our English climate out-of-doors. It is quite distinct in color, form, and flavor from any other tomato.

THE BIRKETT PEAR.—The origin of the pear know as the "Birkett" is of the things "past finding out" to a certainty, but it will suffice here to say that the venerable John Birkett now residing in Peoria County, Ill., procured a pear cion from some source in 1824, which he grafted and from it he reared a tree which grew into enormous proportions, withstood the terrible winter of 1855-56, and, also, the past one of 1872-73, the young trees in nursery proving as hardy as the Siberian crab, and has produced fruit every year since it commenced to bear; has never blighted in the least in wood or foliage; bears fruit of fine size, of most excellent quality for baking, stewing, preserving and canning, and of good, fair eating quality.—*Western Rural.*

QUERIES.

APPLES FOR NORTH-WESTERN OHIO.—*J. C., West Cairo, Allen County, Ohio*, writes:—"Enclosed you will find ten cents, for which please answer me through the columns of the *Gardener's Monthly* the following questions, viz:

"1st. What late keeping winter apples would you recommend for extensive orchard planting in north-western Ohio, in latitude 41°? The soil is a sandy loam, underlaid with a heavy clay subsoil; the ground is dry, or can be easily made so by a small amount of ditching and underdraining. I want apples that will keep till April and July.

"2d. What real early ripening apple would you recommend planting for market in this latitude? I have a good market at my own door almost; there two villages within three miles of me, and two large towns distant only six and eight miles from my residence that demand all the apples I can raise?

"3d. What varieties of summer, fall, and winter apples would you recommend planting for my own use? I shall probably need each year ten or twelve hundred bushels."

[We answer all questions that we are able to in these departments without money and without price. Nevertheless we appreciate the feeling which prompted the sending of something, as it is in marked contrast with some letters we receive asking for information by private letter, from persons we are under no sort of obligations to, and which would take valuable time if we answered them. Because we are willing to give the readers of the *Gardener's Monthly*, in the magazine, the benefit of all we know, there is no reason why we should be a free encyclopædia for all the outside world.

The most profitable winter apples for your section, so far as experience has gone, are Peck's Pleasant, Bullock's Pippin, R. I. Greening, Domine, Red Canada, Coggswell, Benoni, Belmont, Fameuse, Ben Davis, Hubbardston's Nonsuch, and Baldwin. There are others that may prove better than these among the less known ones; but these are the popular stand-bys. Some of them will however hardly keep till "July." For earlier fruit Red Astrachan, Early Harvest, American Summer Pearmain, Duchess of Oldenburg, Ohio Nonpareil, Maiden's Blush, and Keswick Codlin, are popular.—ED. G. M.]

BELLE DU BOIS.—*E. asks, what is Belle de Bois Apple?*—Belle du Bois, or Belle Dubois, is Rhode Island Greening, so says the Album de Pomologie of Bivort, also the Dictionnaire de Pomologie of Leroy.—D.

MUSHROOM CULTURE.—*J. D. S., Upper Sandusky, Ohio*, says:—"I want a plan for a mushroom house sufficient for a small family. All the works on gardening within my reach seem to take for granted that everybody knows how the house should be built, and they fail to give any direction for this important first step. I would like, if possible, to make the same building answer for a tool house and shop, but can judge better of the practicability of such a combination when I have learned what is essential to mushroom culture. Perhaps you can refer me to some book containing the information I am seeking, or you may deem it of sufficient importance to be noticed in the *Gardener's Monthly.*"

[The mention of a tool house reminds the Editor of his first experience in mushroom growing. It was the practice of his good father to simply tell him how to do things, and then leave him to execute the experiment alone. As he was but fourteen years of age, and understood the instructions thoroughly, it is to be supposed that older ones may do the same thing. There was a tool house, the floor being on the ground level, and over a stone cellar, in which was always a moist atmosphere of perhaps 55° or so. He was told that would be a good place to grow mushrooms. The groom had instructions to separate the droppings from the straw in oat fed horses, and throw them each morning under an open shed. A cart load or so was in time got together; but they were turned over every few days to keep them from violent heating. Then these droppings were placed on a part of the cellar floor, tramping them down firmly so as to be about eighteen inches thick. Spawn (obtained from seed stores in the shape of dried earth bricks) was broken in pieces about the size of walnuts and put about a foot apart on this bed. Then about an inch of any kind of earth, rather dry, and then beaten firmly by a spade. A watering about enough to go through the earth followed, and this was all. In about six weeks the mushrooms were in abundance, some of them nice fat fellows as large as saucers. It is needless to say the boy was delighted with his first experiment in mushroom growing, which was never exceeded by any attempt since. One cannot always have so favorable a place as this cellar was; but then the features can be adapted to one's circumstances.—ED. G. M.]

THE ENGLISH WALNUT IN NORTH CAROLINA.—The Rev. J. W. Primrose, Manson, N.

C., contributes the following note. We highly value these brief but telling communications.—"My father had an English Walnut in Newberne which bore 3 to 4 bushels, and was 10 inches in diameter."

ORCHARD SCREENS.—A Lexington, Ky., subscriber asks: "Can I successfully plant two year old seedlings of our popular evergreens under a row of apple trees where they will have the morning and evening sun; or will I do better with both screens on open ground?"

[It will be best not to plant evergreens near trees. They do best in the sun light, and where the soil is not made dry by the roots of other trees. We would not put out so small as two year trees; but plant them a foot or two apart in a sort of nursery in a sheltered garden. Young evergreens ought to be at least six or seven years old before being set out in their final locations to shift for themselves.—ED. G. M.]

YELLOWS IN THE PEACH TREE.—A correspondent from Lexington, Ky., dating Feb. 15th, says:—"Will you please answer the following query in the March number of your *Monthly*, and much oblige a new subscriber?

"What would you do to four year old peach trees that have the yellows? They are planted in 'hemp' land and are free of grubs."

[It was not possible to attend to our friend in the March number. The magazine goes to press before the fifteenth of the month,—and it takes some time to answer every correspondent. If any inquirer finds no notice of his questions before he thinks reasonable, we hope he will believe there is some good cause for the delay, and that he will be attended to in time.

There may be many causes of the disease known as the yellows. The direct cause is imperfect nutrition,—the many causes which affect nutrition must be understood before a remedy can be named. In the only cases that the Editor has had the chance to examine personally, this primary cause was a parasitic fungus, which like threads of silk attacked the small feeding fibres and destroyed them, thus in a measure starving the tree. Examine your roots, and see by the aid of a pocket lens if these little fungoid plants are there. A mushroom-like smell will aid in their detection. If this is the cause of your yellows, lime, potash, or similar substances may destroy them, and lead to the recovery of the plant. The discovery of this cause is so recent, however, that these directions are rather suggestions than the results of any real tests.—ED. G. M.]

Editorial.

THE NATURE OF ROOTS.

Every once in a while we read of experiments and observations, showing that "the roots" of plants descend to enormous depths; and although this is the truth, it is one of those truths which are apt to lead cultivators astray, simply because it is not the whole truth. It will aid our readers in the practical details of culture, if we explain to them what roots really are and how they go on, as roots, from year to year.

In the first place, we will take the germinating seed, and note that one portion pushes upwards and forms a system of growth above ground,—the other descends to form a system beneath. There is very little difference essentially between these two structures. A root of many years' growth, if finally exposed to the air and light, will become a branch or a trunk and produce leaves and flowers, just as well in time as if that had been its original office,—and a buried branch will in time take on the offices of roots. Roots and branches are then essentially the same,—simply modified—the one to work for food in the air and light—the other to do the same thing in the dark and beneath the ground. We shall be able to judge better therefore of the office and nature of roots if we first cast a glance at the way the ascending axis behaves.

Herbert Spencer, in his "Biology," shows that the single cell is the primordial individual, and that a collection of these individuals forming a leaf blade, is the primordial plant. It is the coiling up of this original plate and the lateral union of its faces in consequence, that forms a stem, and all that follows. Our own examinations in plant life accords with Mr. Spencer's. Every part of a plant is modified leaf blade, and it is the attribute of long continued vitality to roll up—to consolidate these separate cells. It requires food to give this enduring vitality,—indeed life is but food transformed. The less vitalized parts die first; they are thrown out in positions where they cannot keep up a draft on nutrition, and death results. Thus a branch is primordially a leaf, as well as the real leaf it bears,—but the consolidation of its cells gives it a greater power of endurance. The leaf exposed on all sides, and the further removed from nutrition, dies—the branch, better situated in this respect, lives. A leaf would live much longer than it does if nutrition treated it better. If we cut off a Gloxinia leaf and plant it, as is generally done to propagate it, it will live long after all the rest on the plant from which it was taken dies. It is more conveniently situated as regards its nutritive sources. The same struggle for life is going on among the branches as among the leaves. In coniferous trees the close relationship we have pointed out between leaves and the branches is more clearly seen. It is often difficult to tell in these plants what is a leaf and what is a branch. The "needles" of the pine trees are neither leaves nor stems, in the true sense of the term, but phylloid branchlets. In one genus, Sciadopitys, a growth will occasionally occur from the end of the needle which opens at the apex like two seed lobes, to let the new germ grow. But the Arborvitæ shows this best. In the varieties known as Tom Thumb, Heath leaved, the Melden, and so forth, the leaves are never combined with the stem and remain weak growing imbeciles. With vigorous powers of nutrition however comes the increased power of combining leaf and branch, and then we have the ordinary form of arborvitæs growing to good sized trees, and with the leaves and branches so confused together, that it is hard for the student to tell whether some of the young tips are to be called leaves or branches. It is indeed hard for nature herself to tell, for in the fall of the year comes a struggle as to which of them shall remain to build up the permanent skeleton, and which shall fall as true leaves do. One of the most instructive lessons that a gardener can study, is an arborvitæ tree in the fall of the year. In August he will see all bright and green. Watching it day by day, he will note in time some of the branchlets have a yellow tint. By the arrival of winter he will find the majority are yellow and ready to fall,—and all of these are those, as he will readily see, the least favorably situated in regard to nutrition. Those which remain to form branches, are in every respect the same as those which have to fall as leaves. It is simply the fate of war makes one a branch and the other a leaf. In time, however, the branches which remain, have varied offices assigned them. Some become leaders, and take charge of the continuous growth of the tree,—others simply use their green surfaces for promoting the general welfare of the cells forming the main individual tree,—others bear female flowers,-and others do nothing but make pollen for the fertilization of the rest.

Now in the system which forms the underground portion of the tree, there is precisely the same struggle for existence,—the same division of labor,—the same separate offices to perform. An immense number stay near the surface, collecting food, which they do industriously all through the growing season. They cannot all live any more than all the leaves of a tree can live, and then comes the struggle which shall remain. In fibrous rooted trees not perhaps one in a thousand survives. Those which die, just as in the case of the phylloidal branchlets of the arborvitæ, are those which are the farthest removed from the centres of nutrition. A few are favored and live, and these in time become roots.

But just as in the case of the branches, so these permanent roots take different directions, and perform different duties. Some of these dive down deep into the ground, and form what gardeners call tap roots. These rarely send out fibres,—but seem to push straight on, and downwards. Another set thicken rapidly, pushing somewhat laterally, but usually descending rather than ascending,—always deep in the ground rather than shallow,—but having very few fibrous rootlets. Another set, and a very numerous one, keep near to the surface, throwing out myriads of little root feeders in every direction. There is hardly an instance that any one can adduce of a tree having a "root" at many feet below the surface, but what will be found to have hundreds for every such one, not going deep into the ground, but seeking the surface. It is therefore not exactly true that "the roots" run deep,—it is only a portion, and that a very small portion of "the" roots which do,—and these, as is evidenced by the almost total absence of fibres, are bent on some other mission than searching for nutritive matters for the tree.

Natural History and Science.

COMMUNICATIONS.

WHITE ANTS.

BY J. STAUFFER, LANCASTER, PA.

I avail myself of your valuable *Monthly*, to call attention to a new pest in the Greenhouse, nothing else than a species of white ant. Having consulted Harris, and other authors, I find no account in reference to the white ants, so common with us, that are known to infest green or growing vegetation.

Asa Fitch, M. D., in his third report on the noxious and other insects in reference to the *Termes frontalis*, of Haldeman, which Fitch calls the "American white ant,"—because he says it is the only species we have in the United States, and with which I am well acquainted, and hence this article.

In a treatise on Insects, by Vincent Kallar, translated from the German, by J. & M. Loudon, (London, 1840), I find, that, besides many large species in Asia and Africa, there are only two native species found in the Southern portions of Europe, viz: *Termes lucifugum*, and *ruficolle*, where they cause great damage to the olive trees.

A third species, which Kallar, names *Termes flavipes*, which he found in the hothouses of the Imperial Palace at Schonbrunn, where they were no doubt introduced with foreign plants. This species does no injury to the living plants, but gnaws through the tubs in which they stand, and the other wood work of the house, and like those of Haldeman, named *T. frontalis*, our common species, which are only known to feed on old chestnut logs or other wood, but do not seem to relish pine or resinous wood nor green vegetation.

Not to mention the highly interesting accounts given of the *T. bellicosus* or warrior termites that build their conic pyramidal houses from twelve to twenty feet in height, so solid that the wild cattle climb upon them without crushing them. For a full account, see Maunder's or almost any natural history. J. O. Westwood, F. R. S., in his introduction to the modern classification of insects, vol. 2, p. 11, gives a full account of the family so far as then known, with illustrations on Fig. 58, which I have carefully consulted. I fail to find any similar account of what I will now state.

My neighbor across the way, Mr. George Hensel, has several greenhouses, and is perhaps, one of the most practical and successful growers of delicate, exotic plants in the State. He seems to have a natural gift in that line; my plant knowledge is theoretical and derived from books, having an extensive library. I am frequently consulted to analyse plants new or unnamed for him. Having some choice pelargoniums in pots on a shelf, about two feet wide and eight feet long, covered with sand and loam perhaps two inches deep, his attention was arrested at their sickly, drooping appearance, for which he could assign no cause. Attempting to handle the plant, it broke off and revealed a blackened interior hollow rotton mass. Lifting the pot from the shelf, he was astonished to find a number of galleries radiating from where the hole in the bottom of the pot was located, and in those galleries, and in the pot and root to the stem, and lower branches, a host of white large headed ant-like insects, and called me over to see them.

When I came, he pointed out to me "ropes of sand," suspended from the upper shelf to the ground below. These I found to be hollow or tubular traverse ways, by which the marauders could pass under cover from the upper to the lower landing, to open new fields for depredation. I was surprised at the engineering skill displayed by these minute apparently blind creatures, and collected quite a number of individuals for microscopic examination. These are all of a pearly white color, except tips of the jaws, which are black fading into brown and dusky at their roots.

Mr. Hensel informed me that on or about the 18th of December last (1874), he noticed an immense number of what he then thought the common winged ants, of which a colony in the lower greenhouse usually take wing in the month of May—our common white ants—but those never meddled with his plants. He now regrets that he did not call my attention to them then. They came forth in great numbers, jerked off their wings after a brief period; indeed the upper greenhouse was swarming with them,—but in a few hours they had disappeared. He says he thinks he could have collected a gill measure full of the cast off wings.

All the specimens thus far examined by myself, are apterous. I found, however, that there are at least three or four distinct classes of individuals among those collected, forming the colony.

First, those having very large round heads, no trace of eyes, antennæ about 16 jointed, gradually clavated, the basal joint largest. The thorax small, as also the following two segments,—body oval—under the lense, beset with hairs, the jaws are short, broad, with about four teeth; these I take to be the workers—sapper and miners—that eyeless as they seem to be, do their engineering to perfection. For instance, a very fine vigorous plant of the broad leaved Echeveria, in a pot, was set upon another empty pot on the shelf. On inspection four or five tubular ways, made of sand, were built against the inside of the empty pot, to within three inches of the bottom (being as stated upside down), at this point, the tunnels were built inwards and united at the opening in the pot, through which they found entrance into the upper pot, and went for the Echeveria; this they scooped out, between the outer bark and inner heart wood, fully one-fourth of an inch in width, eating out all that intervening portion effectually. Of course no plant can withstand such a depletion, and it had to succumb.

I mention this fact, to illustrate the industry and ingenuity of these small creatures, equal to man at his best estate of knowledge to meet contingencies. Verily instinct is much like reason. Those called the soldiers have excessively large heads, of an oblong shape, sides horny and nearly parallel, abruptly tapering and provided with long stout jaws, bent abruptly at the ends nearly at right angles, their hooked points overlapping each other. Otherwise they agree with the figure given by Westwood, in which, however, the jaws are regularly curved, sickle-form and crossing each other. The third kind, perhaps pupæ, have two tubercles on each side, like rudimental wings. The fourth were smaller, abdomen shorter and the insect smaller, perhaps larvæ.

Latreille says he discovered five kinds of individuals in the colony at Bordeaux, which he designates, 1st males; 2d females—these he says closely resemble each other externally; 3d neuters; 4th larvæ; 5th pupæ. He does not mention any as workers and soldiers; by-the-by these so called soldiers, three mixed in a cell among workers and placed under the magifying power, seemed highly indignant; their gigantic heads and long jaws, which they would extend and snap together ferociously, yet took care not to injure one another, nor the workers, which latter were more active and seeking an outlet to escape; the large headed soldiers seemed utterly demoralized in their captivity.

I am perfectly satisfied, that this is a different species from that known as the "American white ant." Mr. Hensel having received plants from Brazil, Florida and other places, thinks they must have been introduced. Should any of your readers have a knowledge or similar experience, I hope they will publish it.

For when they once obtain possession of a greenhouse, they are hard to expel, and their underground channels, and tunnelled by-ways are innumerable. The general history of exotic species is well known, but this presents them in a new phase, and one that places them at once on the abnoxious footing with the cabbage butterfly and potato bug, so as to demand attention. I forgot to mention that all the plants on the shelf first referred to, were so destroyed, and the tunnels invariably carried to the opening in the pot.

Those that destroy furniture attack a table or chair through the legs, and tunnelling under ground to its very centre, when they eat out the interior leaving nothing but a papery shell, so that the article crumbles to pieces, when handled. See accounts of this family, of those infesting Africa and Asia. But this is the first account of a species destroying growing plants in or out of a greenhouse that is known to the writer.

EDITORIAL NOTES.

A NEW CARNIVOROUS PLANT.—Mrs. Treat, of Vineland, N. J., has recently made some discoveries which are more remarkable than any which have yet been made in regard to carnivorous plants, so called. In the swamps of New Jersey is a very common aquatic known as *Utricularia*, the portions of which under water are covered with small transparent vesicles. These have been supposed, without much thought, to be for the purpose of floating the stems; but on reflection it is seen that the stems of water plants can float without these appendages. Mrs. Treat finds that they are *insects traps*. It has been the weak point of all the speculation

on carnivorous plants, that though it is clear that insects are destroyed in the pitchers, and in some cases with an evident design to allure them on to their destruction, there has been no direct evidence that it was for any more good to the plant than the action of the poison vine in "damaging" a human being. Mrs. Treat's observations on this plant, however, make the probability greater than ever before, that the plant really *eats* the insects. The *New York Tribune* has recently published an illustrated article from Mrs. Treat on the subject.

PICEA MAGNIFICA.—Mr. Andrew Murray says in the *Gardener's Chronicle*, that Picea magnifica is a species with the exact cones of P. nobilis, and the foliage of P. amabilis, and makes the startling suggestion that it may be a hybrid between those two species. But we think that those who have had experience in hybridization from their own experiments, do not find results like these. In hybrids all the parts are modified by the cross. It is not the leaf of one plant and the cone of another,—but the characters of both species are blended in each organ.

THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, had a generous contribution of $25,000 for Library purposes from I. V. Williamson lately. The library already contains over 20,000 volumes of a scientific character, but with its limited means it was still deficient. It is believed it can now be made equal to any scientific library in the world.

PINUS PONDEROSA.—Under this name A. Murray includes Jeffreyi, Beardsleyi, Craigiana, Benthamiana, Sinclairiana, and probably P. deflexa of Torrey.

QUERIES.

PEACH YELLOWS.—*L. F., Portland, New York*, says: "Thomas Taylor, Microscopist, seems to prove that the contagious sick Peach Yellows (and I hear that you are of the same opinion) is a root fungus. 1st. Will you please explain how seedlings the second year from seed of sick trees die with yellows.

"2d. If a fungoid, how is it that the disease will go in the air a mile or so and poison young trees grown at a distance without taint?

"3d. How is fungoid matter carried fifty miles or more on a knife blade in the pocket?

"4th. If a fungoid, how is it that half, a third, or fourth, of a tree or one limb, from the same body will produce sick peaches ripening ten to fifteen days earlier than other parts of the tree?

"5th. Why on the same limb will a few peaches stop at the size of peanuts and remain stationary until time of ripening, the tree all the while growing very thrifty?

"6th. How is it that the most thrifty trees on rich new soils will show the premonitory symtoms of the yellows by producing a specimen or two, or more, of spotted peaches; the color changing much as in small pox with us?

"You will excuse me for being inquisitive. I once, say forty years ago, made money in the peach,—made it my hobby,—lost, then, some 15 years ago, forty acres all young orchards. And for the last two or three years as many acres more at St. Joe and Muskeque, Michigan. I successfully headed it by extermination until some fifteen year ago, since which its been loss upon loss.

"Have seen much of the disease. Some buds from Cole, of Boston, Massachusetts, even trees in nursery and orchard, touched with the knife that cut the buds, the trees were sick as death.

"I feel indignant over the statement of certain parties of Jersey that there is no such thing as a sick *contagious* disease, yellows of the peach."

[No apology is necessary for being "inquisitive" on these subjects. It is the mission of a horticultural magazine to enlighten its readers as far as it may be able.

There is nothing inconsistent in all the objections made by our correspondent with the fungoid theory of the disease known as yellows. It is however almost impossible to explain these matters to those who are not already acquainted with the nature and habits of these small fungi. It is from unacquaintance with this branch of knowledge that so many find it difficult to believe that minute fungi cause the immense amount of injury they undoubtedly do.

It would take a very long essay to explain so as to be intelligible to every one,—but trusting that our readers have in the main kept the run of progress in this branch of knowledge, we will try briefly to give what our correspondent desires to know.

1st. There is no doubt but seedlings from sick trees will die. The fungoid germs are very small. Some species can penetrate through the shell of an egg, and germinate on the contents. The peach fungus not only can penetrate every part of the tree's system, but also into the young seed, and follow it.

2d. Microscopic fungi take on many forms—even in the same species, and propagate in many various ways. The Canada Thistle increases by underground creeping roots, and also by seeds, and these fungoid plants do the same in their way. After the spores have germinated they send out small threads or "spawn" in gardener's language, and this spawn runs through the tree, feeding on the tissues and causing disease. When the "the fullness of time" has come, and some of these fungoid threads find themselves near the surface of the bark and in communication with the atmosphere, they produce "spores" which take the place of seeds in flowering plant, and which as the finest dust, float off, perhaps fifty miles or more, to where they find the proper conditions favorable for development. "Why then do they not attack every peach tree, since the spores must be so numerous?" Simply because providence has with wonderful wisdom provided that the conditions for germination shall be as exact as the seeds are minute. If fungoid germs could grow as readily as seed of a Canada Thistle, all living organisms would soon come to an end.

3d. Easily. Gardeners make mushroom beds from "fungoid matter" brought from England and France in dried clay. The exact conditions for the growth of the mushroom fungus (and gardeners know how very exact they have to be) are prepared, and then the bed is inoculated with the fungoid matter and the mushrooms grow, just as peach trees inoculated with the "yellow" fungoid matter, produce that fungus.

4th. Because only those branches have had the fungoid element introduced into their system.

5th. For the same reason as before.

6th. Good new soil makes no difference. The fungus will grow there as well as anywhere. It is less likely to be found there than in older places; because where there is nothing to feed on that which feeds on it cannot well exist and is not likely to be found. There are plenty of locations in the country where the conditions are unfavorable to the growth of the peach fungus. It is not known that it ever appears on trees grown under glass for instance, and in many places South so far, it has not appeared.

There is nothing suggested by our correspondent opposed to the fungoid theory,—but rather in support thereof when the true nature of these minute plants are understood. There are others much stronger than these,—but whether we could explain all these or not, as we remarked to another correspondent last month, makes no difference as against the fact that the fungus can be shown on the roots at work, and that a shovelful of the earth with this fungus in it, taken to the roots of a healthy tree, will produce the yellows in it as sure as fate.—ED. G. M.]

PREMATURE RIPENING OF APPLES.—*M., Nashville, Tenn.*, writes: "Will you do me the kindness to give me your views on what may be stated as the 'tendency to premature ripening at the South,' of what is popularly termed 'Nathan Apple?'

"It seems peculiar to the apple that a *Winter Apple* ripens *here*, for instance, so as to lose its winter characteristic, becoming a 'fall apple.'

"Does this phenomenon of ripening characterize any other fruit; and what? Our Grange is disposed to look into these and kindred subjects, and I feel disposed to encourage and facilitate *inquiry*. I will thank you kindly for your opinion."

[We have no acquaintance with the Nathan Apple. It has not been referred to, we believe, in any of our back volumes. It is however well known that as apples are grown South, the tendency to premature ripening increases. In order to understand this we have to look at ascertained facts in connection with the same subject. For instance, if we have a healthy apple or pear tree, and as the fruit is about finishing its growth the leaves of the tree are taken off, the fruit, if it mature at all, will not keep as long as if the leaves remain on till the fruit ripens properly. If, say a Baldwin or Rhode Island greening apple have some of its branches defoliated by caterpillars several weeks before the leaves would fall naturally, the fruit will not keep much beyond new year, while otherwise they will keep a month or two longer. Other illustrations may be given, but this one is sufficient to illustrate this principle, that the keeping properties of fruits are dependent on perfect nutrition, and, as a corollary, what affects the vital powers of a tree in connection with nutrition, affects the keeping properties. The apple is not well adapted to hot climates. It is naturally suited to temperate latitudes. Its vitality, or vital powers, are not as strong in the South as in the North, and as a conclusion the same variety will ripen its fruit earlier.

Of course this is only a general statement of

a law of ripening in fruits. It does not fully account for the difference of time in the ripening of varieties. Some kinds, equally healthy, equally in the most perfect exercise of the attributes of vitality, will ripen some in fall, some in winter, some keeping over till next year, each according to its kind. Still even here the unknown facts may be aided by the known ones, and as we see that peculiarities or degrees of nutrition at certain stages of growth affect ripening in cases where we can ascertain the cause, they probably in some way operate in those cases where, so far, we have not been able to penetrate.

You are right in encouraging these investigations. There is not only the pleasure one feels in understanding the operations of nature, but it helps one wonderfully in practical affairs.—ED. G. M.]

PINUS PONDEROSA.—A Western correspondent who has had much experience in the rarer evergreens, sends the following note: "In your notes on Coniferæ, *Gardener's Monthly*, February number, I think you made a slip of the pen and meant to say that Pinus Benthamiana would have to go back to ponderosa. You say 'Jeffreyi may go back to ponderosa.'

"The seeds are quite different from ponderosa, also the one year old plants, while the seeds and one year old plants of Benthemiana, are exactly like ponderosa. I know that the latter is only a slight circumstance, and the plants may look different when older, but neither art nor science can send Jeffreyi back to ponderosa."

BLEEDING OF WINTER PRUNED TREES.—*H. H. B., Milford, Massachusetts*, says: "Will you be kind enough to inform me, when is the proper time to prune the Sugar Maple, (Acer saccharinum)? I cut a limb, about an inch in diameter, from one of mine, in December of 1873, and it bled profusely every warm sunny day, though the winter of 1874, until the buds began to start in the spring. I have found the same to be the case with small trees of the same kind, from which I have cut twigs about the size of a pipe stem, in the fall."

[It injures trees very little, if any, to "bleed" in the winter season. Maples are "tapped" for sugar making purposes year after year, and though we have not had the chance to see for ourselves, we are credibly informed that no bad results to the tree follows. In fact this liquid is not elaborated sap, and is not plant food. It is drawn into the plant's system all through the winter season, and is generally believed to be for the purpose of providing for the great evaporation which follows the expanding of the leaves in spring, and if taken out can be readily replaced by the roots. The trees can be pruned any time during winter without regard to the bleeding.—ED. G. M.]

LARGE FRUITED PERSIAN MULBERRY.—*P.* says: "Which is correct,—Morus nigra, or M. Constantinopolitana? I bought from a Rochester firm, for the Persian, under the name of Morus nigra, the American black fruited variety of Morus alba."

[Morus nigra is the Persian, Morus rubra is the American though the ripe fruit is nearly black. Morus alba, with black and white fruit, is not an American species, though since the great Morus multicaulis bubble, it is often found wild. It is the Italian mulberry, and used extensively for silk raising; M. multicaulis being one of the numerous varieties of M. alba.—ED. G. M.]

GERMAN IVY.—*A. P. M., New Haven, Conn.*, says: "I have often wanted the name of the German Ivy. Our best Florist, though he knows about everything else, has failed to answer me that question, though he could if I drove him to do it, I suppose. I see in your December Number you called it Mikania scandens. That vine I know too well. There is some slip of pen or type about that. I will look in your March Number to see it corrected and the true name given?"

[The "German Ivy" has always been referred to by us, as the *Senecio scandens*, which it is. Our correspondent who referred to the plant as the Mikania scandens in the paragraph referred to, though in America, wrote from English experience. Now from the fact that we have often seen *Mikania scandens* referred to in English periodicals, and never *Senecio scandens*, we are led to believe that our English friends are in error, and this was the occasion of the note in our last. —ED. G. M.]

PRIVATE.—Is the shrub sent us by D. L. Avondale, Ohio, the Ligustrum vulgare, of Authors? It is supposed to have followed the crusaders from Palestine,—and our race to this continent,—where it is often found wild now.

Literature, Travels & Personal Notes.

COMMUNICATIONS.

RECOLLECTIONS OF AUSTRALIA.

BY W. T. HARDING, AGRICULTURAL COLLEGE, COLUMBUS, OHIO.

(*Continued from page* 88.)

As I rambled through the woods, around the diggings, I entered a copse of Dungo-rungo trees, Notelæa ovata. Scarcely any vegetable growth could be more distorted, or irregular than they; especially the Tasmanian kinds. N. ligustrum is there known as the iron wood, or flint tree. There are several species, all remarkable for the flint-like hardness of the wood. A little beyond the Dungo-rungo copse, and further down in the valley, was the little stringy barked church, surrounded by the "God's acre," or burial ground, of Forest Creek. Adjacent to the church yard, was a wattle and daub hut, a very humble looking little structure, by courtesy styled the Parsonage. "The cottage on the cliff," overlooked the church, and the spot where the wicked cease from troubling and the weary are at rest. Several little recently formed mounds, marked where the stranger found a bed.

There seemed to be an air of sadness in its quiet seclusion, as the soughing wind sighed through the slender thread-like branches of the pendant Cupressus torulosa, with a melancholy wailing, so mournfully plaintive; like a zephyr dirge sounding sad symphonies over the dead.

"'Twas musical but sadly sweet,
Such as when winds and harp-strings meet,
And take a long unmeasured tone
To mortal minstrelsy unknown."

"The Church-yard Yew," "The Funeral Cypress," and "Weeping Willow," are characteristic trees, symbols of sorrow, so common to the country church-yards, and city cemeteries in this and European countries. For similar purposes, they are used at the Antipodes, associated with the several kinds of Casuarinas, Phylocladus, Dacrydium, Araucaria, Podocarpus, Tree Ferns, Palms, and the various species of Acacias, etc., than which, nothing could be more appropriate.

The mournful melody of the Casuarinas, when gently stirred by the wind, soughs something like Old Boreas, in the Pine forest; though not so shrill. The deeper cadence of the music sounds like the fitful tones of zephyr flutes, or the weird notes of Pandean pipes, and deeply impresses the listener with pensive feelings.

Within the enclosure, close up to and abutting against the church, stood one of the most stately trees of its kind I ever saw, namely: Fagus Cunninghami, or Cunningham's Beech. The specific name was given to it in honor of the two Cunninghams, Thomas and Allen, who both rendered important services to botany during the early days of Australian settlement. What a noble companion it would be to plant with the Eucalyptus, and Kouri, or Dammara australis, in California and Southern States. Of Eucalyptus, I saw many thriving specimens in the neighborhood of San Francisco, and Sacramento; but do not recollect seeing the Kouri, or Cunningham's Beech. The latter named tree so much resembles a Myrtle bush, in foliage and general habits, as to have gained the appellation of Myrtle wood, and as such is better known to the colonists. Here was a handsome tree, upwards of two hundred feet high; and in circumference a little over forty feet. "The mast of some great admiral were but a wand," compared to it. How applicable seemed Wordsworth's words,

"This solitary tree!
A living thing, produced too slowly ever to decay;
Of form and aspect too magnificent
To be destroyed."

While examining the noble specimen, I was surprised to see the poem called "The Beech Tree's Petition," by Thomas Campbell, plainly written on parchment, and nailed to the tree. By permission of the Editor, I copy the lines for the benefit of the reader, who may not have Campbell's Poems to refer to:

"THE BEECH TREE'S PETITION."

"Oh, leave this barren spot to me!
Spare, woodman, spare the beechen tree!
Though bud and flow'ret never grow
My dark unwarming shade below;
Nor summer bud perfume the dew,
Of rosy blush, or yellow hue;
Nor fruits, of Autumn blossom born,
My green and glossy leaves adorn;
Nor murmuring tribes from me derive
Th' ambrosial amber of the hive;
Yet leave this barren spot to me:
Spare, woodman, spare the beechen tree!

"Thrice twenty summers I have seen
The sky grow bright, the forest green;
And many a wintry wind have stood
In bloomless, fruitless solitude,
Since childhood in my pleasant bower
First spent its sweet and sportive hour;
Since youthful lovers in my shade
Their vows of truth and rapture made,
And on my trunk's surviving frame
Carved many a long forgotten name.
Oh! by the sighs of gentle sound,
First breathed upon this sacred ground;
By all that love has whisper'd there,
Or beauty heard with ravish'd ear;
As Love's own altar, honor me;
Spare, woodman, spare the beechen tree!"—

While reading the above beautiful lines, so happily expressed, I was surprised with the presence of the incumbent of Forest Creek. With the ease of a well bred gentleman he pleasantly introduced himself. I was pleased to find him more like Goldsmith's "Village Preacher," who was passing rich with forty pounds a year, than Washington Irving's "Snuffling well fed Vicar," who had a snug dwelling near the church. I learned from him that his early life was passed among the Derbyshire hills, in England, made famous by Scott in his "Peverel of the Peak." He remembered Sir Joseph Paxton, and was well acquainted with "beautiful Chatsworth." The site of his arbor-like church, was chosen on account of its resemblance to a cherished spot so well remembered, in one of the romantic vales of his native shire. The little bark built Tabernacle resembled a rustic garden structure, or summer house, so often seen in England; and might have been taken for one there, had not an inscription over the entrance informed the reader that "My house is a house of prayer." Unostentatious, it was no marvel of architectural skill; yet, who could doubt but the spirit of devotion ascending from its unpaved aisles, was as pure and profound as the offerings of a broken and a contrite heart could be! Sir Christopher Wren could not have felt prouder of his work, when gazing at the great St. Paul Cathedral, than did the humble missionary, who, while alluding to the forest church, remarked, "I, with my own hands, built the nave and chancel, but the Great Architect raised the spire," pointing to the lofty arboreal tower, "The Beechen Tree," which gloriously aspired heavenwards.

Good readers of the *Monthly*, and the editorial genius who presides over its destiny, I wish to premise or preface what follows, by saying that I never felt a poetical inspiration, never had a poet's license, never saw the poet's eye in a fine frenzy rolling, and hope I never shall. I disclaim all pretensions to writing poetry. Yet, I once tried my pencil at rhyming, or rather making words jingle in verse, to "The Beechen Tree." Remembering Virgil's allusion to the Fagi, or Beech, I wrote as follows:

In Austral lands, how fair I see
In gray-green leaf, a beechen tree.
Since Virgil's lyre to music strung,
Where ancient Fagus moss clad hung;
A trysting tree, the Muses found,
Beneath its shade poetic ground;
When many a lay here blending soft,
With tinkling lute, went up aloft;
Resounding sweet through boughs above,
The strophic themes of fervent love.
And thus, kind nature urges on
My plea to cherish thee, when gone.
Oft then my heart will turn to thee,
When distant far across the sea.
Kind Campbell's prayer applies to thee,
Spare, miners, spare this Beechen tree!

With the approval of "the good shepherd," I pinned *the lines* beneath Campbell's poetry, which he promised to transcribe, and affix to the grand old tree. Whether I misused the letter which was to introduce me to the Commissioner or not, I shall never know. I used it for the lines, and left most of it fastened to the spire of Forest Creek Church.

"Time was on the wing," and the morning hours were speeding by, and admonished me to resume my journey. Reluctantly I bade adieu to the good soul whose lot was cast in the wilderness, and returned to "The Old House at Home," at the mines.

The way-sides seemed to be bordered with Tetratheca rubioides, and Zeria macrophylla; two remarkably pretty evergreen shrubs. While here and there, were nicely rounded bushes of the lovely Gompholobium capitatum, and the charming blue berried Hellenia cœrulea, backed up with Metrosideros, Hakea, Melaleuca, Callistemon, Banksia, and Acacias of many kinds.

At the front of the hotel were gathered a motley crowd watching the puppet performance of "Punch and Judy," of tragic renown. There stood Patrick, whose usually stolid features had relaxed to a broad grin, as he, like the rest, laughed heartily at the funny vagaries of "Punch," the noted wife-beater. With considerable stage rant, and noise, fierce as Bombastes Furioso, and as relentless as the cruel Blue Beard, he, "Punch," flourished his cudgel and dealt some unmerciful knocks on the wooden sconce of poor "Judy." Probably such boisterous fun reminded Patrick of the departed joy of "Donnybrook Fair," "where Pat in his glory is sure to be there." *Exit* "*Judy*," who is knocked off the stage. As is usual, with such exhibitions, a trained dog performs his allotted part in the drama. *Enter Caninus* on his hind legs, and strikes an attitude. Surely, no creature could look more sagacious, or dog cunning; than the professional pup in his *role*. *Caninus* licked his chops with a becoming gravity, then rolled his eyes, ogled and leered at the gaping faces before him. Patrick saw a chance to turn an honest penny; so holding up at arm's length a half crown piece, offered to bet the dog would have the breeches of ould Punch, and would give him fits in no time, if he had fair play. Sure sich a knowledgeable old dog would not be fooled. The coin was soon knocked out of his hand against the side of the portable theatre, and at the same time, a rush was made to catch the piece; and which, in the scramble, upset the canvass covered frame, from which rushed the dog and fastened his teeth in the rear of Patrick's breeches. *Exit Caninus*, and Patrick minus half a crown.

When the sun went down we were several miles away in the bush.

EDITORIAL NOTES.

THE POSTAGE LAWS.—We can hardly trust ourselves to write of the body of men who make laws for us at Washington. We ought to speak of them with respect, and we propose to do so. For some years the Horticultural community have been in the habit of sending books, catalogues, seeds, etc., by mail for one cent for two ounces. The business of years has suited itself to this. Every one knows how slow is the adaptation of business to circumstances. No one dreamt of any change here on March 9th. Every one went to his bed in security. On awaking on the 10th he found that the rate had been *doubled*. There was no time to prepare for the change. Perhaps the five or ten thousand catalogues would not have been issued,—perhaps the goods would not have been ordered,—perhaps enormous losses would have been avoided; but orders must be filled, and there is no escape. It is no use to make any remarks. However disgraceful such legislation is, it has to be borne. The worst feature is, there seems to be no end to it.

City Subscribers.—The new code gives the postmaster "authority to make such regulations as is necessary to carry out the provisions of the law;" and the result is that we are required to pay *two cents* per copy, and *to stamp each one*, in advance, on all our city subscribers; *twenty-four cents* a year, and the extra labor is a heavy shave on our two dollars a year subscription price.

Out of Town Subscribers.—The Department also charges three cents per pound on monthlies and but two cents on weeklies. As the weight is no more in a pound of monthly papers than in a pound of weeklies, it is hard to understand why the rates should be fifty per cent. greater. Can anybody give a plausible reason for such a "regulation?"

An Illinois correspondent writes: "To-day we have notice that postage is doubled on everything but letters, cards, newspapers, etc., sent by regular publishers. Is not this *ex post facto?* Is it not very unfair, unbusinesslike? Are not the Express Companies at the bottom of the whole arrangement? I hope you can throw light on this dark subject. After keeping up that cheap rate for years—and trying to kill the franking privilege, we have, as I now understand, that franking privilege partly restored; and books, catalogues, samples, seeds, and all transient or irregular mail matter doubled. Praying for light on this subject, I remain, yours for Cheap Postage."

[If any one wants "light" on this subject, he must ask Representative Garfield, and Senator Hamlin. These gentlemen assured the two houses that the Bill was "all right," and on this assurance, as we are informed by some who voted for the bill without taking time to examine it, it was passed. In regard to the Express companies, it is known that agents were in Washington during the session urging an alteration in these laws.—ED. G. M.]

TRANSACTIONS OF THE WORCESTER COUNTY (MASS.) HORTICULTURAL SOCIETY.—*Freezing of the sap of plants.*—We always receive and read these with great interest, but have no remembrance of either of the "two copies" referred to in the following:

"It will be remembered that our report for 1873 contained some suggestions in reply to a criticisms of the *Gardener's Monthly* upon our report for 1872. Attempting in the former report to account for the frequent failure of the apple crop, we assigned, as probable cause, alternation of cold with warm periods in spring, whereby apple bloom prematurely forced, afterwards was made abortive by late frost. The *Monthly* challenged this view on the ground that the sap

of trees could not freeze. Of the completeness of our refutation, in our last report, of the *Monthly's* pet theory on this subject, we have received many testimonials. Among others, the following from the President of the Massachusetts Agricultural College :—

MASSACHUSETTS AGRICULTURAL COLLEGE,
AMHERST, March 9th, 1874.

My Dear Sir,—Your paper on freezing plants has been read with interest. I hope you will get a copy of Flint's Report and read my papers on circulation of sap. Are not our perennial endogens, grasses, lilies, etc., frozen as solid as the buds of endogens ? I am now investigating these questions, and among other observations have just determined the amount of sap in the branches of trees. It is from 40 to 60 per cent. ! *It freezes, of course.* It is surprising to see how the buds of poplars, willows, etc., which started to expand weeks ago and have been frozen stiff repeatedly since, continue to develop every warm day. We have need to make thousands of observations on our own trees before we thoroughly understand their wonderful structure and individual peculiarities.

Very Truly Yours,
W. S. CLARK.

No higher authority upon anything connected with the subject of sap can be named than this. Two copies of our reply to the criticism were forwarded to the critic—one addressed to the *Gardener's Monthly* and the other to the editor by name, without eliciting further criticism.

W. T. HARLOW,
For the Committee."

[We do not think there is any occasion for "theories" in this matter, "pet ones" or otherwise. It is altogether a question of fact. On a mild day in the early part of the present winter a thriving English ash on our ground was measured and found to be eight and one-eighth inches in circumference. In February, the thermometer 6° above zero, the tree was again measured with *precisely the same result.* If there be "from 40 to 60 per cent." of the bulk sap,—and if liquids in the trunk freeze "*of course,*"—and if liquids expand when frozen, where did the expansion go ? We have the highest respect for President Clark, but this is a question of fact and not of distinguished position, and no mere expression that it "freezes of course" proves anything in a case like that we have given. We are inclined to think President Clark's letter was a mere offhand note, written without due consideration, and one which on reflection he would not defend. For instance, to say that we must "make thousands of observations" and on "our own trees," and so forth, is too reckless for calm philosophy. We do not need "thousands"—hundreds will do,—and anybody else's trees are good as "our own." The whole letter bears the stamp of haste, and is therefore excusable.—ED. G. M.

WILLIAM BRIGHT.—The readers of the earlier numbers of our magazine will remember this name in connection with some of the most valuable contributions to its pages, as well as by an excellent little work, "Bright on grape culture." He was a man of excellent information and brilliant talents, and reached considerable eminence as a landscape gardener. He became unfortunate, and disappeared from the higher walks of gardening. His death in one of the public institutions of Philadelphia has recently been announced. His early usefulness to horticulture deserves this notice of his death.

DAVID W. HERSTINE, well known as the originator of the Herstine, Saunders, and other Raspberries, died the latter part of February at his home, at Branchtown, near Philadelphia. He was for a long time an enthusiastic amateur Horticulturist, and took a special delight in fruit raising,—fine specimens from his grounds were frequent on the tables of the Pennsylvania Horticultural Society. To the mass of the public he will long be known in connection with the excellent variety of Raspberry which bears his name. He was a genial, warm hearted gentleman, and the Pennsylvania Horticultural Society has lost a valuable member.

MR. W. T. HARDING.—In consequence of the failure of the legislature to make an appropriation for garden purposes this year, Mr. Harding's term at the Agricultural College expires, and he will be open to an engagement elsewhere. The thousands who have read Mr. Harding's letters in the *Gardener's Monthly* with so much pleasure will unite with us in hoping that he will soon find himself again in an agreeable position. Letters addressed to him at Columbus, Ohio, will reach him.

LITERARY NOTES.

A MONOGRAPH OF THE GENUS LILIUM.—By Henry J. Elwes, F. Z. S., F. L. S. Illustrated by W. Hood Fitch, Esq., F. L. S.—Mr. Elwes says :—"Lilies, which are among the most beautiful and graceful plants that adorn

our gardens, have, for the last few years, received an unusual though not unmerited share of attention and admiration from all lovers of flowers in England and on the continent. Owing to the exertions of Mr. G. F. Wilson, F. R. S., Herr Max Lichtlin, of Baden-Baden, and others, many beautiful species a few years ago quite unknown in Europe have not only been introduced in a living state, but have become general favorites. The confusion which so long prevailed in their nomenclature has now been entirely cleared up by Mr. Baker, of the Royal Herbarium, Kew, whose elaborate papers in the *Gardener's Chronicle* and 'Proceedings of the Linnean Society' have described all the known species, and shown us what may be scientifically considered as species and what as varieties. It appears to me, then, that the time has come when a work devoted to the illustration of these general favorites may be presented to the public without fear of its being superseded, as many similar Monographs have been, by fresh investigations.

"I should not have ventured to undertake such an important work, had it not been for the unusually favorable circumstances in which I am placed by the never-to-be-forgotten kindness of my friends, Messrs. Wilson, Lichtlin, and Baker, who have one and all most liberally placed at my disposal their specimens, notes, and drawings. A splendid series of oil-paintings in the possession of Mr. Litchlin will serve to illustrate those few species which it is impossible to obtain in a living state.

"I have also been fortunate enough to enlist the services of Mr. Fitch, the well-known and justly celebrated artist of the '*Botanical Magazine,*' whose talents as an artistic and accurate delineator of plants are probably unequalled in England.

"I therefore propose to publish a series of folio Plates uniform with those of Mr. Bateman's 'Monograph of *Odontoglossum,*' which will be drawn on stone from life by Mr. Fitch, colored by hand in the best style, and accompanied by a complete account of the native countries, culture, varieties, and history of all known Lilies. These will be issued in parts containing eight plates each, at the price of *One Guinea* per part; but this cannot be done in a manner worthy of the subject without the support of a large number of subscribers.

"The work will be commenced at once, and completed in six parts, which (unless new Lilies are discovered in the mean time) will, it is thought, be sufficient to include all the species as well as many of the finest varieties. Each part will also contain a large engraving, reproduced from a photograph, of the scenery of the countries where Lilies are most abundantly found—as Japan, the Himalaya, and California. Woodcuts and colored drawings of the bulbs, seedpods, etc., will be added ; and it will be my endeavor to omit nothing which can add to the beauty and value of the work both to botanists, horticulturists, and the general public.

"Specimens of the illustrations and letterpress will be issued shortly, and may be seen at the principal libraries in London and elewhere, as well as at the offices of the *Gardener's Chronicle, The Garden,* the Zoological Society, the Linnean Society, and several of the principal nurseries in England and abroad. They will also be sent for inspection, if desired, on application to H. J. Elwes, 6 Tenterden Street, Hanover Square, London, where the work will be published, and where intending subscribers are requested to apply by letter, giving their full names and addresses."

GARDEN NAMES.—A friend of Mr. Punch, a citizen, thought he would take to gardening. Punch thus gives his friend's first experience.

"On returning to Nook I find a packet containing two books, and a sort of invoice from ENGLEMORE :—

"'Here you are : Two books, "The Flower Garden, and How to Flower it;" "The Kitchen Garden, and How to Kitchen it." Also BUNGAY'S List : Major Seeds and how to sow him. I know an Amateur farmer and stockbroker all in one. Bulls on change, Cows in the country. Introduce him ! Wire back to

'Your Little
'ENGLEMORE.'

"Will dive into the books on my return. BUNGAY'S List looks attractive on the outside, there being a coat-of-arms—BUNGAY'S perhaps—and the pictures of two Exhibition medals, gained by BUNGAY for Turnips, or something in that line.

"I notice at a cursory and superficial glance that the List is illustrated, and that BUNGAY has treated his plants and vegetables as if they were his children, and given them all his name. For instance, the letter A (for BUNGAY goes in on my plan, I am glad to see, of alphabetical or-

der which, as he is a great professional gardener, and I'm only beginning, is flattering to my instincts), he begins with—

ASPARAGUS.	Bungay's Improved Purple-topped (Prize, 1860.)
BEANS.	The Bungay.
"	The Ornamental Bungay's Own.
"	The Improved Wanderer (Bungay.)
BEET.	Bungay's Giant Egyptian Blue.
"	Bungay's Miniature Turnip.
"	King of the Bungays (Prize, 1862. Birmingham.)
BROCCOLI.	Bungay's Chinese Hybrid.
CUCUMBER.	Bungay's Mammoth Snowball.
"	The Hero (Bungay.)
"	Quooly Snu, Bungay's Milky Chinese.
"	Swiss Bungay's Early Scarlet.
CABBAGE.	Bungay's Incomparable Nosebag.
"	Bungay's Prolific Climax (Prize, 1861. London.)

"Some great subjects, evidently beggaring verbal description, require pictorial explanation, as I notice is the case with *Bungay's Speckled Negro*, which occupies a whole page, representing Beans all a-growing and a-blowing. Then the *Purple-podded Wonder* (some relation I fancy, to the *Negro* just mentioned) is described, under a picture of itself, as, 'a very heavy cropper.'

"*Happy Thought.*—Mem. for the hunting-field. Instead of saying to a fellow who has come head first over a nasty place, 'You've come a very heavy cropper,' a man with a taste for gardening would say, 'Hallo! You've come quite a Purple-podded Wonder, eh?'

"*Bungay's Champion*, next described on his list, is odd to say a Runner. Sounds more like a Coward than a Champion. BUNGAY is a man of exuberant fancy, and you might almost imagine he'd compiled his list as a Christmas book for children, so full is it of Heroes (Peas,) Champions (broccoli,) Dwarfs (Parsnips,) Giants (Cucumbers,) Mammoths (Turnips,) Kings (of Potatoes,) Queens (of Marrows,) Princes (of Spanish Onions,) Princesses (Beet,) Emperors (Leeks,) Golden Globes (Tomatoes,) the Niagara Squash Pumpkins for *Cinderella*, Romantic Russian (Radish,) and Long-Podded Negros.

"*Happy Thought.*—Write a Vegetable Christmas Fairy Book for Vegetarian Children.

"Among the Flowers, I have, I see, a surprising choice. Here's the *Warscewiczii* (uncommonly like the *wice wersy*,) the *Aquilegia Caryophylloides*, the *Chamupella diacantha*, known in English as 'Bungay's Fishbone Thistle,' the *Major Convolvulus*, which reminds me of ENGLEMORE, who would however, have probably called it 'Colonel;' and, finally, as I haven't time at present to note any others, the *Heracleum giganteum*, or 'Bungay's Cow Parsnip,' '*effective*' (he adds, in italics) '*in shrubberies.*' I should think so. Rather. A strange creature, which is something between a Cow and a Parsnip, would be effective in a shrubbery; and a jolly mess he'd make of it. Which part of it would be a Cow, and which Parsnip? Important question, on account of the milk."

Horticultural Societies.

COMMUNICATIONS.

OHIO HORTICULTURAL SOCIETY.

Annual Meeting at Akron, December 9 to 11.

BY M. B. BATEHAM, SEC'Y.

This meeting was well attended, and the reports, speeches and discussions were of more than ordinary interest, especially to the fraternity of fruit growers. I will endeavor to give, in brief, the points most likely to prove of interest to horticulturists generally.

The show of fruits was very good, filling three hundred feet of table surface. Among the assortments of apples was one of one hundred and thirty-three varieties by Dr. J. A. Warder, President of the Society, from his experimental orchard where he has been testing a large number of South-western varieties; and he said he exhibited these specimens to show how poor most of them are in comparison with approved Northern sorts. Though of course the Southern varieties are better grown at the South than here.

After an address of welcome to the Society, by Dr. M. Jewett of Akron, and an appropriate response from Dr. Warder, the annual address of the President was delivered. It consisted mainly of a review of the history of the Society

and of Pomology in Ohio, for the past twenty-seven years, with suggestions in regard to the work to be done in the future.

Fruit Crops and Prices.—The ad interim reports, from different sections of the State, represented the strawberry crop as quite light in consequence of drouth; raspberries were injured by the same cause. Cherries and blackberries were plenty and cheap, but dry and hot weather injured their quality and sale. Peaches were abundant in all the localities where largely grown; but the severe drouth, and hot weather at the time of ripening, damaged the quality of the fruit and hastened the ripening so that the markets were soon glutted, and prices became so low as to afford no compensation to growers, when express freight and commissions were deducted. Thousands of bushels sold for no more than the cost of boxes, freight and commission; and thousands more were fed to hogs, or left to rot in the orchards. The only varieties that afforded a fair profit to the growers were Hale's Early, where well grown and exempt from rot, and the finest late yellow sorts, like Crawford's Late and Smock Free.

Grapes too were abundant and fine, and having to meet the glut of peaches in the markets, were sold at very low prices, often paying nothing to the grower above the cost of picking, packing and shipping.

The apple crop was also abundant in many parts of the State, and the fruit being riper than usual at the time of gathering, in consequence of the warm autumn, growers were afraid to store the fruit for winter marketing, and so it was pushed off rapidly at a low price, and much of it remained unsold to be fed to stock or made into cider, or left to rot in the orchards.

These facts naturally had a depressing effect on the spirits and pockets of our fruit growers, and also had some influence in giving direction to the discussions at our meeting.

The first point suggested was, that fruit growers in selecting localities for their business should, if possible, choose those within ten miles or so of a city market, when they can transport their products on spring wagons, and avoid the expenses of both express freight and commission. This was shown to be the practice of several of the most successful fruit growers in the State; but it was admitted this could not generally be done with peaches, as this fruit could only be grown to advantage in a few districts.

It was next urged that something might be done by law or moral suasion, to induce express companies to carry fruits at lower rates, and especially to compel their employes to handle the packages less roughly, as much of the difficulty in the sale of summer fruits is in consequence of its damaged condition when reaching market, owing to the rough handling on the way.

Another suggestion in this line was, that where several fruit growers are located in the same neighborhood they should arrange so as to combine their shipments and charter entire cars to go as freight; sending an agent of their own to see to its unloading and sale. This has been done in some localities in Ohio, with very satisfactory results.

Improved Methods of Drying Fruits, were discussed with much interest in this connection, as a means of using up a surplus of peaches or other fruits when prices are too low in the markets.

J. T. Shryock, of Zanesville, described a new form of drying house of his invention, used mainly for drying brick, drain tile and sewer pipe, but also applicable for fruit. It is on the principle of a small train of rail cars passing through a tunnel, heated by a furnace and flue, causing a current of hot air to pass through the tunnel. The green fruit to be spread on the car as it passes in at one end of the tunnel and taken off dried, as it passes out at the other. It was thought to possess good points, but its practical working with fruit has not yet been sufficiently tested.

The Alden Method, as now improved and cheapened, was fully explained by an agent of the patentees or builders, and seemed to be regarded with much favor. A number of establishments of this kind have been erected in Ohio, as well as bordering States, during the past year, and are working satisfactorily.

Another method on a similar principle, that of Jones Brothers, of Michigan, was spoken of favorably, as having been exhibited in operation at the Cincinnati Exposition the past fall. It was expected that one of the patentees would be present at this meeting, with a model, but he failed to arrive.

Fruit Houses, for storing and preserving winter apples and pears, were also discussed, and new ones described. The best was the invention of a Quaker farmer, Joseph Cope, of East Fairfield, Ohio, and a similar one by his brother,

Nathan Cope, of the same place, who, with his son, have six thousand barrels of apples now stored for winter and spring sales.

These houses consist of a room or cellar, mostly or entirely above ground, the walls of brick or stone outside, and wood or lath and plaster within, with an air space between, so as to be frost proof and as near air proof as possible. The sealing above also made double and tight. Beneath are placed tubes for ventilation, opening outside through the wall and up through the floor; also another set through the ceiling and upwards through the attic room and roof, by means of which the ventilation is controlled and the temperature measurably regulated.

Fisher's patent refrigerator and fruit preserving house was also described, by an agent of the patentee. It is constructed and operated on a plan similar to that of Nyce's patent, with a chamber kept at nearly freezing point, by means of ice stored above; but the air is kept dry by means of ventilation instead of chemical absorb ants. It is used in cities for preserving fresh meats, game, butter, eggs, &c., as well as fruit.

NURSERYMEN'S PROTECTIVE ASSOCIATIONS.

BY CHICAGO.

I was pleased to see you notice favorably our Nurserymen's Protective Association. It has been in operation but three or four years, but it has accomplished a great work in this short time, and as one of its members I can say that its value to our trade can hardly be estimated. It is absolutely useless for a dead-beat to apply for credit to a member of this association, while a good reliable man can secure credit now with out any reference whatever. Our territory embraces all that section of our country west on Ohio. It is deemed best only to occupy this field, but we hope our eastern friends will organize; in which case, we will gladly exchange lists, giving them all the benefits of our organization and obtaining the same from them. The writer of this article in other years always met a loss each selling season, of from five to ten per cent on the aggregate of his trade; but now, enjoying the benefits of this association is enabled to do all the trade he can possibly manage without any loss whatever. It seems to me our great eastern firms could well afford to give one day's time to perfect such an organization. The cost to each member is but a trifle, hardly more than the subscription to your *Monthly*.

EDITORIAL NOTES.

THE FRUIT GROWER'S SOCIETY OF PENNSYLVANIA.—The annual meeting at York, was one of the most interesting in many respects, though hard times, sickness, cold weather and some other obstacles, prevented quite so large an attendance as usual. President Hieges' annual address, was one the most effective ever given. He dwelt chiefly on the value of the cherry as a profitable fruit for Southren Pennsylvania,—the value of soap syringings after every heavy rain, as a preservative of the plum from the curculio, —of the necessity for the fruit growers of the Union not being behind other classes in a good representation at the Centennial,—of the nenessity for well decomposed manure instead of fresh, for fruit trees,—of the danger of merely "copying from nature" in fruit growing,—praised, in a sarcastic manner, the plant patent, which in serious vein, he opposed,—advocated the extension of the society's field, so as to include other branches of gardening,—had good words for the American Pomological Society, the State Geological survey, as showing the best regions for fruits, and went into the subject of peach yellows and other diseases. Though his extemporaneous address extended over an hour, it was listened to with intense interest. Josiah Hoopes and others made some enthusiastic addresses in favor of the horticulture of the Centennial.

MARYLAND HORTICULTURAL SOCIETY PEACH SHOW.—By a note in the Baltimore *American*, from which we extract, it will be seen that a peach show is to be held in that State this season, which will no doubt be extremely interesting.

"It is well known that a very large proportion of the peaches annually received in New York, and popularly supposed to come from Delaware, are the products of the orchards of the Eastern Shore of Maryland; but it is not so generally known that the cultivation of this fruit is largely gaining ground in Western Maryland, and that last season when the crops on the Peninsula were failures, either partial or total, the markets of this city were largely supplied from Washington, Frederick and Carroll Counties.

At the time proposed to hold the exhibition of which we speak, namely, the third week in August, the earlier varieties from our northern counties will not have disappeared, whilst the later kinds from Southern Maryland will begin

to arrive, and the collection can therefore be made to embrace all, or nearly all, the sorts which are grown within our borders, and they show at a glance the variations of soil and climate of our State. The idea is an exceedingly good one, and to carry it out with energy can scarcely fail to result in advantage to our people in showing the advance made in this important branch of culture.

To one of the commercial classes of our city this exposition will possess great interest, and, possibly, considerable value. We refer to the fruit packers, a class of men of distinguished energy and intelligence, the extent of whose business is now immense, and the products of whose skill are now to be found in every corner of the globe. These gentlemen are, as no other class, interested in the improvement of the standard of the fruit, and this point will be one of the most important results likely to be achieved by such a show, as all sections of our State will vie with each other in the presentation of the finest specimens of the fruits which the packers consume, or, to speak more correctly, preserve for consumption.

It is not designed to limit the show at the time named to any one variety of fruit, and there can be a very varied and full collection of early apples and pears, melons, grapes and blackberries, but the special object of interest will be peaches, from the prominent position they occupy in the fruit production of our State."

MINNESOTA HORTICULTURAL SOCIETY.—*List of Apples.*—At the winter meeting the committee on varieties of apples reported. The following is the list as voted and adopted:

Duchess, for, 23; against, 0.
Tetofski, for, 17; against, 3.
Wealthy, for, 23; against, 3.
Stewart's Sweet, for, 14; against, 4.

List for Favorable Localities.

Haas, for, 11; against, 3.
Price Winter Sweet, for, 10; against, 1.
Saxton, for, 10; against, 1.

For Most Favorable Localities.

Fameuse, for, 14; against, 3
Plumb's Cider, for, 7; against, 5.
Walbridge, for, 10; against, 1.
St. Laurence, for, 9; against, 1.
Uller's Red, for, 5; against, 4.
Tollman's Sweet, for, 12; against, 5.
The Alaska was recommended for trial.

NEWBURG BAY (N. Y.) HORTICULTURE SOCIETY.—*Patents for Horticultural Products.* At a recent meeting, on motion of Mr. Ricketts, the following was adopted:

Resolved, That it is the opinion of the Newburg Bay Horticultural Society, that the originators of new varieties of plants should be secured by law in the exclusive right to their produc tions in like manner and for like periods, as are authors and other inventors.

ATLANTA (GEORGIA) POMOLOGICAL SOCIETY.—*Georgia Apples.* On the apples exhibited last year, the committee says:

During the month of June the following varieties of early apples were on exhibition: Red Astrachan, Yellow May and Red June. In July: Julian, Horse, Striped June, Yellow June, Farrar's Summer, Rhodes' Orange, Wax, Cheese, Siberian Crab, Mary Chester, Striped Sweeting, July Beauty, and White's Seedling. During August: Horse, Julian, Rhodes' Orange, Farrar's Summer, Mary Moyer. September: Carter's Blue, Buncombe, Nickajack, Oconee Greening, Horse, Farrar's Summer, Golden Russett, Yates, Jeff. Davis, Stevenson's Winter, and Abraham.

The following list of varieties ripening in order named, have been selected by the Society as succeeding best in this locality, viz:

Yellow May, Red Astrachan, Red June, Yellow June, Early Harvest, Rhodes' Orange, Julian, Yellow Horse, Farrar's Summer, Taunton, Hamilton, Kentucky Queen, Mangum, Buncombe, Golden Russet, Oconee Greening, Yellow English, Nickajack, Yates, and Shockley.

The Horse Apple was on exhibition from June 26th to September 14th, in quality equal to Red Astrachan or Red June. Farrar's Summer has been ripe and on exhibition from July 11th to October 3d, in quality one of the best.

MISSOURI STATE HORTICULTURAL SOCIETY.—*Apples for Missouri.*—At the winter meeting the *Prairie Farmer* reports:

Mr. Evans said that persons become educated to eat Ben Davis; it is like eating the tomato. When he first tried the B. D. he said he would rather have a turnip; now he prefers it to any other. He could make twice as much money out of it as any other kind. It is a good shipper, keeps well, and is more saleable than any other; worth $1.50 a bushel—twenty-five to thirty cents more than the Jonathan.

Mr. Storm said the Jonathan sold for more money at St. Joe.

Mr. Rhodes, (St. Louis county) said the

Northern Spy was the best paying apple in this market; sells for $3 to $4 a barrel.

Mr. Storm agreed that the N. S. was the most valuable apple in its season, but it often fails. The Ben Davis will outlive the Jonathan and Winesap, where parties are unacquainted with them, but the reverse is the case when they are known.

Prof. Tracey recommended the Pryor's Red as a first-class apple.

Mr. Stark said the object was to know which kind we can make the most money out of. If the Ben Davis was worth $1 per bushel, the Winesap and Jonathan $1.50, and Pryor's Red $2.50, he could make more out of the Davis. The Large Romanite is a poor apple, but it pays well—always sells well in the South.

Mr. Patterson put in a word for the Jeurton, or Gilpin.

Mr. Stark said we must raise what people will buy. Apples sell as well now as during the last twenty-five years. Never knew a year when good apples did not sell well. Smith's Cider was very profitable—more so, perhaps, than any other. The Ben Davis bears well, keeps well, but the tree often breaks down.

Mr. Earl, of Egypt, said in his part of Illinois, the Wine Sap was one of the best; the Ben Davis next, but not likely to hold its ground. We grow for the Southern market, which requires red apples. Perhaps the best in its season is Smith's Cider. The white winter Pearmain was good. The yellow Belleflower was fine, but a poor bearer at times.

Mr. Snediker, of Illinois, recommended Smith's Cider, and gave an account of its origin. Its name is not derived from its cider, but from the fact that the original tree grew very large near a cider press, and cider barrels were rolled under it for shade. In Illinois it used to be called the Royal Red.

Prof. Foster, (Pike County, Mo.) compared the Geneting with the Ben Davis; he could eat of the former, and sit down to a dinner and enjoy a square meal; but when he ate the B. D. it satisfied his hunger. The B. D. is better in certain localities than others.

Mr. Evans introduced a sample of the Lawver, a large, handsome, showy red apple. It will keep until early harvest, and is a good apple, though not first class; but it sells well. It has been fruited only in Clay county.

The Huntsman's Favorite was decided to be a superior fruit.

Prof. Foster inquired about the Mawn apple but no man present, except himself, knew it.

Mr. Storm recommended the Winter Wine as a fine keeper, and bringing a high price.

Mr. Patterson hung his hat on the Willow Twig as a good thing.

Mr. Storm recommended the Little Romanite as an apple that will keep all winter under the tree.

The vote was taken, each member voting for three kinds as preferable for commercial purpose.

The result was as follows: Ben Davis, 13; Wine Sap, 10; Lawver, 8; Jeniton, 5; Smith's Cider, 4; Jonathan, 3; Pryor's Red, 2; Little Romanite, 2; Willow Twig, 1.

BURLINGTON (IOWA) HORTICULTURAL SOCIETY.—*Cattle running at Large.*—We note in a Burlington paper that efforts are being made to form a Horticultural Society in that town. A prominent lady of the place was invited to take an acting part in it, and we find in the paper the following reply. We must say that any city that allows goats, hogs, cows, and so forth, to run in the streets is hardly advanced enough for a Horticultural Society:

"From the report of the meeting of the horticultural convention in this morning's *Hawk-Eye*, I see that my name has been included as a member of the committee for South and West Hills. In tendering my acknowledgment and thanks for the distinction, I at the same time beg to express my desire of respectfully declining the appointment.

A horticultural society is, and always will be a good, beautiful and useful institution, where it can possibly be of any practical use. But such an effort in Burlington, will be very much like starting a public park at the north pole, as long as the streets of our city are infested with cattle, geese, mules, etc.

If I could have back the money which I have expended for tree-boxes, and fencing, and replacing destroyed trees and ruined shrubbery, I should be most happy to devote every cent of it to the interest of a horticultural society. And whenever our city government will muster wisdom and courage enough to pass ordinances for the banishment of all these animals from the city limits, and *enforce* them, nothing will please me better than to be a very active member of such a laudable institution as a Horticultural Society."

The Gardener's Monthly,

DEVOTED TO

HORTICULTURE, ARBORICULTURE & RURAL AFFAIRS.

EDITED BY THOMAS MEEHAN.

Old Series—Vol. XVII. MAY, 1875. New Series—Vol. VIII. No. 5

Flower Garden and Pleasure Ground.

SEASONABLE HINTS.

In the expression, "*Natura non facit saltum,*" Ray, a celebrated naturalist of the past century, asserted the principles on which some of the most popular of modern evolutionary views are founded. "Nature does not progress by leaps," is indeed the foundation of Mr. Darwin's views of the origin of species. Change by gradual modification is at the bottom of all the forms we see. That there is a great truth in this no one doubts,—but our present season surely is not one of the Darwinian kind. The transition from the spring of the last and the preceding year, to that of the present has not been gradual, but is a leap of the most substantial character. It is none of your frog like movements which in a subject so notoriously fickle as the weather, one could tolerate,—but it has come on us like the great grasshopper invasion of last summer, and has jumped all the gardening life out of us. Well, such an experience as this season has given us, ought to be very favorable to Mr. Darwin's views. Those who have preferred to believe that all the great changes on the earth have been in a short, sharp, and decisive manner, will be sick of that doctrine with this spring's season experience,—and in future they will be glad to rank themselves among those who prefer to live under the "gradual modification" government; for the gulf between the green of last March and the frost and snow of this is too wide for human nature to bridge across.

How we pity those who get up Horticultural Calendars for the month! "Now is the time to mow the lawn," or "the first of May having come, now see to this or the other, and so forth!" We are glad we give only "seasonable hints," and if the season then does not come, it is no fault of ours.

As we are writing, about the 1st of April, we have four feet of frost in the ground, and we hardly feel safe in saying yet, what can be done when our next *Monthly* appears,—but as "April" has not been here yet according to the rules we laid down for it in our last magazine, what we wrote for that month may be profitable yet.

One very useful hint has been furnished by Wm. Webster, the landscape gardener of Rochester, New York, and who is well known in connection with some excellent specimens of tasteful garden art in Pennsylvania and elsewhere. This hint is in the shape of a plan of the garden and ground designed by Mr. W., for L. Moses, Esq., of Skeneatles, New York, and which we give on the next page. *a* Dwelling, *b* Stable, *c* Boat house, *d* Ice house, *e* Summer house, *f* Grape house, *g* Vegetable garden, *h* Orchard, *j* Section for dwarf pears, *k* Arborvitæ hedge, *l l* Sections of l·wn, *m* Flower garden,—the beds cut in grass,—*n n* Circles of grass in carriage road.

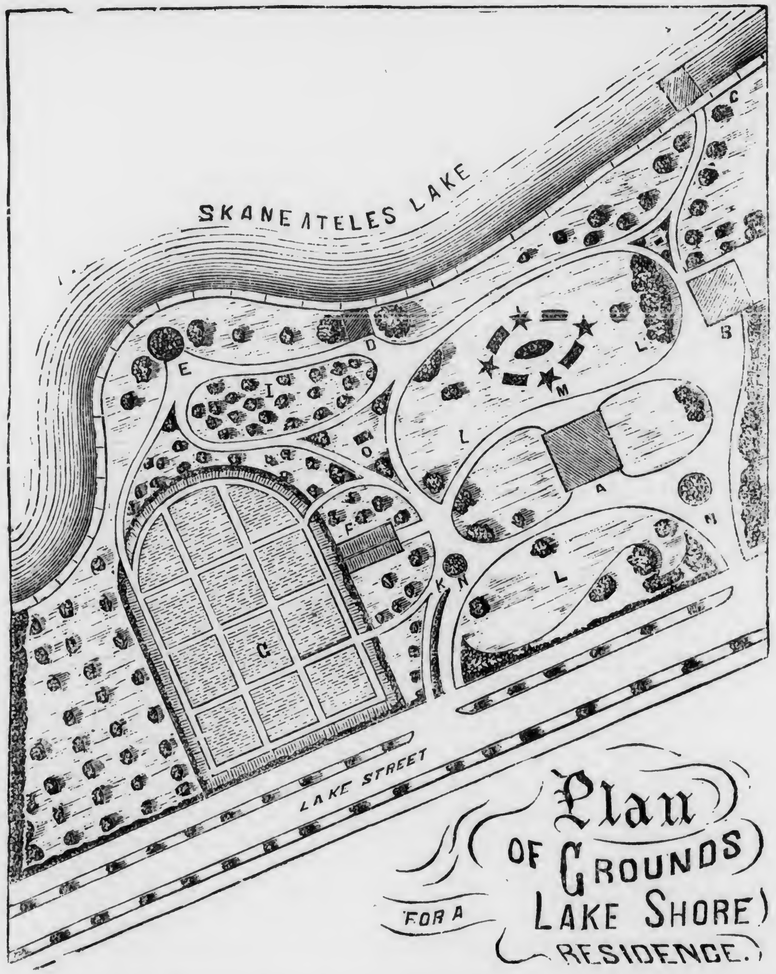
COMMUNICATIONS.

OUR PROGRESSIVE ORNAMENTAL GARDENING.

BY WALTER ELDER, PHILADELPHIA.

Our progress in ornamental gardening has of late years been marked by the introduction of many antique ideas. The *Romans* and *Greeks* have been famous for their garden fantasies; and now these are finding imitators amongst us.

They were fond of rustic arbors,—we have the form; but galvanized wire works furnish a substitute, for wood, and also material for encirclings of the *basket flower beds* upon our lawns. Our numerous and improved species and varieties of climbers, and almost endless kinds of bedding plants or ornamental foliage make our fantasies far more pleasing than those of the



olden time. Our *Basket Rosaries* bloom from May to November. Our abundance of fancy stones and shining shells, make our artificial *Rockeries* pleasing. We have suitable plants for decorating old quarry holes, craggy rocks, and walls that support embankments. Our terraced slopes are clothed with ornamental plants, for which there is a good selection. Even marshes can be made beautiful. Fountains with fish make admirable embellishments. Water birds make our larger ponds and lakes picturesquely beautiful. Decaying trees, with holes in their stems, are turned to account; ornamental plants set in the holes, often make unique oddities Large old logs of trees, lying in some unsuspected nooks, hollowed like longboats, then filled with rich compost and planted with ornamental things, are odd looking, and often please.

In a former article, I said, that we were well supplied with *vases*, *rustic stands* and *hanging baskets*, for growing curious and pretty plants in. Our *garden statuary* is yet very limited, but in that we shall increase as time passes on.

All the above, and other curiosities, should be

introduced into our *large parks*, and some of them in public city gardens, as they give additional charms to other objects in ornamental gardening.

TRANSPLANTING EVERGREENS.

BY E. MANNING, MAGNOLIA, FRANKLIN COUNTY, OHIO.

As the season will soon arrive for tree planting, a few timely hints to the inexperienced may not be amiss. The subject selected is the planting and after management of Evergreens. Great interest is manifested at this time in this important branch, both in home adornment and for shelter. And why should it not, seeing the rapid destruction going on in our forests? If immediate attention be not directed to this important branch of our country's prosperity, our children will have to lament our neglect. The growth of trees is the work of time. Money will not buy forests where none exist. Already we preceive how much more windy and cold our country is getting as our noble forests disappear. Our Western neighbors in Illinois, are already alive to its importance. Look at the millions of Evergreens and Larches annually raised by our friends Robert Douglas & Son, of Waukegan. This shows conclusively there is a great demand for these beautiful and useful productions. Our Western friends have suffered long for the want of attention to this important matter. With these few preliminary remarks I shall proceed to the subject.

After an experience of fifteen years, more or less, in Evergreen planting, I have found it invariably best to transplant Evergreens just at the time in the spring that the buds begin to swell. If trees are properly removed and properly planted at this time very few will fail; but as many others as well as myself have to get their trees requently hundreds of miles away, the planting cannot always be done at the right time. In my experience I have had to plant sometimes quite early in April--over a month before the proper time. In this case the best and surest way is to protect the transplanted tree from the effects of cold winds, snows and hard freezing. For ordinary sized Evergreens, a flour barrel turned over the transplanted tree till the 15th of May in this latitude will pretty surely save it. Without this precaution it would be pretty sure to die. My plan on receiving a bale of evergreens is to open it immediately, wet the roots with water, not too cold, and heel them in immediately in mellow soil till planted. Above all, never expose the roots of an Evergreen to cold winds or sun. Most trees are benefited by shortening in the branches. If the ground is dry, water when planted, and mulch. If the tree is well handled and planted it will usually make a pretty good growth the first season, and with ordinary care, pass the next winter uninjured. If it has made but a feeble growth the first summer it should be protected the following winter, as it is only an invalid. Many trees are saved by this precaution. Most Evergreens transplant readily and successfully if they have been well packed and carefully handled. Some nurserymen recklessly expose the roots to the sun or cold for hours. In all such cases the trees will mostly fail, or if they start at all, will be an eye sore, and die the following winter.

LILIUM AURATUM.

BY C. C. S., BROOKLINE, MASS.

The following letter describing the very successful cultivation of this magnificent flower on the shores of Cape Cod, will be read with interest, proving, as it would seem, that a light soil and *thorough drainage* are necessary to bring it to its highest state of perfection. I have not before heard of so fine a specimen on this side of the Atlantic.

112 BEACON STREET, BOSTON,
February 18th, 1875.

PROFESSOR CHARLES SPRAGUE SARGENT:

My dear Sir:

In accordance with my promise, I herewith send you the statement regarding the growth of the Lilium auratum at Cohut, 1874, and other circumstances which seem to bear upon the case.

Mrs. Augustus T. Perkins began to cultivate the Lilium auratum in her garden at Sandanwood so early as 1871.

The position of the garden is on a bluff fifty-five feet high, overlooking Cohut Bay to the Northwest, and distant from the edge of the bank about forty feet. The garden is surrounded with yellow pine trees. The original soil is mere sand, producing nothing but pine and dwarf oak.

After the garden was laid out the sand was moved from the beds to the depth of two feet, leaving the spaces round them for paths. The beds were filled with a compost made of black mud, dug from a pond mixed with the sand

taken from the beds, and enriched with manure from stables near at hand.

All the bulbs did well, some reaching three and four feet in height, and having from fifteen to twenty fine flowers on the best plants.

The lily which has caused some attention, owing to the size it attained in the Autumn of 1874, and which was exhibited at the Fair at Barns Hall, threw up three shoots which still stand (Feb. 17th, 1875) and by careful measurement reach the extraordinary height of seven feet and eleven inches. When on exhibition, it had sixty-one flowers, and Captain William Childs, who prepared it for the fair, says, that it had already lost three, and that it bore sixty-four flowers in all.

The well at Sandanwood which is near the garden is dug through fifty-five feet of clear sand, free from stones, and with faint traces of iron in it. This shows the character of the soil to its whole depth.

I have the honor to remain yours very truly,

A. T. PERKINS.

NEW PLANTS.

CYDONIA MAULEI.—A beautiful colored plate appears in the February number of the *Florist* and *Pomologist*. The leaves are different from the ordinary Pyrus or Cydonia japonica. They appear more like a Cockspur Hawthorne. The flowers are more of the tint of the old scarlet geranium, than of our common Pyrus japonica. The fruit seems to be produced easily, which is not the case with ours, and as these are of bright golden color, they give an additional attraction.

ROSENTHALL'S VARIEGATED EUROPEAN PLANE is one of the leading novelties in German gardens this season. It has yellowish white markings all over the surface of the leaves.

SHEPHERDIA SEMPERVIRENS.—Under this name we find the following in the *Utah Pomologist*. We believe the specific name adopted by Dr. Parry is S. rotundifolia. We heard from him some time ago, that a new Shepherdia had been discovered in that region:

"A shrub 3 to 6 feet high, grows on dry banks of clayey soil, evergreen, foliage thick, leathery, very thick set around stock, flowers yellow, blooming in February or March at the axil of the leaf; fruit acid, about ½ inch long, and ¼ inch thick, both ends tapering, pubescent, or hairy, of a dirty yellow; ripe first of July, leaves hairy, or velvety, on the under side, and oval and glossy on the upper side. A very singular, effective and noticeable plant."

NEW ROSE—*E. Y. Teas.*—M. Eugene Verdier, of Paris, has named one of his new Roses after this well known western rose grower, and thus describes it:

"Hardy, with short straight shoots of a delicate green; flowers globular, very large, full, and of very perfect shape, of a rich, showy, deep cherry-red."

A NEW STAPHYLEA.—The Bladder nut is tolerably well known among our hardy shrubs, though not as often cultivated as it deserves to be. The flowers of our Eastern species, Staphylea trifolia are very sweet, and on our grounds a favorite resort of the orchard oriole, which though generally supposed to be exclusively an insectivorous bird, eagerly sucks the honey from the flowers. A new species has been detected in California, by Dr. Bolander, and has recently been named by Prof. Gray, S. Bolanderi. There are but five species known The S. Bumalda, a Japanese species has just made its appearance in American collections. The English, S. pinnata, is not, we believe in America, and S. occidentalis, from the mountains of Asia. Dr. Gray says Bolander's Bladder nut is easily distinguished among other characters by the conspicuous projection of the styles beyond the corolla.

AUDIBERTIA CLEVELANDII.—The Audibertia is a genus of low shrubby plants of sufficient interest to cultivate, though as yet none have got into our gardens. Audibertia incana reaches the Wahsatch range of mountains, and would probably do well further east. This is a new species discovered in San Diego, California, and recently named by Dr. Gray.

MENTZELIA URENS.—Among the many botanical novelties which have resulted from Dr. Parry's explorations in Southern Utah, is this one which also promises to be of great floral value. The petals are white, an inch and a half in length. Specimens had been collected before by the Whipple exploring expedition, and named *Eucnida lobata*, but that name is given by Gray to one of Lindheimer's plants, so that Dr. Parry has been free to name it as above. The only drawback to its cultivable qualities is a slightly stinging disposition in its leaves.

THE BLUE DAISY (Bellis rotundifoila, var. cœrulescens), is now flowering on the rockwork at Kew, and is one of the valuable additions to our collections brought home three years ago by the expedition to Morocco of Dr. Hooker, Messrs. Maw, and Ball. It was figured in the *Botanical Magazine* last year where we are informed that the "Blue Daisy is one of the commonest spring flowers in various parts of Morocco, abounding in fields with a rich soil on the hills near Tangier, and occurring in great profusion by the watercourses of the valleys of the greater Atlas in latitude 31°, at elevations of 4,000 ft. to 11,000 ft." It flowers very profusely, and continues for a considerable time. The color is rather pale, but with some of the few who possess it the color has been bright. It does the best when planted on rockwork and is increased by careful division, preferably of plants in pots.—*Gardener's Record.*

QUERIES.

IVY ON TREES.—*S.* says: "The following I cut from Mr. Robinson's publication, called *The Garden*. While it is most sound, I want to ask your opinion regarding the injury done to trees by Ivy, etc, clinging thereto. I have trees of the Weymouth Pine, which have been encircled for thirty-five years with Ivy of the densest growth; the trees are more healthy and are growing better than any of their neighbors.

"*Trees and Houses.*—Do not plant, under any circumstances, near your house trees that will ultimately attain large dimensions or the day will come when you or your successors will have to choose between cutting down handsome and favorite old specimens or suffering from the gloom and moisture generated by their too close proximity to the house. Many a fine old mansion has been thus overshadowed, and the inmates have had to elect between unhealthy damp and shade on the one hand and the uprooting of a venerable tree on the other. Do not encourage ivy or other creepers to grow on trees which you wish to keep healthy and long-lived. These parasites do best, and look best, on decaying objects, whether trees or ruins, to which they add grace and cause no injury."

[Although from *The Garden*, it is evidently merely the opinion of a correspondent, for which, in a free paper, an editor is not answerable. Mr. Robinson, the intelligent editor of the *Garden*, knows of course that the ivy is not a *parasite*. It simply clings to the tree for support, just as a boy does in climbing to rob a bird's nest, or steal an apple, and the injury to the tree is the same and no more.

The ideas in reference to trees near houses are adapted to the English climate, where they need all the sun they can get, and a little more; and are not applicable to our country, where we have more sun than we need. Evergreens on the windward winter side, and the stately deciduous trees on the sunny side, stretching their shadowy arms over our dwellings, are as great luxuries to us, as they may be nuisances to the British. Unless the trees are very *very* close indeed, no one need fear for enough air or dryness in our climate, so far as the trees are likely to interfere.—ED. G. M.]

PYRUS CORONARIA.—We are indebted to numerous friends, for seeds, fruit, graft, seedlings, and so forth, of this beautiful tree. One good friend, with some grafts, sends the following letter, showing that improvement has found out even our Wild Crab. As the letter was not written for publication, we do not feel at liberty to give the writer's name:

"I notice in the March number of your valuable *Monthly*, a request for seeds of the American Wild Crab. Though it grows in abundance in my immediate section, I have no seeds saved, but send you a few cuttings of a large variety which we have named Smith's Mammoth Crab. It root grafts successfully on the apple stock, and I hope you will give it a place in your large collection, as I am sure you will like it. The principal difference of this variety from the common Wild Crab, is its size, being three or four times as large as the common kind. The Pyrus coronaria has one desirable feature not mentioned by Mr. Stauffer in his commuications, viz: Odor of fruit being no less agreeable and refreshing than that of the flower, and lasts much longer. When housed the fruit can be kept most of the winter, but even left on the ground it keeps several months, and perfumes the air for a considerable distance."

PETRA PLANT.—A correspondent, who lived some years ago in Texas, and who is what gardeners call a "first-class plantsman," without

professing to be actually a botanist, says that the Mexican name for this is Pita, (pronounced Peetah) and not Petra, as given in the extract from the *Home Journal*, on page 69 in our March number. Again, he says that the late Dr. Lindhiemer assured him that the *Pita* plant was the Yucca gloriosa. We were led to believe it might be as Y. longifolia, a good species, from the fact stated in the extract of the leaves often being *more than four feet long*, which seems enormous for Yucca gloriosa, still we know nothing of it except from the extract as quoted.

EVERGREENS FOR STARTING A NURSERY.—*S.*, Lexington, Ky., says: Do you think the following a good list of evergreens for commercial purposes in this State: Balsom Fir, Norway Spruce, Scotch, White, and Austrian Pines, and Chinese Arbovitæ ?"

[A very good list; the various varieties of American Arborvitæ should be added. In your district after you get started you will have to get Magnolia grandiflora and some others.—ED. G. M.]

DESTRUCTION OF THE CANKER WORM.—A Massachusetts correspondent says: "Have you seen or heard anything about destroying the canker worm with paris green, and if so, what do you think of it ?"

[Do any of our correspondents know anything about this ?—ED. G. M.]

House Gardening and Glass Structures.

SEASONABLE HINTS.

In a notice of the little book on window gardening, published by Mr. Williams, in Mr. Robinson's *London Garden*, are some encouraging references to American window gardening, which we yield to a temptation to transfer to our pages. It says:

"The science and art of window gardening, as well as the use of decorative plants in apartments, is, as yet, in its infancy, and its early history seems shrouded in obscurity, although it, doubtless, had its origin in country districts, from whence it found its way into towns. It seems strange that this interesting source of enjoyment should have been neglected for so many years by the horticultural press, but, so it is; while, at the present time, it enjoys no mean amount of literature specially devoted to its progress and advancement. Fifty years ago plants were commonly grown in cottage windows, those more generally employed being Fuchsia globosa, Fair Helen Geranium, Musk, several Mesembryanthemums, Cactuses, and crimson China Roses. More recently, the newer varieties of Calceolarias, Fuchsias, Campanulas, Balsam, and Pelargoniums have been employed, while, at the present time, we employ Figs, Palms, Ferns, and the very choicest of exotic plants for the indoor decoration of dwellings, not only in the quiet country, but also amid the dust and bustle of the busy city. We gladly welcome any work that contributes to the wide-spread influence of domestic floriculture, an influence that contributes so much to our comfort and happiness in a smoky atmosphere of a town residence. Looking at the subject from a commercial point of view, we find many large establishments devoted entirely to the culture of decorative plants in small pots, while thousands of pounds are spent yearly in London for the pretty little decorative plants so often met with in the window cases and apartments of town mansions. We look on the decoration of our dwellings with healthy plants and fragrant blossoms as the sign of a more healthy appreciation of nature; as the embodiment of all that is beautiful and attainable in art. We have several very flourishing window gardening societies established, not only in the metropolis, but also in other large cities and towns, as Hull, Manchester, Nottingham, and Sheffield. Window gardening is evidently becoming quite as fashionable an amusement for ladies in America as it is with us here at home, and the above work seems calculated to forward progress in this direction, and is full of the most varied information with regard to the culture and arrangement of the various plants most generally used for window and room culture."

One advantage which American house gardeners have over our English friends is that they can plant so many of their pot plants out in the open air in summer. Indeed not only window plants but large numbers of greenhouse plants can be treated in the same way; of course some care has to be taken in the fall, when they have to be put into pots again, but this is no great difficulty. As for unhealthy pot or tub plants, such for instance as gardenias, oranges or lemons, oleanders, pittosporums, camellias, azaleas, or any thing of this class, there is no better way of treating them medicinally than to cut them back severely, and plant out into rich garden soil. It is always best in these cases to leave some green leaves and young twigs. If cut down to old bare stems, once in a while, they will not break again.

COMMUNICATIONS.

HOT WATER AND STEAM.

BY CHAS. F. HITCHINGS, NEW YORK CITY.

On page 71 of the March number, the readers of the *Gardener's Monthly* are favored with a communication from F. W. Poppey, comparing hot water with steam, as a means of heating greenhouses. While admitting the merits of hot water, he claims that when the extent of the establishment would justify the employment of special watch and fireman, steam would be cheaper and more effective than water, for the reason, as he states, that one steam boiler would furnish more heat, with less pipe, than ten times the amount of water pipes would do—that the heat required to maintain at the boiling point the quantity of water contained in one foot of pipe, would suffice to transform enough water into steam to fill seventeen hundred feet of the same pipe.

He seems to overlook the fact that it requires five and one-half times more heat to convert boiling water into steam at the temperature of boiling water, 212 degrees, than it does to boil the water from a temperature of 32 degrees; and while in theory, the volume of steam at 212 degrees is seventeen hundred times the volume of water from which it is produced, the water contained in one foot of pipe if converted into steam would not fill seventeen hundred feet of pipe, nor anything approaching that quantity. The radiation from a very short length of pipe would absorb all the latent heat in the steam and reconvert it to water; by increasing the pressure of steam, it would of course flow into a greater length of pipe, but increased pressure diminishes the volume and requires more fuel. Again the steam boiler that is capable of furnishing ten times more heat than the hot water boiler, must be something more than ten times its size and will consume more than ten times the quantity of fuel.

It is true that more heat can be obtained from pipes heated by steam under pressure, than from the same amount of pipe heated by water open to the atmosphere, but not ten times, as stated. Take for example, water pipes at an average of 190 degrees, which is a fair working heat for cold weather, compared with steam at 241 degrees, which is equivalent to a pressure of ten pounds to the square inch, and say 45 degrees as heat required in the greenhouse, and it will be found that seventy-four feet of pipe heated by steam, will have the same heating power as one hundred feet of pipe heated by water; and the saving in first cost would be in this proportion, were it not for the facts, that the smaller amount of pipe does not admit of less power in the boiler, that there are many appliances necessary for the safe use and proper control of steam that are not needed with water, and the boiler and pipes must be of wrought iron, in order to resist the pressure and the strain arising from the sudden changes in the temperature.

The same heat might be obtained from a proportional less quantity of pipe by increasing the pressure of the steam above that indicated, providing the boiler has sufficient power to maintain the greater pressure; but the use of a high pressure of steam in such long lines of pipe, as are necessary in large green houses, would prevent the return of the condensed water to the boiler and result in great waste of fuel; it would also increase to a great extent the evil ever attending the use of steam in plant houses—the injurious effect it has in overheating and drying up the plants that are in the vicinity of the radiating pipes, or exposed to the currents of hot air rising from them. Even the heat of boiling water has a noticeable bad effect in this respect, hence the general practice is to provide an amount of pipe sufficient to maintain the desired temperature in the house during severe weather, without the necessity of heating the water to the boiling point; with a proportional lower heat on all the pipes, to suit the requirements of moderate weather.

This is one of the chief reasons of the superiority of the system of water pipes for heating plant houses—the easy means it affords of distributing heat evenly and at a low temperature through a large amount of piping; and in this low temperature of the radiating surface, lies the secret of the relative quality of water, steam and fire heat. If it were possible to heat the same amount of radiating surface, at the same low temperature, with fire-heat, the purity of the atmosphere, would be retained in an equal degree as with water; on the other hand if water was circulated under the same pressure as steam, the evil effects would be precisely the same.

Reference is made to the great quantity of water to be heated in a water apparatus as compared with steam—but the heating of the larger quantity does not involve a loss of fuel, because all the heat received by the water is transmitted to the atmosphere of the house, through the pipes as the water cools; and the heat contained or stored in the large volume of water, maintains a greater permanency in the temperature of the house with less frequent firing. When the apparatus is of proportion and power, a fire of anthracite coal may be safely left, without attention from five to eight hours during severe cold nights, while with the steam apparatus it is necessary to maintain a constant intense fire to produce steam in sufficient volume and at the necessary pressure, to flow through the long lines of pipes. With water, the heat of the pipes is reduced to suit mild weather, by closing the draft and moderating the fire; but with steam this cannot be done, the pipes must have the full heat of steam or none, and the only way of regulating the heat of the house is to shut off a portion of the pipes, leaving the balance at the full heat. If through neglect in the care of the fire, deficiency in the power of the boiler, or from any cause the pressure of steam is reduced below the point necessary to fill all the pipes, the result is a total cooling of those most distant from the boiler; so that it might easily happen that while the house nearest the boiler retained its full heat, the one adjoining might be reduced below the freezing point.

The imaginary case of the "man with steam" beating Jack Frost, while the "man with water" is overcome, presupposed that the first is provided with sufficient power in boiler and pipes to contend with most severe cold weather, and more than is required most of the time; while the latter, with misjudged economy, has provided sufficient for moderate weather only, and suffers in consequence.

SPRAYING PLANTS.

BY DR. WM. F. CHANNING, PROVIDENCE, R. I.

An instrument comes to us from France this year for spraying plants on the large scale. It consists of a common pair of bellows, to the nozzle of which is screwed an "atomizing" apparatus, similar in principle to the little atomizers, commonly sold by druggists for vaporizing perfumery, and figured also in the catalogues of some florists for spraying plants. This apparatus in the French instrument consists of a spherical metallic receptacle for water or other fluids, and two tubes meeting each other at nearly right angles, one of them being screwed into the bellows and conveying the air blast, and the other dipping into the water receptacle. This receptacle, however, is not rigidly attached, but hung to the air-tube so as to swing freely and allow considerable motion of the bellows, without spilling the water. The water tube is made of rubber where it dips into the receptacle to accommodate itself to the swinging motions of the latter.

The instrument is well made and will vaporize a large number of plants in a short time. It is intended for use in the greenhouse with insect killing solutions. A spray apparatus, on a large scale is by far the most rapid, thorough and economical means or diffusing these fluids, as I have ascertained by experiment with an instrument of similar character during the last two years. But the wholesale price of the present instrument in American is about three dollars, at least twice what it could be made for at a profit in this country. I have described the apparatus thus particularly to enable ingenious mechanics to reproduce and improve upon the French type.

As already intimated, the use of plant atomizers heretofore has been confined to destroying insects, blight or mildew, by vaporizing insecticide solutions. But these instruments have a much wider application. The simple vapor of water has an effect upon the health and growth of house plants, so great as to promise a new era of plant cultivation in our stove and furnace-heated rooms. The luxuriance of house plants treated in this way is sometimes quite astonishing. This is of immediate interest to professional florists, as increased facilities for the house culture of plants adds largely

to the demand for them. But there is reason to believe that the uses of very fine spray are not confined to the house but would be of almost equal value in the greenhouse. One of the methods of converting the oxygen gas of the atmosphere into the modified form, called *ozone*, is by forcing water in fine spray through the air. Plants therefore, in the process of spraying, are subjected to an ozone bath. Ozone is one of the most powerful agents for the destruction of minute forms of animal and vegetable life. It is gaseous and more pervasive than any fluid. There is reason to believe therefore that the very fine spray of water will destroy mildew and the smaller insect types, and probably the ova and young of all insects injurious to vegetation.

I come now to one or two very practical points. A vaporizing instrument suitable for the parlor and of somewhat greater capacity than the common perfumery atomizer is very much needed. The rubber bulb, for compressing the air, as commonly constructed, is too fatiguing to the hand, to be extensively used by ladies. This may be modified in form, or a different condenser substituted. I have found that a light, easy working, cheaply constructed air syringe, attached to quarter-inch atomizing tubes,—meeting each other with flattened lips,—gives an abundant cloud of vapor. This combined with the French swinging receptacle for water may be the basis of a very tasteful instrument which would have a rightful place in every parlor. I understand that John A. Gerard, of New York, has already undertaken the manufacture of a plant vaporizer on the bulb principle for parlor use.

Another instrument which is needed is a nozzle for the greenhouse hose which shall project a much finer spray than those in common use. Among the French fountain jets there is one variety which apparently "atomizes" the water very thoroughly. No shovel or strainer will break up the water sufficiently. The concussion of the water against a solid body, or against itself in offering jets, or against an air jet, as in the common atomizer, seems to be essential for this minute division. The clouds of vapor from a waterfall are produced by all three of these modes of concussion.

In connection with vaporizing house plants it is worth remembering that there are various fluids besides water which evaporate without residiuum, leaving plants, pots and flowers stand perfectly clean, and which at the same time are very deadly to insect life. Alcohol is one of the most important of these. The spray of strong alcohol is said to completely destroy scale. Alcohol admits of the easiest dilution, to suit the tenderest plants, and leaves no persistent odor, Essences such as cologne, or essential oils, may be cautiously added to alcohol. The cheapest whiskey is available where the odor is not an objection. The essential oils derived from plants are much better tolerated by plants than by insects. Camphor water, and all the waters of the essential oils, form another class of insecticide fluids.

Lastly there are agents like very dilute carbolic acid and very dilute ammonia which evaporate without leaving a trace. But the vapor of pure water will, in a majority of cases, replace all these.

An illustrated article on "A Jet Aspirator for Laboratories" in the *American Journal of Science and Arts*, for December, 1874, by Professor R. H. Richards, furnishes valuable material to any person who wishes to construct an atomizing hydrant jet for greenhouse use. In connection with such a jet I would suggest a receptacle for insecticide preparations, solid or fluid, which should be slowly taken up by the passing stream of water and distributed in vapor.

PYRACANTHA HEDGE.

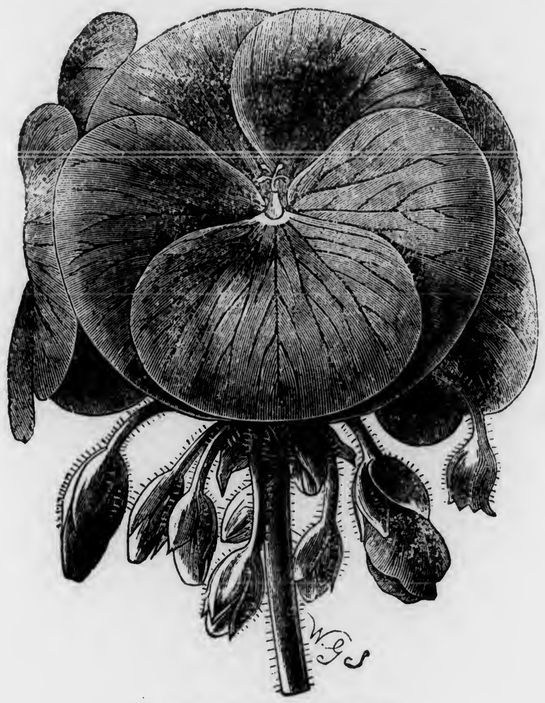
BY B. F., HUMBOLDT, TENN.

In the February number, you have an anonymous inquirer for the best evergreen hedge that will turn man or beast. We have no shrub or tree that will make as good a defence against large or small animals, as the Pyracantha. It is evergreen, and perfectly hardy and healthy here; very thorny, beautiful with its flowers in spring, and scarlet berries in the fall, very ornamental, easily controlled, and will make a good hedge in five or less years—if properly managed. No good fence can be made so *durable* and *cheap*, as the Pyracantha hedge. The osage is a tree and cannot be made to turn hogs or small animals; we have tried it for thirty years, without success. The pyracantha is well adapted for hedging; we want nothing better; we speak from experience.

QUERIES.

IMPROVEMENT IN ZONALE PELARGONIUMS.—It is difficult to imagine how this class of the old

fashioned scarlet geranium can be well improved. We have sent to us continually flowers of seedlings which the raisers believe to be new,—and they seem sadly disappointed when we have to tell them that there are already as good ones out,—and that unless there is some approach to perfection in form or the texture of the petals, or novel tint of color, or some striking peculiarity of habit, it is no use to send them to us. We have thought it might serve a good purpose to show our readers what we regard as the perfection of form in these flowers, and have therefore obtained from Mr. H. E. Chitty of the Bellevue Nurseries, Paterson, New Jersey, a cut of one known as Rienzi. The texture is equal to velvet, while its extreme size is no mean recommendation, though we should not regard this point as essential to a good flower. When our friends have seedlings like these, send them on for judgment.



PELARGONIUM RIENZI.

NAME OF PLANT.—*S. F. T., Manayunk, Pa.*—The leaf is a Tradescantia, or perhaps of the neighboring genus Spironema. Few of them are valued for their flowers, but for peculiarities of growth. They make good basket plants and grow with any ordinary treatment.

EDITORIAL NOTES.

WINTER CARNATION VESTA.—President Degraw has so far proved to be the best white winter flowering carnation. Vick thinks Vesta will prove a formidable competitor.

NEW BUTTON-HOLE BOUQUET FLOWER.—The past winter forced flowers of the Staphylea pinnata, the English form of our S. trifolia, or bladder nut, has made its appearance in Covent Garden market, with some appreciation in connection with Rose buds in button-hole bouquets.

DARLINGTONIA CALIFORNICA.—The *Gardener's Chronicle* has the following hint which may be of service to those who want to try and grow this curious pitcher plant:

The singular *Darlingtonia* appears to puzzle most people who attempt its culture, more especially with imported plants, which are generally induced to push up fair growth the first season and dwindle away afterwards. This is owing to their being placed in too much heat, the roots making no progress. A close frame or pit, where they could be somewhat confined yet not too much excited, is the most suitable place for them. Here they will not make nearly so much growth, but they may be expected to be better able to withstand the winter, at which season they generally dwindle away.

HOT WATER FOR INSECTS.—It looks a little risky to immerse a growing plant in water at one hundred and twenty degrees, for the purpose of ridding it of plant lice, or other insects, and no less authority than the *American Garden* warns its readers against trying it. The *Gardener's Monthly*, on the other hand, recommends it as perhaps the best remedy yet discovered. We can add our testimony in its favor, having tried it with the best results, and with no damage to the plants. The water must be in a convenient vessel, of sufficient depth, and the plants simply immersed and taken out as quickly as possible. Be sure that the water is no hotter than one hundred and twenty degrees. It is possible that some very tender leaved plants may not bear this treatment.—*Rural Carolinian.*

[The only cases in which we ever saw any damage was where the leaves were very young, and had been growing in deep shade. It will hurt no mature leaf.—ED. G. M.]

Fruit and Vegetable Gardening.

SEASONABLE HINTS.

If large fruit is wanted thinning assists. Strawberries are increased in size by watering in a dry time. Fruit trees should be allowed to bear only according to their strength. If a transplanted tree grows freely it may bear a few fruits,—but bear in mind growth and great fruitfulness are antagonistic processes.

Handsome forms are desirable in fruit as in ornamental trees. No winter pruning will do this exclusively. It may furnish the skeleton,—but it is Summer pinching which clothes the bones with beauty. A strong shoot soon draws all its nutriment to itself. Never allow one shoot to grow that wants to be bigger than others. Equality must be insisted on. Pinch out always as soon as they appear, such as would push too strongly ahead,—and keep doing so till the new buds seem no stronger than the others. Thus the food gets equally distributed.

When the strawberry crop is about to ripen, mulch with clean straw, to prevent rain soiling the fruit. Short grass from the lawn is often used; but it mildews as it decays, and detracts from the flavor of the fruit. Hot suns increase flavor, and strawberry tiles were once in fashion to put around the hills, which, by absorbing heat added greatly to the fruit's rich quality. All that we have said of Strawberries supposes them to be fruited on the hill system, with the runners kept off. Those who desire the best results, will grow them no other way but many grow them very successfully in beds, believing that though they may not have as many large fruits, they have a greater weight in proportion to the labor bestowed.

Where water can be commanded, there is nothing so profitable as to well soak the soil about small fruits; first about the time that they have set their fruit. Much of the value of this operation, however, will depend on the nature of the soil. The advantages are least in a tenacious, and greatest in porous soil. It is said that an animal derives most benefit from food when it is hungry before it begins to eat; it is certainly so with plants. Water applied to soil already wet is an injury; and water never has so telling an advantage on vegetation as when every leaf is about to wither up for the want of it. A plant that never seems to want water is in a very doubtful condition in regard to its health.

Blackberries and raspberries, set out in spring, may kill themselves by overbearing. It is pardonable to wish for some fruit the first year. If a tree seems to be growing freely, some fruit may be left. Cut out black-knot, or any symptoms of disease that may appear, and *as* they appear.

In the cultivation of garden crops, the hoe and rake should be continually at work. Weeds should be taken in hand before they are barely out of the seed-leaf, and one-half the usual labor of vegetable gardening will be avoided. Hoeing or earthing up of most garden crops is of immense advantage in nearly every case. One

would suppose that in our hot climate flat culture would be much more beneficial; but a fair trial, say on every other row of a bed of cabbages, will show a great difference in favor of the earthed-up plants. It would be easy to explain the reason of this, but in this column we try to confine ourselves to "hints," and leave reasons to our other departments.

Cabbage Cauliflower, and Brocoli, are now set out for fall crops, and Endive sown for winter Salad. Lettuce also for summer and fall use. This, however, must be sown in very rich soil, and in a partially shaded situation, or it will go to seed. Peas, Beans, and other crops, should be sowed every two weeks They do much better than when a large crop is sown at one time, and then have too many on at one time to waste.

Melons, cucumbers, corn, okra, squash, beans, sweet potatoes, lima beans, pepper, egg-plants, tomatoes, and other tender vegetables that do not do well till the sun gets high, and the ground warm, should go into the soil without delay.

Bean poles should be set before the beans are planted; and near cities where they are comparatively high priced, their ends should be charred. This will make them last some years. Many find them last as long when gas tarred. Mr. Perriam, of Michigan, uses no poles, but cuts off the runners as they appear, and the plant bears abundantly as a bush. Tomatoes do well tied to poles.

In sowing seeds it is well to remember that though the soil should be deep and finely pulverized, a loose condition is unfavorable to good growth. After the seeds are sown, a heavy rolling would be a great advantage. The farmer knows this, and we have often wondered that the practice never extended to garden work.

COMMUNICATIONS.

DWARF APPLES FOR GARDENS AND THE STOCK BEST ADAPTED TO THEM.

BY GEO. ELLWANGER, MOUNT HOPE NURSERIES, ROCHESTER, N. Y.

Some time ago, at your request, I promised to write something for the *Gardener's Monthly* on the above subject. At this rather late date I redeem my promise. Of the different dwarf apple stocks, my experience has demonstrated that for garden use the true French Paradise is the only satisfactory and valuable variety. This and the Doucin, the two stocks mainly employed for dwarfing in this country, are quite distinct. The former is readily distinguished by its peculiar olive-colored bark, straggling habit, and its tendency of making roots on the ground surface. It is not a strong grower, and this characteristic, together with its tendency to bear early, renders it particularly desirable for garden purposes.

The Doucin on the contrary is of upright and much more rapid growth, its wood is darker, and its roots run much deeper into the ground. It is a far stronger grower and also requires several years longer to come into bearing. For these reasons it is not as well adapted for planting in a small garden. It can, however, be used to advantage as half standards, where there is room enough, or where larger trees are desired.

Requisites for Successful Cultivation. In order to cultivate the Paradise successfully, it is essential that the stock on being transplanted, should be planted so that the bud remains above ground, in order that the budded part should not take root, and thus destroy the dwarfing effect of the stock.

I have seen root-grafted dwarf apples with hardly a sign of the original dwarf stock visible. These are really no longer dwarf apples, and this practice of root-grafting dwarf, I regard as both pernicious and deceptive.

The two above mentioned stocks are the only ones at all valuable with us. In England the Doucin in particular, as well as some of the other stocks used there for dwarfing, are erroneously called Paradise, and many of the English horticulturists do not seem fully aware of the difference. In fact the *Gardener's Chronicle*, a leading English horticultural journal, in an able article on apple stocks for dwarfing, after an examination of all the different kinds, at the *Experimental Gardens at Cheswick* and a minute description of their characteristics, concludes:

"It is very much to be wished that some means should be taken to distinguish clearly the particular *French Paradise*, from others of the same name."

As previously remarked, the French Paradise, or what is known by the German Pomologists as *Johannes Apple*, is easily distinguished from all other apple stocks by its peculiar olive color on the young wood, &c. Besides, the fruit of the French Paradise is bitter sweet, while that of the Doucin is sour. We have fruited both.

Mr. Rivers, the distinquished Nurseryman of Sawbridgeworth, England, originated two varieties that he calls Paradise, which are in use and held in high esteem by him. I think the most valuable he named *Nonsuch*. Both of these varieties have been tested on our grounds, but did not prove satisfactory with us.

Mr. Robinson, the Editor of "the Garden," in his interesting work, *The Parks, Promenades and Gardens of Paris*, gives a correct description of the Paradise. If after perusing it there is any doubt on the subject among his Pomological confreres, it is certainly not for lack of information on the subject. Some complain of its being too tender in England. I would remark that with us it is perpectly hardy, having stood the winter well with the thermometer twenty degrees below zero.

Situation and Soil of Orchard. For the successful cultivation of a miniature orchard, it is important that the soil should be warm and dry, and be kept in good condition; the situation should also be open, in order to have the benefit of both sun and air.

The distance apart in the orchard, or in rows for borders, should be from six to eight feet; for cordons, fifteen to twenty-four inches will be sufficient. The latter mode of training is particularly desirable where the space is limited, and where fine specimens of fruits are desired.

On my own grounds I have about one hundred trees in cordon form tied to wire about 12 inches from the ground, so as to unite with each other and form a continuous chain. Among the varieties, the Red Astrachan fruited the second year from bud, and most of the others, the third and fourth year, the fruits being of the finest quality, and of superior size.

The Advantages of Dwarf Apples. The dwarf apple commends itself for various reasons; it occupies but little space, and comes early into bearing; a large collection can be had in small grounds; trees with fruit buds can be transplanted so as to bear fruit the same year; the fruits are not so liable to the bloom from the trees, and the size of the fruit, when proper attention is paid to pruning and thinning out, is superior to that of the standard.

Apart from these advantages the dwarf apple is also worthy of being considered

Ornamentally as well as Practically. There are really few ornamental trees or shrubs that have more claims to beauty than a symmetrically proportioned dwarf apple at the time of its blossoming, when robed in delicate blush and white, and emitting its delicate perfume. Then it is almost worthy a place beside some of the finest flowering shrubs. Nor is there anything more striking in autumn, when vegetation has began to fade, than the sight of a group of dwarf crabs turning their highly colored fruits to the sun.

In this connection a few statistics in regard to an orchard of dwarf apples on our own grounds, all of which are on the French Paradise, and that embrace almost every known variety, may not be amiss. A portion of the trees that have been planted thirty years, measure as follows: Stem from six to eight inches in diameter, height six to eight feet, and branches about the same in diameter. These trees have frequently yielded in favorable seasons, from three to four bushels per tree.

Those planted twelve years ago will average as follows: Stems four to five inches in diameter, height four to six feet and branches about the same in diameter. The largest of them will yield from one to two bushels per tree.

I herewith present a list of some of the most desirable varieties for dwarfing.

Summer Apples: Astrachan Red, Early Harvest, Keswick Cadlin, Bough large Sweet.

Autumn Apples: Alexander, Duchess of Oldenburg, Gravenstein, St. Lawrence, Sherwood's Favorite.

Winter Apples: Baldwin, Bellflower yellow, King, Lady Apple, Mother, Nothern Spy, Reinette Canada, Red Canada, Melon, Spitzenburg Esopus, Twenty Ounce Apple, Wagener.

In conclusion I would remark that the system of training dwarf trees may be pursued *ad libitum*. One has but to visit the principal establishments of France, where this system receives the fullest attention to perceive the extent and variety to which it can be carried.

DESTROYING THE CODLING MOTH.

BY C. SELLERS, WOODSTOCK, ILL.

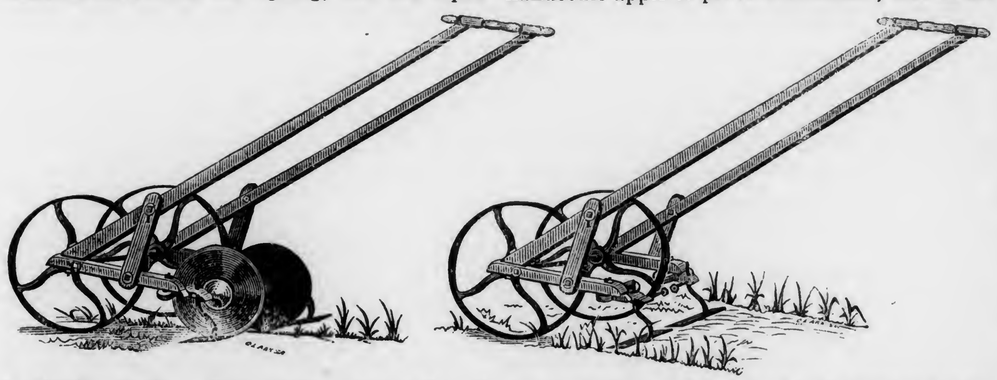
Seeing so many complaints from Orchardists of the ravages of the Codling Moth, I thought I would give you my experience.

The Codling Moth is a small gray moth that flies only at night; it lays its egg in the blossom end of the apple, and in a few days this hatches into a worm that eats its way into the core of the apple. When it (the worm) attains its full growth it eats its way out generally through the side of the apple, and crawls down the limb to search for a place in which to spin its web and change to the cocoon. In about two weeks from the time the worm leaves the apple the cocoon bursts and a perfect moth comes out to lay more eggs; thus

there are several crops of moths during the season; the first crop in the spring is generally small but they increase in quantity until fall.

Now the plan I have pursued for several years is to place bunches of rags (cotton or soft woolen) in the crotches of my trees or tie them round the principal limbs on the trunk, and once a week examine them and kill all the worms. In a large orchard the easiest and most expeditious way is to attach a clothes wringer to a wheelbarrow, take the rags down, run them through the wringer and replace them in the trees again In taking the rags from the trees be careful to see that none of the worms drop off or remain sticking to the bark of the trees.

About five years ago I had an orchard that was so infested with the moth that I got very few perfect apples, and some of the trees, though loaded with fruit in the spring, did not ripen



a single apple. The second year after I adopted the above plan, I had a fair crop, and after that it was a rare thing to find a wormy apple when the crop was gathered in.

I am very particular every spring, when placing my rag traps to scrape all the loose bark from my trees so as to give the worms no harbor but the rags.

EDITORIAL NOTES.

WARBASSE'S WHEEL HOE.—The *Gardener's Monthly* was probably the first to show the importance of the wheel hoe for hand work among garden crops, and to encourage inventors to turn their thoughts in that direction. Most of those we have seen are failures. Those which draw do not allow of the workman seeing what he is doing, unless he walks backwards, and this is absurd; and those which push have been too hard work for the average laborer. We suppose these objections will never be entirely overcome. The nearest approach that we know of is Warbasse's, of which we illustrate herewith. It is also, we believe, advertised in our regular columns.

THE CATHERINE PEAR —I send you the enclosed extract from "Notes and Queries." Can you supply an answer to a question in which I am as much interested as the querist?—NOTUS.

"*Catherine Pear.*—Suckling, in his 'Ballad upon a Wedding,' compares the streaks of red on the lady's cheeks to those on

—"'A Catherine Pear,
The side that's next the sun;'

and in the 'Schoolmistress,' Shenstone speaks of the lovely dye of the Catherine Pear. Is this Pear extinct, or has it only changed its name?

"Lavater tells us, we instinctively expect a handsome apple to prove toothsome; but as the least comely pears, so far as my experience goes are generally the sweetest, one might suppose the Catherine Pear's charms to have been but skin deep, and hence to have lost their hold on popular favor, were it not that Shenstone declares its juice to have been equal to its dye. Will some Melibœus afford this immortalized fruit a note?—HENRY ATTWELL, *Barnes.*"

[When Suckling and Shenstone wrote, the varieties of Pears were very few when the list is compared with that containing now many hundreds. The Catherine Pear is not now to be found in any nurseryman's catalogue, nor anywhere except in old orchards, and there we met with it many years ago. It was ruddy on the side exposed to the sun, and when ripe the other parts were yellow. When ripe it was mealy and insipid, and at the best the juice was sweet and flavorless. It was probably introduced during the reign of Henry VIII., and named in honor of one of his queens. Parkinson, in his "Paradisus," published in 1629, describes it truthfully:—"The Catherine Peare is knowne to all I thinke to be a yellow red-sided Peare of a full waterish sweete taste, and ripe with the foremost."]

[We find the above in the London *Journal of Horticulture.* About Philadelphia old trees are not uncommon, and by those of the older inhabitants who know what good pears are, the variety is highly prized. One on the grounds of the writer of this, some eight feet in circumference and perhaps 150 years old, recently blew down, having long lost its "heart," notwithstanding which, it continued to the last healthy and bearing full crops every year. All the trees we know of it are remarkably healthy. Will those who contend that "varieties wear out" tell us about this Pear?—ED. G. M.]

NEW FRUITS & VEGETABLES.

THE HOOSAC THORNLESS BLACKBERRY was found in the Hoosac Mountains, Mass. It has no thorns, and this is a great advantage. T fruit is not as large as some of those already under culture, but is represented as being in quality and productiveness the equal of any.

APPLE.—*Cox's Orange Pippin.*—The *Gardener's Chronicle* has the following in regard to this fruit. It is probably a slow bearer, trees have been in this country for some years, but no one seems to have seen an American raise fruit so far:

But few words of ours are required to sound the praises of this superb Apple. As a winter dessert fruit, it is without a rival. From October to the end of January there is no finer or better apple than Cox's Orange Pippin. Although it is one of our modern apples, its high merits have become so well known that at the present time there are perhaps more trees of this sort planted than of any other apple. The trees, however, of it are as yet for the most part small, and so the fruit has not appeared to any great extent in market. It has long been singled out by Mr. Dancer as a standard market fruit, and so has been largely propagated and planted by him. A few years ago, when it first made its appearance, whilst others were planting single trees for experiment, Mr. Dancer, ever on the alert, had some scores of established trees cut down and grafted; and now these are quite large trees, every year laden with bushels and bushels of the glorious fruits. It is best suited, however, for dwarf bush or pyramid culture, and in this form Mr. Dancer has many hundreds of it, and undoubtedly the best stock for it is the French Paradise. On this stock, planted in strong or rich well manured land, it grows and fruits excellently. We have recently inspected in Mr. Dancer's grounds a quarter of 400 trees planted at 6 feet apart, like Gooseberry bushes, and nothing could exceed their fine appearance. The fruits of Cox's Orange Pippin are generally of medium size, but may be grown large. They are of a fine even regular roundish form; skin warm, greenish yellow, covered on the sunny side with streaks and splashes of dull crimson, and frequently much covered with russet. The flesh is firm, yet exceedingly tender, with a fine rich brisk aromatic Ribston Pippin flavor. It, in short, possesses the peculiar rich spicy flavor of the Ribston Pippin, with far more tender and juicy flesh, and the tree is a better grower. No garden should be without it.

GRAFTING GOOSEBERRIES AND CURRANTS.—A French nurseryman employs Ribes palmatum as a stock on which, grafted or budded several feet high on a single stem, are gooseberries and currants, and it is said they are thus singularly unique and beautiful.

QUERIES.

FAILURE OF DWARF PEARS.—*G. G. A., Geneva, N. Y.*, writes: "We wish you would call attention to what we believe to be the chief cause to the 'failure of the Dwarf Pear orchards,' viz: The very early digging practiced by some nurserymen when urged to early shipments in the fall. It is well known that the quince on which pears are worked hold their leaves late, requiring quite hard frost to drop the leaves and mature the wood perfectly. We think the roots are later in ripening than the top. Hence we believe that *early* stripping and digging (which we deprecate in most kinds of stock,) is particularly injurious to Dwarf Pear trees."

[We should hardly imagine that once in a tree's life time, it would be materially injured by having its leaves taken off a couple of weeks or so before its time. "Nature" herself has no regular time for taking off leaves. Once in a while we have known peaches to have all their leaves taken off in this part of the world by a few degrees of frost, early in October, but gener-

ally the frost does not do this before the end of the month. No one we think would suggest that the Peach tree was injured by having its leaves thus taken off, and we cannot conceive that it would be injured any more had the leaves been taken off by fingers than by frost. Still it is not a question for theory, but for direct observation to settle, and we should be glad of the experience of others.—ED. G. M.]

LINEN AS A SUBSTITUTE FOR HOT-BED SASH. —*R., Gloucester, Va.*, says: "I see you say to a correspondent that you think prepared cotton no cheaper than glass for early vegetables. It may be so in the North, but it would not do here. We need only a little covering in early spring, more as a precaution than a dire necessity, and it costs something to make sash, while prepared muslin can be stretched over a simple frame. I half regretted you did not give some way of preparing, in answer to your correspondent, as I should like to try something of the same kind here."

[We still think that in the long run, those who like the correspondent referred to by the present writer, wish to make a regular business of growing vegetables, will find it on the whole best to have sash, but of course we cheerfully give a plan to any one who may want to try it. We reproduce from our earlier volumes the following to make muslin waterproof and transparent:

One quart of linseed oil, one ounce of pulverized sugar of lead, and four ounces of pulverized resin are heated, dissolved and thoroughly mixed in an iron kettle, and one coat applied while hot to the upper side of the cloth.—ED. G. M.]

PROFITABLE PLUMS.—*L. F.*, asks: "What three or four plums are the most profitable to grow? Jefferson, Washington, and Imperial Gage rot too badly with me." Different varieties of plums seem especially suited to different districts. Thus in the clay lands of Pennsylvania the Copper or Richland plum succeeds very well. In the limestone regions along the Ohio the Dawson is profitable, while in the light soil of New Jersey large quantities of the Miser are grown for the Philadelphia market. These are the only ones we know to be profitable without much care. With care, "it is said" the kinds named by our correspondent "may be" profitable.

JUNE BUDDED PEACH TREES.—*Randolph Peters* writes: I sent you to-day five June Budded Early Beatrice Peach trees. I find many Nurserymen condemn them without knowing what they are, and but few really know so good a tree as I send you, as sample can be grown in so short a time; the seed was planted this spring. Seedlings budded latter part of June, and the trees grown many of them 2½ to 3½ feet with a nice balanced top, roots extra, as all the fibres can be taken up with this size tree; wood ripens up as well as the year old trees, stand the winter as well side by side, and in orchard culture. Many who have tried both the old and new system prefer the June budded trees only. Serious drawbacks I find in this latitude is to get ripe wood ripe enough to bud from so early in the season, to the 100 or 1000; the one thousand run as large as sample sent, or vary from 1½ to 3 feet. Pleased to hear from you with your opinion of samples, as this subject is attracting some attention at present with propagators of the peach."

[These are not quite as large as ordinary peach trees, of course, but so far as we can judge, their equal in every other respect.—ED. G. M.]

YELLOWS IN THE PEACH.—This subject seems to have attracted an intense interest since we pointed out a few years ago that at least one of the leading causes of yellows in the Peach, was injury from a fungus at the root. *L. F., Portland, N. Y.*, now writes:

"Can Peaches and how soon after a neighborhood has been ruined by the yellows before it will answer to put out new orchards? Please give facts as far as you can of the past history in such cases. New England, New Jersey, and Delaware City have once lost their orchards by the contagious yellows. Yet Fuller and one Craine in the American Institute scouted the idea of not raising Peaches in sections where the yellows exist"

[We cannot tell. The discovery is too new for many facts desired to be noted. We know of trees that have the yellows now, and in which it made its appearance last year, from trees that were growing there *four years before*. As long as any portion of the old roots remain, it is likely the fungus will exist. Mr. Fuller is probably right in the idea that good trees can be grown in infected districts, though of course the risk from contagion must be much greater than when there is no disease in the district.—ED. G. M.]

FRUIT ORCHARDS.—A Morristown, N. J., correspondent says: "I am a convert to the 'growing in grass' theory. I have my pears, blackberries and cherries in this way and am much pleased with it. I shall next season sow clover in my grapes, quinces, apples and raspberries."

[S. S. Merceron of Catawissa, grows his best grapes in *grass*. It is evident that our friends who are experimentative and observing, are pushing things in a direction we have never explored, but the principle is sound. We have no fear of anything not succeeding under the cool grassy surface provided for them, if they are not starved, as they need not be.—ED. G. M.]

Editorial.

THE ROSEDALE NURSERIES.

The prospective closing of the Rosedale Nurseries is an event of no ordinary interest to Horticulturists. For near half a century it has been the great centre from which new and rare plants have been obtained, and by the encouragement which the proprietor has held out to young men of talent to emigrate to America, the ranks of good gardeners have been again and again filled to an extent which few can realize who are unaware of the fact. The writer of this, perfectly familiar with the English literature of gardening of thirty years ago, had no knowledge of any American firm, to any considerable extent, except that of Mr. Buist. Certainly at that time no American Florist or nurseryman was so well known as he. His name was associated in these publications with many novelties, which had a good reputation there. New Camellias, new Roses, improved Verbenas, the Poinsetta pulcherrima and many other things were continually spoken of in connection with Mr. Buist of Philadelphia, and when the writer of this determined to share his fortunes with American Horticulture, it was a matter of course to seek advice of Mr. Buist, and accordingly the lot was cast, and for which advice the writer has always been thankful.

Mr. Buist has now filled, by a full measure, his three-score years and ten, and though still comparatively strong, and in good health, will close up the business with which he has been so long and so honorably associated. Blest by Providence in numerous ways, but not in the particular one of a successor to the business—his only surviving son having as much as one man can do in the agricultural seed line—he naturally feels that he would like to see his pet plants comfortably settled while he has health and strength to look after them. More than this, the great city of Philadelphia, from which he ran years ago, and from whose grasp he hoped to be free during his life time at least, has found him out already, till a wanderer from the nursery of but a few years ago can hardly find his way back by the Philadelphia checker board streets which have been squared off in every direction.

Having aided in the beginning of Rosedale, (the last move of Mr. Buist from the city's encroachments), having assisted to clear the timber, make the roads, build the greenhouses, oversee the dwelling, and other work about a new place such as this, the writer naturally felt a desire to see how it appeared in what might be its last spring dress; and so one fine day in March —there was one fine day in that month—made a trip to Rosedale. The fine old specimen plants which made this establishment so indispensable to those building large conservatories and show houses, have been thinned out, but many remain. The Australian and other large tree ferns are indeed in considerable strength. The most beautiful departments are those perhaps devoted to Camellias and Azaleas. The last named have always been pets of Mr. Buist, and he has endeavored to let no occasion pass by which he might add any novelty that was a real improvement. They were just then in full flower, and, though it is not easy for a Florist to hold on to his plants long enough to make fine specimens, there were many among these which would do no injustice to a first class floral exhibition.

The Orchid house is a great attraction to all lovers of these curious plants. It was full of rare kinds, and many of them valuable as specimens, independently of their merit as scarce species.

Many a time when people are selling out they expect to find only the dregs and refuse of private sales. Those who visit Rosedale nurseries during this, the closing out season, with this idea, will be much disappointed.

Natural History and Science.

COMMUNICATIONS.

A WORD OR TWO ABOUT WILLOWS.

BY W. T. HARDING.

Philo Salix says he is an old traveler, and has generally gone about the world with his eyes open, but does not remember having seen Willows growing on the tops or sides of mountains, or very near to the sea beach, etc. He courteously suggests, "that if I will inform him, through the pages of the *Monthly*, where such a sight can be had, he will go and see it, if not too distant."

It gives me much pleasure to reply to "an old traveler," with such a pleasant name. If the gentleman remembers, as well as I do, he will recollect seeing the willows, birches and scrubby pines growing on Cape Ray, Newfoundland, and a similar growth on Cape North, Nova Scotia. If not, supposing he makes a voyage to Quebec, he will observe, after passing the two Capes, and crossing the Gulf of St. Lawrence, Anticosti Island, which will probably be the first land he sights, and on which he will perceive a growth of stunted trees, with willows predominating. As the vessel nears the Island he will be surprised to see the willows growing so near the beach as almost to dip their branches into the briny water, as it rushes in from the sea. Still pursuing an onward course up the St. Lawrence, where "the woods on shore look dim," he will be gratified with the picturesque effect, of the willow fringed waters. At Cape Chat, St. Roch, and St. Villiar, they will greet him. On the margin of Orleans Island, they will mutely though lovingly welcome him. On rounding the Island, the steep promontory of Cape Diamond looms up some 362 feet above the vessel's deck. As he looks up the mountain-like bluff before him, he will notice how gaily floats and waves the green willow banners from the sides and summit of the steep and lofty promontory; the river front of old Quebec. If the voyager will land and scramble up the precipitous side he will find weeping willows bending over the monument where the gallant Montcalm fell. And if his enthusiasm prompts him to climb still higher, he will, on arriving at the Heights of Abraham, divide his attention between the monument which marks the spot where the brave General Wolfe fell, on "the field of his fame, fresh and gory," and the willows which stand like silent sentinels by its side. It would be difficult to point to a hotter, higher or drier place in the summer, or to a more exposed or colder situation in the winter, than the side and summit of Cape Diamond, through all the vicissitude of which, the willow stands it bravely.

WINTER IN CHICAGO.

BY W. H. P.

You have doubtless heard that we in the West have had very severe winter weather, and what has made it so much worse is that on the very days when the thermometer was the lowest, the wind was the strongest, on two occasions amounting to violent gales. Yesterday I found men digging in one of the streets where the water in the main pipe, more than five feet below the surface, was entirely frozen for several blocks. The frost was nearly six feet deep in the holes where I saw the men at work.

Plant men have suffered, of course, and some of the oldest and most experienced have lost most, owing, of course, to exposure to the violent south-westerly and westerly winds. March 18th the weather commenced to moderate, rain fell on the 22d and 23d, and last night at 10½ o'clock we had a violent thunderstorm. To-day it is colder with snow, but we hope that "the backbone of the winter is broken."

CRACKING OF THE PEAR.

BY JACOB STAUFFER.

P. H. F. says, page 85, No. 3, for March, current volume of the *Monthly*: "I see by looking over the *Monthly*, 1860, page 94, a suggestion by Mr. Stauffer, the Entomologist, that the cracking of the pear might be owing to the larva of a very minute insect." Then puts the question, "What have you learned about the disease, and what is your opinion about the cause?" Your answer evades the direct question by saying that "knowledge of course progresses with the accumulation of new facts, and we hardly suppose in the light of new experiences Mr. Stauffer thinks so now." The remark of mine, referred to, had reference to a special case. And while I have carefully followed the new experiences and discovery of fungus on the potato, grape vine, etc., I confess I am by no means satisfied as regards the cracking of the Pear. The abundance of ashes to the roots, the scrubbing and scouring the trees have not prevented it in numerous cases. I have carefully examined and discovered fungus growth, and on the cracks in the bark of the Seckel pear tree, which had been scraped the spring previous, and washed with soap suds, sulphur and common manure. In these cracks I discovered a species of lichen, in character not unlike some found on other dead wood. As the *Xylaria hypoxilon*, these were evidently adventitious, and not the cause of the crack. I honestly confess, I am no wiser, as to the cause, than I was fifteen years ago. Of course, I have read the theories—and one that comes as near to meeting all the facts in the case, as any other is—that when the cruder juices begin to change and fill the tissues to form fruiticose, a dry season and a hot sun, arresting the flow of sap, (poor soil-impoverished tissues may aid,) the outer cells become indurated by the hot sun, changing the tissues next the skin to lignum, thickening or at least destroying its elasticity at divers points or nuclei around which this change has been induced. But as the fruit still swells and forms cells, yet being "hide-bound," the skin bursts, the juices exude, dry up, harden into a gummy lignous substance and forms a grand nidus for the sporules of fungi continually afloat. Moist weather, dew or foggy mornings, will promote the growth of the fungus. I have found and know that sporules can get into the pores of bark and leaves, and that many kinds attack living growing plants, as in the vine, potato, etc. And yet, I am not prepared to say positively—that *fungus* is the *cause* of the *crack*, because found in it, any more than minute insects, for I have also found them in such cracks. Hence one is no better proof than the other. The blight may be caused by cold frosty winds, as also from a peculiar vapor supposed to originate from certain electric conditions of the atmosphere, as well as from the presence of minute parasitical fungus. If new facts have demonstrated, what occasions the crack in pears, I make the same query as your correspondent, "what is your opinion about the cause?"

[So many ascertained facts have been placed on record, that we supposed there was no longer any doubt in regard to *the* cracking of the pear. Of course there are many varieties of "cracks," the cracking which often takes place in the Beurre Giffard and some others in which there are a few wide deep fissures, is altogether another thing from the cracking of the White Doyenne, Prince St. Germain, and others. Perhaps it is because so many have not yet reached this knowledge, that there is so much difference of opinion in regard to that form of cracking which is exhibited by the Butter or white Doyenne Pear. There need not be any difference of opinion by those who will start early enough in the season to examine, and who are acquainted with the most elementary principles of vegetable morphology. If we watch the *leaves* of a white Doyenne that is subject to cracked fruit, early in June, we may see nothing to attract our attention; but holding them up to the light from day to day, we shall in time see light spots in the interior of the leaf tissue. This is from the development of fungus spores which feed on, and of course destroy the tissue. After a little while the fungus has so far developed as to destroy the epiderm as well as the internal cellular mass, and it then cracks, and we see by the end of June or beginning of July, black spots—dead matter—all over the leaves. The leaves have reached their full size, so of course the cracks on the leaves are not apparent. Dead tissue cannot expand. If the leaf, instead of at this time remaining about an inch wide, were to go on until it were two, three or more inches, there must, of necessity, be clefts, the leaf would be split in pieces like a banana leaf in a wind storm.

Now the Pear *fruit* is morphologically *leaves*. In its early stage the mass of which the Pear is composed was simply leaves; but they became joined together, and instead of forming some ten or fifteen real leaves, became a succulent fleshy mass. In the early stages the spores of fungi enter the tissue just as they do the leaves, developing in the same way near the surface,—and ending in the same way—destroying the cuticle. We cannot see the early stages by holding up to the light, as we can in the leaf,—but we can see that the final development is the same, and following the leaves morphologically to the condition of the fruit, we can *mentally* see that all the phenomenas are the same. But here is the difference. That as a true leaf, the limit of growth is soon reached, but leaves transformed to fruit keep growing after the fungus has developed and the "bark," that is the skin, has to crack, just

as the bark of a tree has to crack when once life leaves the epidermal cells. The facts *in this form of cracking* are so clear, and cause and effect so plain, that those who have been through all must be excused for feeling that only those dispute the conclusion who do not know what they are disputing about. There may be a reasonable difference of opinion about the fungus itself—whether it comes from a previous disease in the tree, or whether it attacks healthy trees, whether it enters the plant structure from without,—or whether it is borne up through the circulation, and drawn in with the sap through the roots,—but as to its mechanical action in causing cracks—none.—ED.]

EDITORIAL NOTES.

HISTORY OF THE PHYLLOXERA.—Knowledge comes on us so gradually, that we often find ourselves asked to believe, in forgetfulness of the facts on which our belief is challenged. This has been particularly the case in regard to the Phylloxera or grape root insect, and we have thought a brief summary of what is known about it, may be of use to our readers.

Dr. Asa Fitch in 1856 first referred to the insect as Pemphigus vitifolia. It was only known as frequenting the leaves of the grape. In September, 1868, Prof. Planchon gave the insect, which he had previously discovered to be the cause of the root rot, the name it now bears. In 1869 Prof. Westwood announced that the root insect and leaf insect were probably the same. In the Spring of 1869, Lichtenstein suggested that their insect was the same as the one described by Fitch in 1856. In 1870 Prof. Riley proved they were the same, and also that the root insect and leaf insect were identical.

The insect is classed with the Aphidæ, but approaches the Coccidæ or bark lice. It varies its forms; some types live on leaves, forming numerous galls on the under sides of the leaves; the other type lives on the roots forming small grain-like nodules. The leaf-loving form has only been found hitherto as a wingless female, and is, Mr. Riley believes, but a summer diversion of the race, not at all essential to its existence. The leaf or gall form is extremely rare as yet in Europe. Mr. Riley has taken the young from the leaf galls, and confined them on other vines, when they descended to the earth and became root workers.

The insect passes the winter in a larval state, with here and there a few eggs. They become young lice in spring, and commence at once to lay eggs. Reproduction is so rapid that the third or fourth generation appears by beginning of July. Since Mr. Riley has discovered the identity of the old leaf gall insect, and the root insect, other entomologists have confirmed it. The winged females fly in the fall to long distances.

Mr. Riley has given these facts to the public at various times. Our present summary is made from a recent contribution of Mr. Riley to the London *Garden*.

FOSSIL PLANTS IN THE ARCTIC REGIONS.—The immense age of the world may be inferred from the fact that the fossil plants indicate that at one time the large trees of our temperate climes grew there in great luxuriance. A Sequoia allied to the great Mammoths of California, is found among the remains in Greenland, as are also Thujas, Salisburias, Magnolias, Sassafras, Persimmons, and others nearly like our species now existing, and yet as different as existing species are from one another. This can only be accounted for on the theory that there has been a gradual change of the position of the earth in its relation to the sun, making what is now the Pole, a part of the temperate regions; and what is now the more temperate parts as ice covered and desolate as the polar spaces are now. Yet so slow must be this change, notwithstanding these proofs, that so far as we know no astronomical calculation has been able to show any variation, though data go back some four thousand years, and perhaps more in China.

VITALITY OF EARLY FRUITS.—*James Shinn says in Pacific Rural Press:*—"Mr Meehan assumes that 'precocity, or early ripening, is but an attribute of impaired vitality.' He claims that this fact 'has been demonstrated, little by little,' during several past years. If this principle can be established, there is, of course, little encouragement for enterprising nurserymen, like Mr. Rivers, and others who might be mentioned, to labor for the production of earlier and still earlier varieties of the peach, or indeed of any fruit. For if this doctrine holds good as applied to the peach, why not to all fruits great and small? But is this theory correct? I doubt it. Mr. Meehan mentions but one fact in support of his position, and that is that Hale's early peach, in many localities, rots on the tree at about the time of ripening. This fact is not

disputed, but as before quoted, 'one fact is a poor weakly thing.'

"I will only mention one 'fact' on the other side of this question, and then leave it for the further observation of those who feel an interest in questions of this kind. The *fact* to which I allude is, that the early Beatrice peach, which ripens about two weeks earlier than the Hale's is especially remarkable, everywhere, for its freedom from any tendency to premature decay. May we not, then, safely assume that it has not been demonstrated thus far that 'precocity in ripening is but an attribute of impaired vitality?"

[Our point was that when the *same variety* healthy, was compared with the same variety *diseased*, precocity was characteristic of disease. This is proved by the fact that a "ringed" branch ripens its fruit earlier than those on branches of the same tree not ringed, and a tree of one variety with the yellows, matures before another of the same variety that is healthy. How far this truth can be applied to early varieties, we are not prepared to say, though as a matter of opinion we incline to think that the same law may operate to some extent. It is well known to all that as long as any one of us can remember we have had almost annually some fruit or vegetable that was earlier than any known before, and it must be a consequence that if all these varieties continued we ought by this time to be *many months* ahead of the olden time, yet we find by comparison of dates that we have few things earlier on the average than we had fifty years ago. An "Early May" pea is just as much sought for now as when the writer's grandfather was a boy.

Our friends must however note that we do not consider the terms "less vital" and "diseased" to be synonymous. We know people with "impaired vitality"—with a slight hold on life—last often longer than naturally strong people. The writer knows an octogenarian, who has never in his life been able to walk half a dozen miles without fatigue, and whom forty hours without food would kill, and yet who never in his life had use for medicine. He could endure no strain on his vital principle, but being well taken care of he has never known absolute disease. This is the sense in which we say an early variety of fruit *may be* less vital; but not necessarily diseased.

PARASITE OF THE CODLING MOTH.—In our volume for 1872, page 140, is an interesting account of the discovery of a similar specimen to that referred to by Dr. Leidy in our February number. Mr. Foster, who found it, sent it to Mr. D. B. Walsh, who thought it a Gordius, or common hair worm. The Gordius however has no intestinal canal, but takes its food by absorption through its external surface. The Mermis takes its food by a mouth. It has much the appearance of a Gordius.

QUERIES.

THE CURL IN THE PEACH.—A correspondent inquires what is the cause of the disease known as the curl in the Peach. We are compelled to say that we do not know, yet we think if one had the time to collect all the undoubted facts that have been reported in connection with the appearance, some conclusion might be reached. There have been plenty of "opinions" and "beliefs" and "no doubts," and so forth, sufficient to satisfy any reasonable man, but unfortunately some of us want more than this. A fungus we believe is always present, but this may follow a diseased condition. We are not sure but an Aphis is also regularly connected with the curl, and should be glad to know if any one knows of a case when the insect was not present.

SANTOLINA INCANA is the name of the plant referred to below, sent by Mrs. L. F. B. "The enclosed plant has been among my collection for nearly two years and has never blossomed. I am very anxious to know its name. Will you inform me through the *Gardener's Monthly?*" It has a yellow flower like a Camomile somewhat, and flowers only when the plant has a little age, and then late in the season. It is only grown for the beauty of its foliage.

T. T. S., Dansville, New York, writes:—"Pray give your readers an exhaustive article on an important subject, or get some one to do it, viz.: '*The Preservative Principle of Wood.*' Each wood has some chemical and mechanical peculiarity, that causes it to decay or not, and the question is, what chemical or mechanical principle is it that causes one variety of wood to last a hundred years and another not so many months?"

[Our correspondent asks us a question we cannot answer. Though we suppose a microchemical examination might afford a clue.—ED. G. M.]

Literature, Travels & Personal Notes.

COMMUNICATIONS.

SOME FACTS FROM NEWPORT.

BY S. SMITH.

A one-sided article appears in your February *Monthly*, written by Mr. Roderick Campbell. I at first wondered who Mr. Campbell was, but on inquiry find he has been living here the past summer, and lately left us. However, Mr. Editor, I have no doubt you will spare me a space in the *Monthly*, to set things right. I know you would not knowingly misrepresent us. What Mr. Campbell says of Mr. Brewer's place, as far as the capability of Mr. Burnett is concerned, and of the valuable collection of plants, no one who nows Mr. Burnett, will doubt. But I think if we got a description of the plants, from Mr. Burnett himself, it would vary much from your late correspondent's. For instance, what is Cyathea princeps? Mr. Burnett has not got it.

The estate of Mr. Daniel Parish, is not to be scoffed at, and I think if Mr. Campbell saw the grapes there in summer, he would not think the vines worn out. Mr. Parish's place is one of the finest places in Newport, and cannot be excelled in its fruit houses, its beautiful lawns, and generally well kept grounds. Mr. Belmont's place is also second to none in Newport. They have not a large collection of plants, nor have they the quantity of houses Mr. Campbell represents; they have no rose house, no stove, but houses built for fruit and cut flowers, which have been a decided success, excepting the graperies, which have always been a failure on account of the poor quality of material used in the borders. The Marechal Niels are in the plant house, good plants, but none of them on Manetta stock; they are on Brier and Banksia. It is ridiculous to make a comparison with Mr. Caswell's. Mr. Belmont's plants are six years old, while Mr. Caswell's house of Marechal Niels was only planted last May. Mr. Belmont's place has not been going down since Mr. Hunter left, by any means. The late gardener, Mr. Jurgens, left the place in good condition; in fact far better than he found it.

Mr. Wetmore's place Mr. Campbell does not appear to be favorably impressed with. I am happy to be able to deny his assertions. Mr. Wetmore's place is in no fear of running down under the able management of its present gardener, Mr. Christy, who has been at his post these fourteen years; on the contrary, it is improving every year; no one passing down Bellvue Avenue in summer can help admiring its well kept lawn and its decorations, even supposing they are nothing but Agaves, Palms, etc. The fruit houses are in good condition, the plant house is small but well filled with good specimen plants, some of them hard to beat.

Mr. C. H. Russel's place also gets Mr. Campbell's notice. I think, Mr. Editor, if ever you chance to pay us a visit, you will find much to admire in this fine old place. Mr. Russel has one greenhouse used for variety plants, for cutting and bedding; he also has three fine graperies, two large peach houses, all in excellent condition. The grounds are large, well laid out and excellently kept. Mr. Wm. R. Faver's place is well worthy of mention. There is not an extensive collection of plants, but the grapes and peaches grown in the houses are hard to beat. The place is well kept and tastefully decorated in summer. HereMr. Campbell's rambles came to an end. A few places fourth rate are all that is now left, is it? I think there are yet a great many places that might be classed first rate. For instance, there is Mr. Henry Fearing's place, with its seven fine houses and well kept grounds. Hon. E. D. Morgan's place, with its pretty lawns and four houses. Mr. John Paine's place; Mr. Morton's and Mr. Kernochan's; Mr. Steven's, at the Cedars, all good and extensive places, with large ranges of glass, splendid lawns, and many things of interest. Mrs. Paran Steven's place; it would be hard to find a snugger little place than this, under the management of its present gardener, Mr. Peck, who has greatly improved it. This place should not have been left out in the cold, as it was filled so recently by one of the principal and most reliable florists.

Mr. Blodget also has a place which cost him two hundred thousand dollars. He has considerable glass and some good things. There are yet a great many more places too numerous to mention; among them Mr. G. T. Jones', lately filled by Mr. R. Campbell. This place has one small greenhouse, and I have seen some good plants there before now, but they have departed long ago.

Mr. Editor, I feel proud of the strides Newport has taken since your humble servant has taken up his residence here. I don't wish to infringe on your valuable columns, but as Mr. C. has taken the trouble to mislead you, I write merely to correct. I wish to give you a correct list of houses, as we were ten years ago, and as we are to-day. Ten years ago Mr. Galvin had one house, Mr. Fadden two, R. Wilson three; that completed the list of florists. Now Galvin & Geraghty nine houses, Smith & Butler six, Fadden six, Hardwick five, Findlay two, McCleash one, Maher two, Reynolds two, Thurston three single houses some two hundred feet long each, Mr. P. Caswell six large houses, Waring four houses, Lawton three, and many more. We are not going back, Mr. Editor, in Newport; on the contrary, I think we are now progressing very fast and in a short time we shall be able to compare favorably with old Scarborough, and in time we will make a good record in specimen plants.

THE CONIFERÆ OF THE ROCKY MOUNTAINS.

BY DR. GEO. ENGELMANN.

Lecture before the Washington University.

After traversing those immense treeless plains west of us, a chain of mountains rises suddenly like the rocky bound of a great ocean. On the slopes, in the valleys of those mountains, trees and forests, which we had missed so long, again welcome us. But no deciduous trees, adorned with a fresh fullness of foliage in one season, and entirely destitute of leaves in another, diversify the somber grandeur of those ever green mountain woods, which seem to know no summer nor winter. The natural history of these forests will be the theme of this evening's lecture.

Just as in our low lands we observe a great diversity of generic and specific forms among our deciduous trees, among our maples, our hickories, and above all among our oaks, so these mountains abound in numerous forms, or species, as scientific nomenclature calls them, of evergreens, of conifers, different in their shape and size, in their foliage and color, in their fruit (cones) and seeds.

These mountains, these forests, commence at an elevation above the ocean of 5,000 or 6,000 feet —an elevation where, on the Swiss Alps, trees already cease to grow; and they extend up to the flanks of the mountains, far above the limit where, on those European mountains, eternal snow and ice cut off all kinds of vegetation.

In other words, the mean temperature of this mountain region is considerably higher than its great altitude and the anology of European mountains would induce us to expect it.

The explanation of this interesting and important physical fact will be found in the immense extent of that elevated country. We have here no isolated mountain chains or single peaks before us, but a large part of a whole continent lifted high up above the general level.

It is, in fact, a colossal plateau, rising gradually and almost insensibly from the Mississippi to the base of the mountains; then suddenly, with these mountains, undulating to another chain of mountains, until it abruptly terminates on the Pacific; extending from high norther latitudes down into Mexico, and comprising the greater part of that country—an extent of nearly 3,000 miles from northwest to southeast, and of about 1,500 miles in its greatest breadth from east to west, taking in the higher part of the plains, and elevated between 4,000 and 6,000 feet above the oceans.

THIS PLATEAU

(or, as we can consider it, this great geological swell of the earth's surface) carries up with it the general temperature of this surface in those latitudes, modified, of course, by the conditions of its great altitude, the rarity and transparency of the atmosphere, the powerful evaporation and radiation.

The mountain ranges themselves rise like crests or wrinkles from this plateau, and we will not go far amiss if we consider the climatological effects of their altitude as if the base from which they rise were level with the sea shore, and not itself already mountain high.

The treeless summit of Mount Washington in New Hampshire is scarcely higher than the plains at the foot of Pike's Peak at the site of the flourishing city of Colorado Springs, where the forests only begin. The forests really extend up the mountains from an altitude of 5,000 or 6,000 feet above the sea to that of 11,500, or even nearly 12,000 feet, which is 6,000 to 7,000 feet above the plain; the very elevation above the ocean at which we find the timber line on the Swiss Alps, which lie in a higher latitude; on Mount Etna, in nearly the same latitude; and even on the Peak of Teneriffe, ten degrees farther south than Pike's Peak.

It is, then, not so much the elevation above the ocean as the elevation above the high plateau which is the essential element in the climatology, and, with it, the distribution of the forests of these mountains.

Another element of great importance is the dryness of the atmosphere in the mountains. The summer tourist may object to the assertion that the atmosphere there is dry; he may assure you that all that is said about the clear skies and the absence of rain is, to his certain personal experience, a great mistake, or, as they often term it, "a fraud." And it is very true that in the months of July and August showers of rain, often accompanied with vivid thunderstorms, are of almost daily occurrence, and greatly interfere with pleasure parties. That is really so; but the quantity of rain in those showers is generally small, and the rarified air soon absorbs a great part of the moisture. The climate is a dry one. If nothing else, the scarcity of ferns and the almost absolute absence of club mosses would prove it, which in varied abundance adorn the Eastern mountains.

Vegetation thrives in this climate best where mountains are high enough and cold enough to condense whatever moisture the winds may have brought from the Pacific Ocean, after having deposited its greater part on the slopes of the western mountains, where, in consequence, fogs are so prevailing and vegetation so luxuriant.

Now, the

HIGHEST ELEVATION OF THE ROCKY MOUNTAINS

happens to be precisely in Colorado, where the great watershed itself and many of its spurs have an altitude above the sea of 10,000 to 12,000 feet, the peaks rising to 13,000 and 14,000, or even about 14,500 feet.

It is a noteworthy fact that so many summits reach to this same altitude, and none are higher. The same is the case in the mountains of the Pacific States. They are real democratic mountains; a great many tower high up, but not one of them attains such a domineering elevation as we find in other mountain systems.

The Rocky Mountains do not really reach into the region of eternal snow, though the Alpine summits of many of them rise 2,000 to 3,000 feet above the timbered region. But snow is found on many of the higher ones all the year round, in localities where the nature of the surface has permitted drifts to accumulate, and has protected such drifts from the too powerful action of the summer's sun.

North as well as south of Colorado the Rocky Mountains do, with few exceptions, not reach to the altitude attained there, and in this circumstance lies the explanation of the fact that their forests are poorer and are even replaced by the desolate sage bushes, as they are called, or, properly, wormwoods. The forests of the central chain of the Rocky Mountains consist exclusively of conifers. The deciduous trees, we find, are few and scattered. Along some mountain stream we meet here and there with a peculiar species of poplar or cottonwood, which, from its narrow leaves, you would at any time take for a willow rather than a poplar—the bitter or willow-leaved balsam poplar. The quaking aspen is another species of poplar, common as a small bush on springy mountain slopes and valleys; sometimes in wet flats it grows to be a tall tree, the bark furnishing a favorite food for the beavers, which just in such localities used to build their dams and construct their habitations—used to, for here, also they now almost belong to the things of the past.

On the banks of these streams bushes of alders and willows and two peculiar kinds of birches grow, together with some other small shrubs, and these complete the list of ligneous plants with deciduous leaves; but only the two kinds of poplars mentioned above grow up to real trees. They form no element in the constitution of the forest. No oaks, no walnuts or hickories, no elms or sycamores, the glory of our woods, are seen here.

THE FOREST IS EVERGREEN THROUGHOUT,

a feature which, in these parts of the Mississippi Valley, we are entirely unfamiliar with. We have, to be sure, stunted cedars here and there in our woods; in our hilly regions to the southwest are districts of yellow pine, but they are too limited in extent and too much mixed with deciduous trees to produce an effect approaching that of those evergreen mountain forests.

Far north as well as far south of us pines become more abundant. The white pine forests of the north and northeast, and long leaved, the yellow and other pines of the south and southeast cover, perhaps, as extended districts as the Rocky Mountain pines, and are far more important in an economical point of view. But even they are not exclusive occupants of their region, and deciduous trees often mingle with them.

But pines are not only now, in our day, or, I should more correctly say, in our present geological epoch, characteristic of certain regions of the globe. Geological investigation has proven that there was a time in the history of our earth when pines were the first, the only exogenous trees in existence. In as early a period as the Jurassic, and is believed even the Triassic, pines have made their appearance, far in advance of any deciduous or other trees, with the exception of the huge tree ferns, the calamites, Lepidodendra and other uncouth vegetation of the carboniferous and other early periods; and their cones, very similar to our present pine cones, are found in those strata.

Thus the pines are really the pioneers of modern forests in early geological times. I have called them the first exogenous trees; trees the wood of which exhibits those concentric layers or rings with which we are familiar in our common woods, and which indicate the annual addition of the exogenous growth, on the surface of the wood, under the bark. Palm trees and other endogenous woods increase without regular annual layers by irregularly interwoven fibres.

The conifers or pines, terms which I use here indiscriminately for all the members of the pine family, exhibit to this day their primeval origin in the primitive and simple organization of their reproductive organs, more simple than that of the humblest grass, which thus stamps them as among the earliest of flowering plants, certainly the first of exogenous growth.

(*To be continued.*)

EDITORIAL NOTES.

MILLER & HAYES Catalogue. With the spring edition these gentlemen have issued a beautiful colored plate of the new rose "Miller Hayes," named in their honor by Verdier of Paris, and of which a description has already appeared in our pages.

WEBSTER'S LANDSCAPE AND ORNAMENTAL GARDENER, is a small pamphlet, published by William Webster, of Rochester, New York, who has already achieved considerable eminence in his profession, and is known in connection with some of the famous gardens of our country. We suppose the pamphlet is for gratuitous distribution. It is full of excellent hints to those desirous of improving their grounds; with ground plans of some of the places already made beautiful by Mr. Webster's agency.

AMERICAN ENTERPRISE.—It is often said that if we want new things, we have to go to Europe to find them. Taking up to-day some catologues of a leading Prussian firm, we find Hesperochiron Californium, and other new and good things offered for the first time, which have already been made familiar to American flower lovers by the catalogues of Messrs. J. M. Thorburn & Co. We are glad to note these evidences of home enterprise. If the people would encourage them more they would doubtless be more frequent.

NANZ NEUNER & CO., Louisville, Kentucky, illustrated catalogue of seeds, plants and bulbs, has a handsome lithograph of a very pretty garden scene for a frontispiece.

NEW JERSEY STATE AGRICULTURAL SOCIETY.—Report to the Legislature for 1874, contains among other excellent matters two articles on cranberry culture, and roads; the last especially should be universally read. That good roads pay at any reasonable cost is a general truth. It is not yet clear how to bring about this desirable end in our country.

NURSERYMAN'S DIRECTORY.—By an advertisement in last number, it will be seen that D. Wilmot Scott is engaged on this useful work.

MR. CHARLES DOWNING.—The *Gardener's Chronicle* has an excellent portrait, with an appreciative but very well deserved sketch of his life and services.

OBSERVATIONS ON THE PHENOMENA OF PLANT LIFE.—*A Paper presented to the Massachussetts Board of Agriculture*, by W. S. Clark, President of the State Agricultural College, Amherst, Massachusetts. President Clark has become well known by reason of the numerous experiments in plant life, which he has instituted in the college, and to which we have occasionally referred. It is safe to say that no more useful work has ever been undertaken in this country, and every lover of vegetable physiology will feel under great obligations to Mr. Clark, for the good work which he has done.

Having recently given a synopsis of many of the experiments, we need not go over them again now. If we were disposed to be critical we might say that we hardly think some of the deductions which President Clark makes, are warranted by his facts; but this does not detract from the value of these facts, on which of course every reader is at liberty to place his own interpretation. The paper is profusely and intelligently illustrated.

PRIVET—"Private." When the proof sheets of our last number came before us, a few alterations in the arrangement were necessary, which left a blank, that we asked the printer to fill in with some paragraph from the matter "crowded out." He selected the answer to a correspondent on "Privet," but supposing we did not

know how to spell it properly, made it *Private*. The printer was not aware that we hold ourselves open to a challenge from the champion of any "Spelling Bee" in this country, or he would not have dared to alter the orthography of that word.

ROSE CATALOGUE OF E. Y. TEAS.—We note that in this fine list, there is one named E. Y. Teas, by the celebrated French Rose Grower, Eugene Verdier. Here also is the Rose with "such a name," as one of our exchanges expressed it. Deuil de Paul Fontaine was not of course written *Devil* by Mr. Teas. It was our cotemporary's own blunder, and he was reflecting on its own mistake.

FOURTH ANNUAL REPORT OF THE OHIO AGRICULTURAL COLLEGE.—This gives a good account of the doings of the college for the past year. Among other items, we notice that credit is given to our excellent correspondent, Mr. W. T. Harding, for what he has done in his department. And this moves us to say that our agricultural and educational colleges might do excellent service to horticulture by making the office of chief gardener rank with that of the regular Professors,—so that they could report themselves on their own doings, and receive pay and position accordingly. Of course there are numerous "gardeners" who would be as much out of their element in a position of this kind as a bull in a china shop,—but then there are also "Professors" of all sorts of things, with whom the genuine article would be ashamed to associate. Intelligent gardeners of this class, fit for such positions, are not numerous,—but there are quite enough for a start,—and if the way were open for these, with due rewards, there would soon be a good field to select from.

HISTORY OF THE CABBAGE.—Perhaps the earliest mention of the cabbage by ancient English writers is by Sir Arthur Ashley Johnson. A contemporary of Ashley speaks of the "great ordinarie cabbage, knowne everywhere, and commonly eaten all over the kingdome." This in 1636.

POLITICAL GEOLOGY.—We see by the Western papers that Dr. I. A. Lapham, whom the whole world honors for his distinguished knowledge and services in geology, botany, and kindred sciences, has been removed from his position as State geologist in order to make way for another gentleman, who—so the papers say—can be of more use to the "party in power." It so happens that we do not know what "party" in politics Dr. Lapham affiliates with, nor do we know what party holds the "power," so we are free to offer our opinion that it will be a bad day both for politics and science when such considerations as this reported in Dr. Lapham's case, becomes general. We hope for the credit of science, that there is some mistake in the report. Dr. Lapham is certainly removed,—and if for political reasons, as stated, it will be to the disgrace of Wisconsin as a State, and probably the first case on record in this country, where any man's religion or politics entered into a question of science. We should as soon think of bringing it into the *Gardener's Monthly*. as of expecting to see it made an element in the appointment of a State Geologist.

MR. WILLIAM MEEHAN.—When the enthusiasm over California fruit broke out, a large number of the best gardeners of Philadelphia started for the golden land, and among them a younger brother of the editor of this magazine, who was at that time gardener for E. H. Hopkins, of Bristol.

As the history of these early horticultural pioneers has always been a matter of interest to those who knew them, we may be pardoned for giving place to the following from the *Marysville* (California) *Appeal:*

"Intelligence has been received of the death of William Meehan, a former resident of this city, who died at his home in Germantown, Pa., on the 7th of November last, aged 41 years. The deceased was a gardener in the employ of Charles Covillaud, the pioneer, for many years. Subsequently he became associated with Julian Trambly, purchased a tract of the old Covillaud garden, located on the Simpson lane, and there carried on the business of gardening for several years. Some years ago Mr. Meehan's health became impaired, and after combating his disease for a long time he disposed of his interest here and sought a change of climate in the hope of beneficial results. But consumption had gained too strong a hold, and the result is now announced. The deceased was a native of England. His death, though not unexpected, will be regretted by all who knew him intimately."

ROPP'S READY RECKONER, published by C. Ropp, Jr., Bloomington, Illinois. This is an extremely valuable idea, and just suited to the wants of gardeners, farmers, nurserymen, and everybody in fact that may have to make calculations, and want the readiest and quickest way of going about them. The tables are so arranged

that in many cases no calculations are needed. The whole is in the form of a convenient pocket book.

LITERARY NOTES.

CATALOGUE OF ISIDOR BUSH & MEISSNER, of Bushberg, Missouri. We are often surprised at the enterprise of American nurserymen in the way of catalogues,—here is another astonisher from the great grape firm of the Missouri—a catalogue of over one hundred pages.

THE GARDENER'S MONTHLY.—We copy the following from one of the leading daily papers of Philadelphia, because we are proud of the compliment to our "liberality of instructive letter press,"—as we really believe we give more of this for the money, than any similar magazine in the world:

"The *Gardener's Monthly* for March contains, with its usual liberality of instructive letter-press, a view, with ground-plan of the Centennial Conservatory in Fairmount Park."

VEGETATION AT BETHLEHEM.—Cornfields and vineyards creep along the ancient terraces. In the spring the hills and valleys are covered with thin grass, and aromatic shrubs which clothe more or less almost the whole of Syria and Arabia. But they also glow with what is peculiar to Palestine, a profusion of wild flowers, Daisies, and a white flower called the Star of Bethlehem, with a blaze of wild flowers of all kinds, chiefly Anemones, wild Tulips, and Poppies. Of all the ordinary aspects of the country, this blaze of scarlet color is, perhaps, the most peculiar, and to those who first enter the Holy Land, no wonder it has suggested the tempting and significant name of "the Saviour's blood-drops." * * * The "hill country," as it is called, of "Juda," in earlier, or "Judea" in later times, is part of Palestine which best exemplifies its characteristic scenery. The rounded hills and broad valleys, the scanty vegetation, the villages and fortresses—sometimes standing more frequently in ruins—on the hill tops, the wells in every valley, the vestiges of terraces, whether for corn or wine. * * * Here, more than elsewhere, are to be seen on the sides of the hills the vineyards marked by their watch-towers and walls, seated on their ancient terraces, the earliest and latest symbol of Judah. The elevation of the hills and table lands of Judah is the true climate of the Vine.—*Stanley.*

ANCIENT YEW TREES.—The churchyard at Overton, in Flintshire, says *Science Gossip*, is planted thickly with splendid Yews. One, quite hollow, measured 30 feet in circumference, at 3 feet from the ground. Again, there are twenty large Yew trees in the churchyard at Gresford, in Denbighshire, one of which girths 29 feet in circumference, 5 feet from the ground; it is more than 60 feet hi h, and is supposed to be about 1,450 years old, planted in the year 426, when the Romans finally left Britian; Wales being at that time a Roman province. These are, however, not so large as the one in the churchyard of Darley, Derbyshire, which measures 33 feet round the trunk, and, though bereft of many of its branches, is still in full vigor. In the churchyard, Tisbury, Dorsetshire, there is now standing an immense Yew tree, which measures 37 feet in circumference. The trunk is quite hollow; it is entered by means of a rustic gate, and seventeen people recently breakfasted in its interior. One in Staines is upwards of 1,000 years old. The great Yew at Fortingal, Pertshire, N. B., is stated by Gilpin, in his "Forest Scenery," vol. 1., p. 282, to measure 56½ feet in circumference, and supposed to have existed at the commencement of the Christian era.

QUERIES.

A ROSE BOOK.—An inquirer asks, "What English work is that called 'The Rose Book,' quoted with so much approbation in English magazines?" He probably refers to Paul's Shilling Book on Roses—noticed some time since in our magazine.

PRIVATE REPLIES.—The Editor again desires that he be not *bothered* with requests for replies by *letter* to correspondence suited to the columns of the *Gardener's Monthly*. He is willing to work for the "public," but to do the same thing for the "private" is not in his original agreement, and moreover he is not able to do so much.

Also will correspondents please note, that we have to send the reading matter to press nearly a month before its appearance, in order that it may be printed, bound, addressed and posted, before the following 1st of the month. Their inquiries therefore have often to lie over longer than they like.

PLANTS FOR SALE.—*J. W., Fall River, Mass.*,

says: "I notice in your valuable *Monthly*, an account of new plants, by Mr. Williams, but I am at a loss to find were such plants are to be found, as he simply gives us a description of them. Now would it be too much to ask a favor of you? Where can these plants be obtained? In your last number is a description of a new Crisped Pelargonium, Victoria. Where can this plant be obtained? I cannot find it in any of the catalogues."

[Many of the new plants described are of English introduction. It is, however, so easy in these days of fast steamships to get plants from Europe that the magazine in making notes of new things hardly thinks it worth while to make any distinction; moreover it is not necessary, as American florists and nurserymen soon get anything good that is noticed in our pages. For obvious reasons, we cannot name in these columns one firm more than another. Indeed it is not necessary, as all the leading firms use our advertising columns. When any new plant is noticed in our columns, write at once to these leading firms. If they do not happen to have it quite ready, they would no doubt take your order for the next season. As the Crisped Geranium is especially mentioned, we may say that our correspondent will find it in the catalogue of the Bellevue Nursery, Paterson, N. J.—and no doubt other leading firms have it.—ED. G. M.]

BOOK ON NURSERY WORK.—A Kentucky correspondent says: "Will you please name some works suitable for a beginner in a general nursery business?"

[Meehan's Ornamental Trees, Fuller's Forest Tree Culturist, and a set of the volumes of the *Gardener's Monthly*, are all we know suited to America. In fruit tree culture, Thomas or Barry is essential.—ED. G. M.]

GARDENING IN CALIFORNIA.—*J. F., Hoboken, N. J.*, writes: "Would you please state through the columns of the *Monthly*, if gardening in California in general is better than in the east for young experienced gardeners, or what branch of gardening would pay best there? Any one, stating some of his experience, will oblige a constant reader of the *Monthly*."

DEUIL DE PAUL FOUNTAINE ROSE.—Mr. Teas fears people will think he is the author of the blunder we referred to in our December number. It was there stated that the extract was from "a contemporary" and "a magazine," neither of which any one whose good opinion Mr. Teas need care for, will take him to be.

PURDY'S CHROMO.—*Mr. P.* says: "I send you one of my new small fruit chromos to-day. Please give me your opinion of the 'monkey.'"

[Very good. The "monkey" is quite respectable, and, speaking Darwinianly, the modern race of chromos need not be ashamed of their ancestor.—ED. G. M.]

CUPRESSUS TORULOSA.—*W. T. Harding* writes: "Please correct an error of the compositor, which occurs in 'Recollections of Australia,' in the April number of the *Monthly*. He makes me say 'Cupressus torulosa,' which is a native of Nepal, instead of Casuarina torulosa, a native of Australia, as I wrote it."

WILLOWS IN NEW JERSEY.—*Mr. Harding* says: "In reply to the eminent landscape gardener, F. R. Elliot, who inquires about the Willows in Central New Jersey, I am pleased to say, I have seen and admired them. There are some remarkably fine specimens to be found among them. The same may be said of them in Massachusetts and Connecticut. All of which will afford much pleasure on inspection, to a man possessing such æsthetic tastes, as does my friend Elliot."

OBITUARY.

HON. M. L. DUNLAP.—Too late for our last month's issue, our weekly cotemporaries, which have so universally spoken of him in terms befitting his worth and honorable career as a member of the editorial fraternity, have made the fact of Mr. Dunlap's death, well known to our readers. The writer of this, who has been an intimate correspondent for near twenty years, as well as a traveling companion over many a mile of this great country, may be permitted, though so late in the day, to place on record his estimate of his many virtues, as a man, and the loss to honorable agricultural journals. He died at his home at Champaign, Illinois, on the 14th of February, in the 61st year of his age.

PASCHALL MORRIS.—Amongst the deaths of the month we find the name of this distinguished gentleman, of heart disease, in the 62d year of his age. Fond of horticulture from early life, he commenced about a quarter of a century ago, the nursery business at West Chester, Pa., on the large scale, for which it has since become so famous. He was also the founder of one of the large seed and agricultural firms of Philadelphia, and took an especial interest in everything that tended to the advancement of agriculture. He was, we believe, the first to import the celebrated short horn breed of cattle; and if not the first, was among the earliest in introducing other improved stocks. Of late years, he has been best known as Proprietor and Editor of the *Practical Farmer*, to which he devoted his sole attention; and which he made one of the best agricultural monthlies in the United States.

W. P. AYRES, well known, some thirty years ago, as a leading gardener and garden writer, died recently in England.

Horticultural Societies.

COMMUNICATIONS.

A SUGGESTION TO HORTICULTURAL SOCIETIES.

BY F. W. P.

The naturalization and promotion of arts, sciences and special branches of industry can be effected only by way of the liberal compensation of those who cultivate them as their profession; but it has to be accompanied by social elevation and recognition, for true enthusiasm and devotion to the more refined pursuits of man can only live and thrive in a congenial atmosphere.

For the purpose of fostering gardening, horticultural societies have been formed, and during the last quarter of our national existence, such societies have increased in number all over our broad land. Although it cannot be denied, that in many cases they have done something toward their purpose, yet it is only too plainly visible, that their activity is slackening and a want of interest betrayed by the lessened number of members and the lists of both exhibitors and objects exhibited at the periodical exhibitions. The professional and the amateur cultivators, who are old enough to have gained experience and still take an actual interest in horticuture generally, or in certain branches of it, can, of course, as matters stand at present, derive but little benefit from their membership in such a society, for the occasional exhibitions as well as the not always very interesting discussions, have for them no longer that stimulating force, nor the contagious influence and attraction of novelty, they had ten or twenty years ago.

Alas, most of the Pioneers, the Apostles of Horticulture in this country are dead. They have, however, done their part and nobly done. The present generation is reaping now unconsciously the fruit of their labors, by which a comparatively enormous and invaluable, yet not duly appreciated knowledge has been sown broadcast over the country, and the profits, comforts and pleasures, which gardening in its various forms is sure to yield, whenever and wherever practiced, are enjoyed by thousands, where only scores would, if it were not for the faithful and disinterested labors of those mentors of horticulturists.

As much as we have gratefully to acknowledge our indebtedness to them, so little must we regard their work as completed; on the contrary let us forever bear in mind, that with the rich inheritance bequeathed to us, we accepted also the duty to cultivate and expand the field broken for us, and to deliver it, faithfully preserved and improved, to our posterity.

A Macænus ordering and paying liberally for a picture, a statue, a composition or other work of art, promotes thereby art itself, and if providential accidents do not interfere, extends the moral and intellectual benefit derivable from such works far beyond his individual sphere and natural duration of life. Thus, patronizing the artist, he patronizes his fellow beings, present and future, encourages others to cultivate and exercise their talents in these directions, and so

future teachers are produced, which will increase the interest and the civilizing influence of art. But the munificence of single, though ever so liberal individuals will always be inadequate to the attainment of great and lasting results. Therefore, where governments are acting to a degree, the part of a paternal providence, schools and academies have been established for the education of artists and artizans, but in a country where this is considered beyond the pale of government, individuals collectively have to provide for such or similar institutions, or the people will be forever dependent on foreign art, whilst home talent pines and dies for want of cultivation and encouragement.

This has been and is still preeminently the condition of American gardeners. There are no horticultural colleges, supported by the government, no botanic gardens, worth the name, and not likely to be, where our boys could fit themselves for the laying out and cultivation of our grounds. An effective remedy for this unsatisfactory and deplorable condition of affairs might perhaps be found in the realization of a plan proposed, more than twenty years ago, by our lamented and never to be forgotten friend, the immortal A. J. Downing. We mean the *establishment of experimental gardens by horticultural societies.* Such gardens would furnish the country living and everflowing sources of useful information, and turn out a number of homebred, intelligent, trustworthy and competent gardeners, who could give really reliable references, having acquired their title to competency in the very country in which lies their field of labor, whilst at the same time an intelligent interest in one of the noblest and ever ennobling pursuits would be fostered, to the common benefit and credit of the whole nation.

OHIO HORTICULTURAL SOCIETY.

Annual Meeting at Akron, December 9 to 11.

BY M. B. BATEHAM, SEC'Y.

(*Continued from page* 126)

The Poetry of Horticulture, or the influence of a taste for the beautiful, was the subject of an eloquent address, full of classical and poetic illustrations, by President McCallister, of Buchtel College. This was followed by a lecture from Prof. N. S. Townsend, of Ohio Agricultural College, on Gardening as a Fine Art, and a means of human elevation and refinement. Prof. Townsend then gave a hopeful account of the condition and prospects of the College, in which he is the teacher of Agriculture and Veterinary Science.

Home adornment, or the horticultural embellishment of grounds, was the topic of a good practical essay by Leo Weltz, of Wilmington, a landscape gardener and nurseryman.

The protection and culture of forests, and planting shade trees, was the topic of a report from Col. J. E. Wharton, of Mansfield, and the draft of a bill which it was proposed to ask the legislature to enact as a law. After considerable discussion in favor of the bill, or for its modification, it was referred to a committee consisting of five members of the legislature, who were present in the meeting, with instructions to present the subject to the legislature and urge the passage of a law for the purpose.

Plum Culture and the Curculio. Much interest was manifested in an account of the extensive plum orchard of the Brown Brothers, at Norwalk, Ohio, and their success in battling the curculio. These gentlemen planted two thousand plum trees four years ago, and three thousand since. The first planting was largely of the Lombard variety, with other popular sorts. The trees grew remarkably well, and about half of them bore the past season, an average of a bushel of fine plums to each tree—too much for the good of the trees,—and very few plums were stung by the curculio.

Their mode of fighting this insect is similar to that practiced and described by Dr. Hull, of Illinois—jarring the beetles off, and catching them on a sheet or "catcher" placed under the tree, somewhat in the form of an inverted umbrella, and mounted on two light wheels, so as to be pushed along like a hand barrow. In the centre of this catcher is a tin can to contain soap suds, into which the bugs roll, and remain till the orchard is gone over. The principal improvement in this catcher, is a contrivance by means of which it is easily and quickly opened on the front side, so as to let the body of the tree pass in, and then shuts around it with a spring, opening again to back out, all done by the hand of the operator, without letting go the handle of the barrow; and the whole performance is so rapid that with another man to jar the trees an orchard is easily gone over at the average rate of two trees a minute, or 750 trees in half a day. The jarring is done with a long handled pounder the head of which is thickly covered with rubber, to prevent wounding the bark. For young trees like those referred to, one blow of the pounder is generally sufficient, but of course large trees will require blows to be applied to several limbs; hence more time will be required. Two of the machines were used the past season by the Messrs. Brown, going over all their bearing trees each day, and some of the time twice a day for a little over two weeks, commencing soon after the blossoms fell off.

Several gentlemen corroborated the foregoing statement of the extent and excellence of the plum crop, and the ease with which the curculio was mastered. Reference was also made to the extensive plum orchards—mostly Damson—near Chillicothe, of which mention was made in report of the Society for 1872, and it was said that planting of this fruit was still going on in that region, as well as in other sections of the State.

New varieties of grapes and the phylloxera, was the subject of an essay by G. W. Campbell, who also exhibited grape roots on which the work of the phylloxera was visible.

Mr. E. Manning, of Harrisburg, Ohio, gave an interesting lecture on evergreens, describing many new varieties which he had tested, and illustrating his remarks with branches of about forty kinds, cut from his own trees. He was requested to write out the substance of this lecture for publication in the annual report of the Society.

Pear culture and the blight, was discussed for an hour; showing that although many trees continue to be destroyed annually by blight, the losses from this cause do not greatly discourage planting, especially by commercial growers; in fact most of them admit it is a good thing for their interests that the fear of the blight prevents so many people from planting pears, and consequently the fruit continues to bring high prices in the market. Mr. Fahnestock narrated his experience in growing pears at Toledo, and his method of treating blight, as given in last year's report of the Society.

The fruit committee called attention to a number of new or rare varieties of apples found on the tables, which they deemed worthy of special notice or commendation. These were variously commented on by different persons, and notes taken by the Secretary.

EDITORIAL NOTES.

TRANSACTIONS OF THE MASSACHUSETTS HORTICULTURAL SOCIETY, 1874.—From E. W. Buswell, Secretary. We have here the first report in full of the discussion which ended in the appeal to the legislature for a special act of prohibition against the culture of noxious insects which we have before briefly alluded to from newspaper accounts, and some of the causes which led thereto. Mr. Rand appears to have been the mover, and the grand cause of the movement was the fact that "there was an orchard in West Roxbury, which he saw last spring, as he was driving by. He had the curiosity to go into the orchard, and found *every leaf* on some two hundred trees eaten. The neighbors had offered to destroy these caterpillars, without cost to the owner, but he refused to permit them, alleging his right to raise as many caterpillars as he pleased; and, consequently, they were obliged, year after year, to fight the caterpillars propagated in this orchard." Therefore Mr. Rand thought it proper to urge the subject on the legislature. It thus appears that the subject has resolved itself into one of "private rights." Massachusetts should take an example from Pennsylvania. This caterpillar man would have been at once abolished for "maintaining a nuisance" if anybody thought it worth while to appear as the prosecutor, and there would be no occasion for a "special law." Perhaps in "revenge," Mr. Rand might in turn be indicted for "trespass" by indulging his "curiosity,"—but there would have been sure work about those caterpillars. No one would have disputed his "right" to "raise caterpillars," but he would have found that that kind of stock "did not pay."

The reports of the flower committee for each month, are interesting reading. Our readers know that Isabella Sprunt is a sport—not a seedling from Saffrano; and now it appears a new one, Eliza Tailby, is a sport from Isabella Sprunt. All the especially interesting features of each month are given in detail.

The report of the fruit committee is as interesting as that of the floral. It is interesting to note that Hovey's seedling strawberry still gains some of the best premiums. Col. Wilder Strawberry took the premium for the best fifty berries of any kind. "There was, however, never so great a competition for the best four quarts of any variety. Over one hundred dishes and baskets were on the table and the prize was awarded to B. G. Smith, for Jucunda."

Among pears, we note some fruit from a

tree of the "orange," two hundred and thirty-five years old, on the property of Captain C. H. Allen, of Salem. Robert Manning has a full report on the various new or remarkable varieties that have come before the society the past year.

The committee on landscape gardening have reports of visits to some of the best specimens of the art about the city, among which are full notices of Glen Ridge, the county seat of E. S. Rand, Jr.,—the City Hospital, Boston,—and Wellesley, the country residence of H. H. Hunnewell, Esq.

The library seems in a remarkably healthy condition. It has undoubtedly the most valuable collection of horticultural books on this continent, and financially the Society has been as prosperous in all departments, no less a sum than $32,000 having been the income of the year.

INTERNATIONAL HORTICULTURAL EXHIBITION.—Under the patronage of the Empress of Germany, and the Crown Prince of Prussia,—to be held at Cologne from the 25th of August to the 26th of September, 1875. Through the courtesy of Baron von Oppenheim, the Austrian consul at Cologne, we have the details of the forthcoming exhibition, as above. As many of our readers will visit Europe this year, so as to be at home to take part in their own Centennial the following, we advise them to take Cologne into calculation, about the above time. They will find themselves repaid; as German gardening, from a nearer climate, is more suited to our imitation.

THE MARYLAND HORTICULTURAL SOCIETY is moving in the matter of a grand hall similar to its sister societies, of Philadelphia and Boston, with some prospects of success. In a long letter on the subject, a correspondent of the Baltimore *American* says:

"I was much gratified by reading the sensible and well-timed letter of E. Whitman, Esq., President of the Horticultural Society of Maryland, in the Baltimore *Gazette* of the 17th of December, on this subject. I have waited anxiously to see whether it has been responded to with alacrity by our many gentlemen of money who own suburban residences, and are noted for their zeal and enterprise in the progress of all things which contribute to the adornment of homesteads and the increased inducements of refined men to settle in or about a city like Baltimore, which offers so many enticements to men of tastes who desire a healthy location on heights commanding a view of the noblest American inland sea, and also a splendid city—destined soon to be the rival of the great metropolitan New York of America. But I find there are some who think the time has not yet arrived, and that the florists and fruit growers at the present time are not able, nor is the Society itself strong enough to rear such an institution. Why, sirs, it certainly was not contemplated that a few florists and men of limited means were to build such a structure as is due to the great interest felt in horticulture. Let us imitate our sister cities of Boston and Philadelphia and other truly enterprising cities. Let us build a splendid hall at the expense of a stock company. As a matter of speculation, it strikes me that it would be a very remunerative institution. A building of proper proportions could be made to pay from rental of stores and the large halls, and also from the Society for its exhibitions and its offices, a fair, if not a very liberal interest upon the stock."

INTERNATIONAL HORTICULTURAL EXHIBITION AT AMSTERDAM, IN 1876.—Hollandish horticulturists have not acted wisely in projecting a grand international horticultural exhibition, to be held on the same year as the great American Centennial. America is a good customer horticulturally to Holland,—and we think it would pay some of their leading florists to be here rather than at home—to say nothing of the immense army of Americans, traveling in Europe, who will be at home that year, and will not see the Amsterdam affair. England had also intended to ignore our exhibition in the same way, but the sober second thought has wisely prevailed, and their grand international has been abandoned. We have before us a schedule of the Amsterdam affair, with a request to notice, and which candor compels us to say what we have in response.

INTERNATIONAL EXHIBITION, PHILADELPHIA, 1876.—We learn with satisfaction that Charles H. Miller, of the firm of Miller & Hayes, has been appointed chief of the horticultural department of the Centennial Exposition. All those wishing to exhibit in that department, can obtain the desired information in connection therewith, by addressing him.

The agricultural portion of our readers will learn of the appointment of Mr. Burnett Landreth to this division, with equal satisfaction. No better selections could possibly be made, than that of these two gentlemen.

The Gardener's Monthly,

DEVOTED TO

HORTICULTURE, ARBORICULTURE & RURAL AFFAIRS.

EDITED BY THOMAS MEEHAN.

Old Series—Vol. XVII. JUNE, 1875. New Series—Vol. VIII. No. 6

Flower Garden and Pleasure Ground.

COMMUNICATIONS.

CLASSIFICATION OF DECIDUOUS TREES.

BY WALTER ELDER, PHILADELPHIA.

Without attempting to write a botanical or arboreal essay, I will name a few trees as they are most generally known. I have thought that if a classification of trees could be made for shade and ornamental purposes, apart from their mere scientific aspects, they would be more interesting to rural improvers. The undertaking would be very intricate, owing to the diversity of species and varieties, and the increasing augmentations our arboretums annually receive by the introduction of new species and varieties. To classify according to outward appearance, many a genus would be disarranged, owing to the dissimilarity of the species; for example, the Ash leaved Maple, would be separated from *Acer*. There would be dark leaved, cut leaved, curled leaved and variegated leaved classes; pendant and stiff, erect classes; stalky, hemispherical, conical and spiral classes, a showy blooming class, &c. American Chestnut, white and red Horse Chestnuts and Oriental Plane, will each cover with their branches, a circle one hundred and fifty feet in diameter, and handsomely balanced. Many of the Maples, Oaks and European Sycamore, and American Linden, may be classed with them. Set for contrast the Deciduous Cypress, Larch, &c., beside them. Weeping Willow is clothed with foliage eight months; Catalpa is clothed only five months; Maples, Sycamore, Plane trees, &c., have large scalloped leaves; Horse Chestnuts and others have large, deeply-lobed leaves; Magnolias, Lindens, &c., have large almost entire leaves; the American Chestnuts, Cherries, Beeches, Birches, Elms, &c, have medium sized leaves, serrated and deeply ribbed; Oak forms a class, although the leaves are diverse in sizes and forms. They have a similarity in their glossy, irony look, which bespeak great endurance; Willow forms a class with long narrow pale green leaves; Sassafras, Salisburia, Tulip tree, Judas tree, &c., are each different from all other trees in their peculiar leaves; Ashes, Hickories, Walnuts, Kentucky Coffee trees, &c., have from five to eleven leaflets upon a footstalk; Locust, Robinia, Mountain Ash, &c., have more numerous leaflets upon their leaf footstalks; Beech, Birch, Balsam, Poplar, trembling-leaved Poplar, &c., have very smooth, clean barks; Buttonball tree, white birch and white poplar show much white bark. In noticing the tints of leaves in autumn, oak shows brown, crimson and scarlet; red Maple shows scarlet; Liquidambar is scarlet and yellow; Beech and deciduous Cypress, brown; Cherry, Sassafras, Chestnut, Dogwood, &c., show brownish crimson; Norway and Sugar Maples show rich buff; Willow is green. When the rich deep tints are nicely blended with the numerous species of yellow in grouping, and the Willow of lively green, they give a glowing splendor to the autumnal landscape, and make the arboretum look richly picturesque.

The following are of the ornamental flowering classes: Among *white* bloomers are Magnolias, double blooming Cherry, timber Cherry and wild Cherry, Catalpa, Horse Chestnuts, Dogwood (Cornus florida) Hawthorn, Silver Bell, Mountain Ash, &c.; among *yellow* bloomers

are Lindens, Tulip trees, Laburnum, Kolreuteria; American Chestnut, whitish yellow; among the *pinks* and *red* bloomers, *Cercis* (Judas tree) red Horse Chestnut, red Hawthorn, &c. There is a white blooming Locust and a yellow Locust; Paulownia is pale blue; Ailanthus is greenish yellow, the Poplar and Ailanthus blooms have offensive odors, and look dirty when they fall; therefore they should be set in the distant views. White Poplar and Buttonball trees push their long arms into the hearts of other trees, when growing near to them. They should be set singly alone or set them together to wrestle with each other. Lindens, Magnolias, Locusts, and Hawthorns, are fragrant.

Evergreen trees are also very diverse in habit and appearance, and may be noticed in another article by themselves hereafter. Trees are the gigantic monarchs of vegetation; how desolate the world would look without them! Who can refrain from admiring the awful grandeur of a large and well proportioned tree, even apart from the use of its timber, its grateful shade and shelter when needed.

MAGNOLIA GLAUCA IN THE WEST.

BY ARTHUR BRYANT, PRINCETON, ILL.

The *Monthly* for January contains a paragraph respecting the alleged impracticability of growing the Magnolia glauca in Iowa. Having never lived in Iowa, I cannot dispute the statement; but here, about lat. 41° 30°, it certainly will grow; and as Northern Illinois has a soil and climate similar to the greater part of Iowa, there is no apparent reason why it should not succeed in the one as well as in the other. True I succeeded only at the third trial, but experience had long since taught me that two or three failures do not necessarily prove that a plant is unsuited to the soil or climate.

My first trial was with two plants from an Eastern nursery, which perished the first winter, as I think from a lack of health and vigor. Afterwards I procured two handsome vigorous looking trees about three feet high. These were killed half way down the first winter, notwithstanding the protection of evergreen boughs. For five or six years they sprouted annually from the collar, more feebly each succeeding season, and were as uniformly killed to the ground in spite of any shelter which I could give them, till at last they perished entirely. I can account for their manifest inability to withstand the climate only by supposing that they must have been brought from a warmer latitude. I have now a single tree of the M. glauca which has grown here for six seasons, blossoming finely the last four. It passed through the terrible winter two years since without protection and without injury, and has been uniformly healthy and vigorous. I have also seedlings three years old which appear to be quite hardy.

It would appear from the above statement that in attempting the cultivation of trees of uncertain hardiness it is important to procure them if possible from a climate nearly or quite as severe as that to which they are to be transferred. Nay more, I think that the climate in which a seed is grown may affect the hardiness of the plant which it produces. I know this idea is scouted by some horticulturists, who maintain that wherever a seed may originate, the constitution and characteristics of its product will be the same. I could state several facts which have led me to a different conclusion. There seems to be no reason why our Iowa friends may not succeed with the Magnolia with proper precaution. The plants should obtained from a Northern nursery; they should be well mulched with rotten chips, rotten straw, or a litter of some sort, and should not be exposed to the unchecked sweep of the wind on the open prairie, which will exhaust the vitality of almost anything that is not iron clad. The editorial in the January *Monthly* upon "half hardy trees and wind shelter," merits the particular attention of those living on the Western prairies. Our climate is certainly a severe one for half hardy trees, and those who have the advantage of shelter do not derive from it the benefit they might, were not so large a proportion of the country entirely open.

Will you inform me, Mr. Editor, what is the precise difference between the common M. glauca and the variety longifolia? I once saw on Long Island what I was told was the latter. It appeared to differ from the ordinary type of the species only in a more upright symmetrical growth, and a somewhat longer leaf, acute at the base. I took seed from it and the seedlings therefrom have leaves like those of the parent tree. What is the origin of Magnolia Lenne?

[Magnolia longifolia is but a seminal variety of M. glauca, with narrower leaves. M. Lenne is a French hybrid.—ED. G. M.]

COUNTRY LIFE.

BY F. W. P.

Mr. Soberhead, a gentleman about to retire from business, stopping at my aunt's, Mrs. Shallowmind, who keeps a boarding house, for *fashionable* people at Shoddyville, Dunce County, had the following colloquy with her, which may not be uninteresting to some readers of the *Monthly*, so I give it verbatim, as I overheard and stenographed it in an adjoining room.

MRS. SHALLOWMIND. O, Mr. Soberhead, so glad to see you come again. Hope you will stay with us, this time, longer than you did last year.

MR. S. Certainly I will. for I have acquired the Van M.'s property and will take possession immediately. You must know, that, since their ancestors laid the foundation to their present wealth, the country has shrunk into the narrow compass of the United States, where, of course, for such big folks, there is not room enough, so they *had* to go to Europe.

MRS. SH. Lucky people they; I wish I could go with them, see the Queen and Madame Toussaud's. Pity that Napoleon is gone and his fair Eugenie and most of the wild animals in the Botanic Garden killed. So Paris has lost all the interest and attraction it had for fashionable people before the war. But there is the Pope left, about whom Madame de Vere wrote such nice things in her Souvenirs du Voyage! Well, well, we have to be satisfied with what we can have here in America.

MR. S. Yes, and I think that any reasonable and active mind might find food enough at home, and a field wide enough to reap the richest satisfaction from. Our own country needs all the interest wealthy and intelligent people are able to bestow on it, to the furtherance of civilization and culture of the people amongst whom their children will have to live, toward which the seeing of all the elephants of Europe will help them very little.

MRS. SH. But hasn't everybody a right to suit his own taste, in the way he spends his own money? Rich folks have to do, as it has become the fashion for rich folks now-a-days, and it is no use to hold back; if one does, he is not recognized.

MR. S. It is a bad thing, when people lose the love of home, for without a home, one is a stranger forever and everywhere, a limb disconnected from the common body. I expect to die in this country, so I will live *in it* and *for it*. It is good enough for me, and since I cannot be one of those great benefactors, whose deeds are generally rewarded by an ugly cold bronze or a never finished granite monument, I will plant an evergreen one for myself, in the warm hearts of my next neighbors, by doing my share in concert with them, to make it worth while for respectable people to live in the country, where stood their cradle, and lie the bones of their fathers and mothers.

MRS. SH. O, I see, you are going to found a University, an Art Gallery, a Yacht Club, or a Race course and that sort of a thing; but don't forget to do something handsome for the Church, for all that is quite the fashion now-a-days with rich people.

MR. S. My dear Madame, I am not going to do anything of the sort, but will use as much judgment in spending my money as I had to use in making it.

MRS. SH. You will, I should think, at any rate not live in that quaint, old-fashioned house, with no dome, no gilding, nor even a French roof on to it, looking as plain as if poor old Franklin himself had built it.

MR. S. The house, in my opinion, is a noble, though simple, and well planned solid building, which will require very little to adapt it to our present mode of living. But upon the improvement of the grounds, the land surrounding it, I shall bestow my principal care and invest a little more money in it than the Van M.'s have done. I hope, by a systematic rotation to raise better crops and fewer weeds with less fences than they did. I will utilize the water-courses in the management of the meadows and the garden.

MRS. SH. O dear, now I see, you'll play the gentleman hay-maker, raise your own corn and pork, and perhaps some mutton too! That'll make living cheap, won't it? I expected to see fine flowers, foreign grapes, a tasty garden with Conservatories and Hothouses, and that sort of thing, which, for rich folks, it is quite the fashion now-a-days to have. Between you and me, not that I am backbiting, but the Van M.'s were rather a dull people, they did not know how to live. It's well enough for them to go to Europe, perhaps they'll come home a little wiser than they went.

MR. S. As little as from a mere trip to Europe can be profited, so much may a prolonged stay there improve the manners and ways of some people, especially those who try to persuade themselves and others that they are better than their neighbors, because they have more

money. And as for knowing how to live, that is not such a common gift as you seem to imagine, Mrs. Shallowmind; it takes more than money to do it in a creditable manner. It is a sort of mixed science and art; one must be more of a Philosopher than a Crœsus. In regard to my plans, however, I can assuage your fears by assuring you that there will be flowers and fruit, for which I have already secured a full board of advisers to assist me in doing the thing right.

MRS. SH. What? A full board of advisers! Why, there's Mr. Lankhead, he managed without an adviser, except old Custom, the whole estate for the last thirty years, and never, I am sure, there was anything managed with more regularity than that. Everything had its place once for all; its time, rain or sunshine, and was done; as the good old honest people always used to do and taught their children how to do it. Pray, do I know any of the gentlemen constituting your board?

MR. S. I should not wonder if you did. They are Mr. A. J. Downing's Rural Essays, his Landscape Gardening, and Mr. R. M. Copeland's Country Life for Guides; an intelligent gardener for Executive, and common sense for Comptroller, with my ledger as Treasurer, and myself as President. Don't you think that there are enough of us, and that, if we all pull together we might make the thing move.

MRS. SH. I see, you are still the old joker you always used to be and like to make fun of one, if you get a chance. And so you'll go into the flowers and fruit, and that sort of a thing after all.

MR. S. Of course I will, *after* all and not, as some foolish people do, *first* of all; as I am in the habit of eating my dessert after the substantials are disposed of, so I will lay a sound foundation first, before I think of brackets and gilding, and have drains, solid roads, and above all, an ample never failing supply of water, done before I go into the ornamental part of the business; for business it is, and not tom-foolery, as some snobbish country gentlemen make it appear to be with them. I think there is both sense and pleasure in spending money by paying for things all they are worth, but to pay treble what they could be procured for, because everything is done in a foolish manner, is in my opinion not creditable even to a man of means, if he claims his share of ordinary intelligence. To a sensible man it always gives a peculiar satisfaction to know that he has not paid too much for his whistle.

MRS. SH. That's one thing I am sure you will never do, if you can help it. You have such peculiar ways, so different from those fashionable people have got now-a-days. You ain't much for show, fancy horses, liveried coachmen, and that sort of a thing.

MR. S. Liveries for coachman have become more necessary than ever, for it is often the only means to distinguish the one who is to ride inside, from him who is to take his seat on the outside of the carriage. In exercising, however, a strict but reasonable economy I have not merely the saving of unnecessary expense in view, but the encouragement of my neighbors, to procure for themselves the pleasures which may be derived from some of the modern accessories to a country home by people of but moderate means, and which they often deny themselves from a wrong notion they have about the inevitable enormous expense and other imaginary difficulties supposed to be connected with them.

There is, to begin with, the kitchen garden, which most people don't know how to manage properly,—that is economically—and throw it up for the mere want of knowing better. Then there is the cold grapery. Every owner of an acre of ground ought to have one fifty feet long, for which it will be no more necessary to spend a thousand dollars, as is generally supposed, than to engage the constant attendance of a professional gardener, for the art of raising grapes has been reduced to a cheap and simple thing to do, and I might mention a good many other things, which by attending to them one's-self, with a reasonable outlay, constitute the very essence of country life.

MRS. SH. O, now, that'll do, you will no more succeed in making everybody his own gardener than the authors of your big and small books on the different themes of Horticulture have done. You will have to address yourself to the women mostly, for the men have next to business, too much horse on the brain, to interest themselves in "How crops grow," or "Ten acres enough," because it wouldn't furnish a track sufficient for a Shetland pony to trot on. No, no, it will not do to tell people to get their luxuries at half price, in procuring them by their own exertions. They would not then have anything to boast of and to outshine others with. Cheap things are good enough for poor folks, and that is what none will acknowledge to be. The trades people too will call you a close-fisted, stingy fellow, who will not spend a dollar beyond what he can help, and that will be all the credit you'll get for your rational proceedings.

MR. S. Never mind, what credit I will get, Mrs. Shallowmind; I am determined to do what I know to be right and correct. Those who will profit from the example I am going to set shall be welcome, others may be fools to their end.

A DAY AMONG SPECIMEN TREES AND SHRUBS.

BY F. R. ELLIOTT.

Being in Rochester, N. Y., a short time since, and having a day to spare, I was cogitating what to do, or where to go, in order to make the best use of time, when as I stood in the parlor of the Bracket House Hotel, who should come in but a happy featured gentleman named Tom F——, with whom I had recently become acquainted, and who I know owned a beautiful situation on the Hudson. His first salutation was, "Old fellow, you're just the man I wanted to meet; come go with me to Ellwanger & Barry's grounds. You know trees, and I want to use you for my benefit." All right, was my reply. I was just hesitating where to go in this city of beauty to gain the most benefit, and although I have time and again enjoyed the rare delicious fruits grown upon the grounds of Messrs. E. & B., from the rich and racy Nicanor Strawberry all through to the Josephine de Malines Pear; have revelled hour after hour in the beauty and fragrance of flowers there found; have sat me down and almost worshipped the long drooping branches of the many trees yclept weepers; have studied with wonder and surprise the numerous varieties of trees with curiously cut or variegated foliage which this world-renowned nursery firm has gathered together, yet I now go with you, my good humored friend, for nowhere else can we find so much of that which assists to true manhood, to pure thoughts, and to remind all of the great and good Creator. But I must take with me my pencil and paper, and as we wander in and among the trees and shrubs, view the thousands of plants and flowers in the numerous greenhouses covering acres, I must be allowed to note here and there a novelty, and send my scribblings to some editor, who faith I believe will print 'em.

Tom F—— made no objection, so here, reader, please see us as we enter the postern gate, and skipping remarks upon the beautiful lawns and smooth gravel paths, for they have repeatedly been written of, let us look at the first tree as we enter. It is a variety of weeping Birch—*Betula var. pendula Youngii*—or Young's Weeping Birch. It was found trailing upon the ground in Milford, England, only a few years since, and on being engrafted upon tall stems, became, as you see, one of the graceful and beautiful of drooping branched trees. The tree here before us is, if the writer remembers aright one of, if not the first introduced to this country. The next tree that pleased Tom F—— was a fine weeping Larch, so different from the graceful yet upright tendrilled Scotch Larch, that as we gazed we thought of how few know of its beauty. "Tom," said I, "there is a fine specimen of weeping Larch in a confined space on Grand St. in Newburgh. You ought to obtain and plant it on your grounds." Ah! said Tom, to want and to get, are two things. As we passed along by a weeping Ash, with broad drooping yet strong branches we thought of vigor and life struggling against reverses. Tom called my attention to a magnificent tree of the cut leaved weeping Birch, a gem in truth, growing more and more beautiful as age increases, but writing of it now is only repeating a well known truth now pretty generally appreciated. Whoop! Hoora! shouted Tom, here is a variety I never saw before; what is it? That, I replied, you have truly said is a variety, and I doubt if a half hundred people in the United States know of it. Its strict name is *Betula var. pendula Elegans*, or Elegantly Drooping Birch. Its long pendant, slender, glossy, drooping branches remind one of a tablet over some loved Euphrosyne, or Naid Queen. Its foliage is bright glossy, and as soon as it can be obtained will probably be in the grounds of every lover of nature's variations and beauties.

But we must pass other weeping trees, for here are those of noble structure and singular broad and distinct foliage. Take for instance the new varieties, for many of the old, however grand and beautiful in their stature and foliage, are now the study which Tom F—— has come to see and learn, and of which, he says, if I scribble it must be to tell just a little of what is not common everywhere. Wier's cut leaved Maple is one of the gems of novelty among its class. The golden leaved Maple contrasted with the purple leaved. These three trees form a fine group. Next we come to the white double flowering horse chestnut, which with the red flowering and the variety called *Memmingerii*, a novel variety, the foliage being dotted or

sprinkled with white, make another triangle group of beauty and rotundity in form. "The purple leaved Beech," says Tom, "I know," and to it I reply add River's smooth leaved, and the copper leaved, and you have three of the good fancy foliaged Beech trees. The fern leaved Beech is a gem as a single tree upon the lawn or to crown a slight rolling knoll. All these we believe are native of Germany. Magnolias come next in our line, and while we admire them all, the *Soulangeana*, *Lennei*, *Glauca*, *and Glauca var. longifolia* are among the hardiest and best.

"Tom," said I, "if the magnolias were more generally propagated upon the stem and roots of the variety termed *acuminata*, a tree known in many sections of our country as the Cucumber tree, their beauty and hardihood would be greatly enhanced. They can easily be so grown by side grafting on young stocks."

Leaving the deciduous trees, Tom and I strolled in and among evergreens, of which these grounds show samples of nearly every hardy sort known. Many are fine large stately trees of well known old sorts, but among them here and there stand young healthy trees and shrubs of the novelties. Our native white spruce, the Norway spruce and Hemlock are among the varieties that no place of any extent can ever be complete without. The Menziesii, and *Mertensiana* are two of those that promise value. While among the dwarfs or low growing sorts in this class, the *nana pygmea*, and *nigra pumila*, are among the best. The juniper family is one of which few varieties are not hardy. Elegant plants of *Reevesii*, *nana japonica*, *oblonga pendula*, *repens*, *squamata*, *tripartita*, *pendula*, etc., were before us, and Tom, looking at them again and again, wondered that no more of them were planted along fences upon banks of rock work to keep even a green bank of beauty. The stately Pinus of olden knowledge, such as the Austrian, Scotch, white, etc., have now competitors such as the *Monspoeliensis* or Salsmann's, *Benthamiana* or Bentham's heavy wooded, Lambert's, etc.

The dwarfer sorts, such as Cembran, although not specially new, is yet scarce, with the dwarf white, dwarf mountain, and dwarf mugho, are all valuable and should be more generally planted in small yards, and on points of lawns dividing paths or roads, than is now done. Now we come to the Arborvitæs, of which the American is one most known and, except the Siberian, is best for massing or hedge planting. Nearly all of this class, "Thuja," are hardy, and the varieties *compacta*, *globosa*, *Reedi*, and *Tom Thumb*, are dwarf in growth, suited admirably as trees to point a group or place upon the point of a lawn where paths diverge. The Tom Thumb is perhaps the best of the lot, if one only is wanted. *Hoveyi* is distinct in foliage, but Tom F——, if you want something rare, get *Brinkerhoffii* the foliage of which is tinted with yellow.

Leaving the trees let us now go among the shrubs and vines. The purple leaved Berberry, purple leaved Filbert, double flowering Deutzia, the flowering Quince called Princess Emile Sontza, the Weigela's, called *Hortensis nivea*, *Rosea*, and *Desboisii*, the broad leaved Euonymus or Strawberry tree with its large beautiful scarlet fruit in Autumn, the Hydrangea grandiflora, the upright Honeysuckles, called *Standishii rubra*, and *fragrantissima*, Gordon's flowering currant, and spireas the *crenata*, *Douglassii*, *Reevesi double flowered* and *Thunbergii* are among the best. These with the white and purple Persian Lilac, and, Tom F——, if you can possibly get the Clethra alnifolia, a native shrub, bearing spikes of white flowers in August, but not found in the trade catalogues, you will have a collection of greater beauty and value than can oft be found in the best gardens.

Leaving shrubs let us now go among the vines and perennials. Our time is short, Tom, so we must be rapid in our look over these extensive grounds and the hundreds of varieties of beautiful vines and plants, and comment only upon some of the newest creeping vines. Whether for flower or foliage, they are among the items that every one who has a home should plant. They cover and shade a rude porch or outbuilding, and many, like the Ampelopsis or Ivy, oft called Virginian creeper, the Tecoma or Trumpet flower, two old well known sorts, there can now be found varieties of superior beauty, although perhaps not quite as strong growers or as hardy. The Ampelopsis *japonica*, as you see there, Tom, is more beautiful in its foliage than our native Ivy, and so far it promises hardy. But here is a class, Tom, if I do speak it, that is bound to win. We all know our native white flowering Clematis, for it is found growing on the banks by road sides and in all old fence corners, all over the middle country. The past dozen years has, however, produced, through the skill of florists, many most beautiful varieties. Under the following names we select a few of th best: Jackmanni, Imperatrice Eugene, lan ginosa, Sophia, Helena, Fortunei, Alexand

Lady Caroline Neville and Thomas Moore. So much for Clematis; now take the climbing Honeysuckles or Woodbines. The Chinese Twining is one of the oldest, and if you can get it true, is one of the best. Its foliage is glossy on the upper side, downy beneath, and holds bright nearly all winter. Its flowers are striped or variegated pinky outside and white inside and very fragrant. The monthly fragrant is another good one, but *tomentosa*, a very strong grower with orange colored flowers, is one of the best for covering unsightly buildings.

We will close climbers by naming the Wistaria, both the purple and white flowering sorts. Some perhaps may choose a climbing rose; if so, Felicite Perpetuelle and Baltimore Belle, are two of them; then take the Kentucky Multiflora, in habit like Prairie Queen, but later in flowering. In selecting roses for their flowers, although many new ones are yearly introduced, the old ones, like old fruits and ornamental trees, yet hold a first place, as for instance among the Hybrid perpetuals, Auguste Mie, Baronne Prevost, General Jacqueminot, La Reine, Victor Verdier, are good as any to-day. Among Bourbons the Hermosa, Duchesse de Thuringe, Phœnix, Queen and Souvenir de Malmaison, yet hold a first place in all grounds. Among the China or Bengals, Agrippina, Louis Phillippe and Eugene Beauharnais, are good. Duchere is a new white one of this class and said to be promising. The Tea class, those even of the most delicate yet abundant perfume, the list of new ones are nearly all good and one can hardly go amiss in selection, only if you have the old sorts such as Adam, Bougere, Isabella, Bon Silene, Devoniensis, Gloire de Dijon, Marechal Niel and Safrano, you will chance to get few superior.

But, Tom F——, its getting near night, and I think you had best get a catalogue and go home and read it, for you will get there true descriptions. Nurserymen are not familiar with the white lies of Mrs. Opie, so you can trust them, but ere I leave you let me say don't forget to plant a half dozen or so of tree Peonias, and a half hundred or more varieties of Herbaceous sorts. You will have as grand a display from them as you would from so many Rhododendrons, and at less expense.

Good Bye.

NEW PLANTS.

A TRUE VARIEGATED LEAVED ROSE.—*E.* says: I notice the *Hudson* (N. Y.) *Republican* calls attention to a new variegated foliaged rose, raised on the sport gathered and propagated by Mr. Macy, of that City. He names it "Cora Macy." It is said to be sport from a deep red monthly, whether Bengal or Tea is not stated, but it is claimed to retain the deep red color of the parent variety, while the foliage has red and white variegated and blended. Do you know of it?

PUSCHKINIA SCILLOIDES.—A good tuft of this rare plant of beautiful hardy bulk, is blooming finely in the open grounds at Kew. This plant grows about six inches high, producing racemes of delicate blue and white flowers, and should have a place in all collections of hardy bulbs, either in borders or on rockwork.—*Garden.*

House Gardening and Glass Structures.

COMMUNICATIONS.

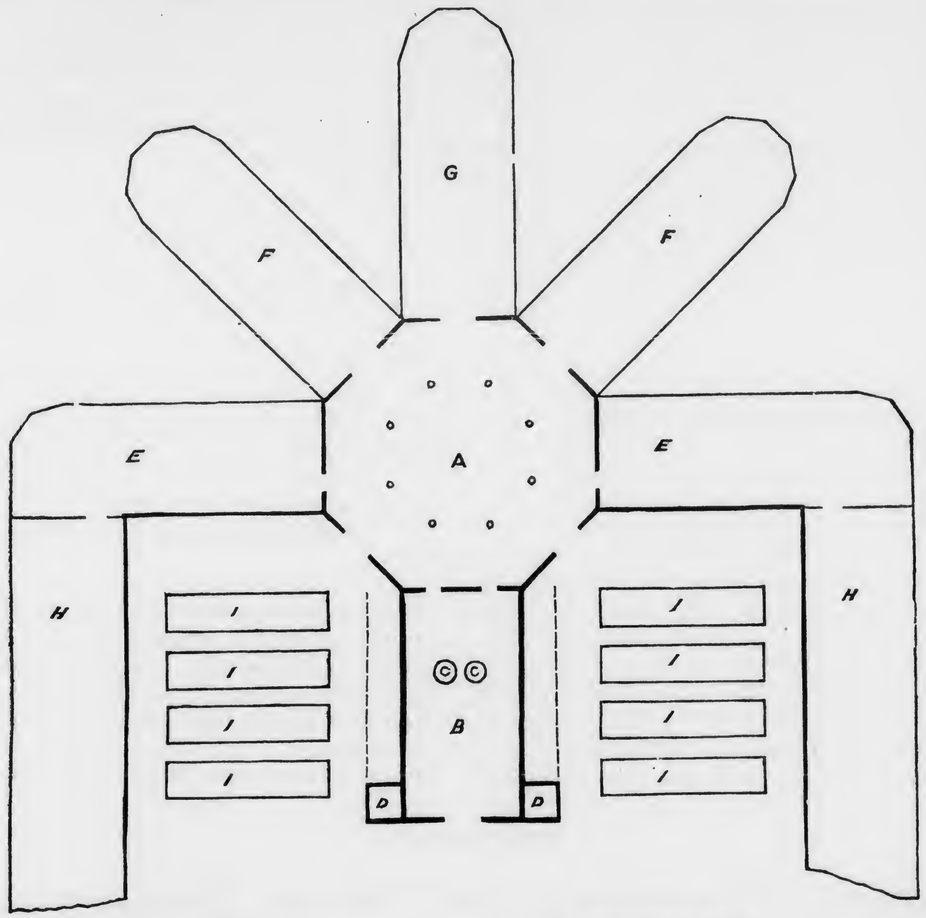
ON GREENHOUSES.

BY F. W. POPPEY.

The many instances of an unsatisfactory arrangement of the glasshouses, together with the gardener's rooms, on commercial as well as on private so called gentlemen's places, have caused so much inconvenience and dissatisfaction to both employer and employe, that a suggestion of a plan combining efficiency with economy has long been felt to be a desideratum.

Such a plan is herewith presented, with the hope of either finding favor as it is, or by a suitable modification, of bringing about an improvement in the old-fashioned haphazard way of locating the glasshouses. In the adjoining plan, it will be seen the houses radiate from one central octagonal house A, which is formed by connecting the gable ends of two graperies, running east and west with one stove and two intermediate houses, all span roofed, running south-east, south, and south-west, respectively. The sides of the center or show house would be as high as the

ridges of the other houses, say ten feet, be used as a Rose-house and for the display of other plants during their blooming period, permitting an easy communication for the gardeners as well as for visitors, and facilitating the removal of plants without exposure to the inclemency of the weather. The north side is protected by the working shed, with a cellar five feet in and two and a half above the ground, on top of which shed are the rooms for the gardener. On the north-west and the north east corner are turrets containing rooms for tools, pots, and other requisites, with water tanks under the roof, for the supply of the glasshouses, and a bath for those employed in the establishment. A gallery on the east and west side of the shed could be so arranged that, in the fall of the year, sashes might be set in between the pillars, furnishing a convenient place for plants for which it is too warm in the houses. The heating furnaces for all the houses together would be in the cellar, simplifying thus both the attendance and control of the fires, and rendering the construction of more than one chimney and coal pit unnecessary. The houses may at any time be enlarged by merely adding to their length, and if more houses for special cultures be required, they could, without any difficulty whatever, or altering the original design, have an extra fire-place attached to the graperies running north, and the two yards thereby formed would present convenient places for pits and frames. This sketch of a plan, which need not be carried out all at once to its full extent, and the details of which, would, of course, have to be adapted to locality, climate, means, and other incidental circumstances, gives only a general outline of the fundamental idea, and if gentlemen before starting a new place or altering an old one would make their intention known through this or any other horticultural magazine, and offer a prize for the best plan, they might find it to their advantage, besides proving to be true lovers of Horticulture, and friends of the gardeners; whilst as we almost invariably see, the dabbling in matters for which they are no more competent than their carpenters, advances neither their personal interest nor that of Horticulture in general.



a—Show house principally for roses.
b—Shed with cellar below, and gardener's room above.
c—Boiler in cellar.
d—Turrets with tanks.
e—Graperies ¾ lean to.
f—Greenhouses.
g—Stove or hot-house.
h—Houses and Pits for special culture.
i—Frames.

BOUGAINVILLEA SPECTABILIS AS A POT PLANT.

BY MANSFIELD MILTON, NORTH EASTON, MASS.

No writer's pen nor painter's brush is capable of doing justice in describing the beauty of this Brazilian climber. Although the flowers are very insignificant in themselves, the bracts which surround them of a lilac-rose color, when fully developed, give it that indescribable beauty which makes it the loveliest of all stove climbers.

The English gardeners have not been very successful with this species as a pot plant, although the two species *glabra* and *speciosa* are by them grown in great perfection. A correspondent some time ago in the *Garden* attributed their ill-success to the want of strong sun when the flower buds begin to make their appearance, but I think the mistake is more in not exposing sufficiently to the sun when the plant is making its growth. If the following method which I adopt here was practiced by them, but little they would have to fear from failure.

In the spring I shake considerable of the old soil from the roots and re-pot in a compost composed of good fibry sandy loam, and well-rotted cow manure, potting rather firmly, giving plenty of drainage, as the plant requires when growing an abundant supply of water, not for once allowing to feel any evil effects of dryness. As allow it once to dry when in vigorous growth the young roots which are very soft and easily destroyed get shrivelled up, and the plant has therefore to make new ones before it increases as before with its growth. Any strong shoot that may be likely to rob the other shoots of their proper nourishment should be pinched back, and always endeavor by so doing to equalize the growth as much as possible on the plant, as the slender and medium sized shoots flower best.

Towards autumn when the growth begins to decrease, by degrees begin to withhold water until the shoots are well ripened, not allowing the leaves to come off for want of water, however. During the time it has been making its growth keep it in a house where it has received the full blaze of the sun for most of the day. In the beginning of December when the flower buds begin to make their appearance in the axils of the leaves commence watering more abundantly, and not allow the plants to remain in a house which is requiring fumigating, or else remove into another house during the time it is filled with smoke, as nothing destroys the buds sooner than tobacco smoke.

If the plant has been grown in strong sunshine during summer there is no danger of the flowers not developing, although partially shaded after making their appearance. The sun gives perhaps a deeper color to the bracts, which is the only difference I recognized, whether opening their flowers with sun or shade.

I have a plant growing on a flat wire trellis about six feet high and four broad, which from being away from fumigating I grow in a fernery where it has neither much heat nor sun, but the bracts are expanding very beautifully, and about three weeks from now, (Jan. 20th), it will be shrouded in one mass of its gorgeous flowers.

Red spider is the only insect which it is very subject to, which can be prevented by syringing in the afternoons of warm days previous to shutting up the house.

THE FEROPLANT.

BY WM. H. SEAMANS, WASHINGTON, D. C.

If a thing of beauty is a joy forever, then whoever adds to the number of beautiful things increases human happiness. And if the "thing" be of one's own making, and capable of changes and modifications limited only by taste and time, it becomes an almost unlimited source of pleasure. That is just what the subject of the photograph enclosed has been to myself and friends, and the cost of it has been so small I want the readers of the *Gardener's Monthly* to know about it.

Most plants stands are formal affairs, mere skeletons of wood or wire, that detract from the

beauty of the flowers and do not readily lend themselves to the adorning of a room, or they are very costly and hold but few pots.

Brackets are well enough in their way, but sometimes inconvenient, and so we decided to try the effect of a bit of rustic work, and the result has been eminently satisfactory. A square of oil cloth prevents damage to the carpet, and on occasion cut flowers and pressed ferns are added to its living beauties. Some sticks of laurel, saw, bit and hatchet, with a little mother wit, all the materials and tools necessary for its construction. Other kinds of wood will answer, but laurel is the best because of its tough and fine grain, and peculiarly suitable manner of growth. Pick out your sticks in the woods, but you must humor them a little, for you will never find just what you want. For putting them together as a frame, use small carriage bolts,—nuts inside,— one of them is worth several screws or nails, and it must be strong. For the top make a frame of two by three inches scantling, on which nail some boards, and then take a sheet of zinc three inches larger each way than the top, turn up the sides one and a half inch, bend the corners round, and you have a water tight top without rivets or solder. The sides of the frame and top must be hidden by the rustic work.

Now put your aquarium in position, (the aquarium is an essential part of the feroplant, though it may be a globe,) then with sand, cinders, and water lime or plaster of paris, colored by some dry paints as yellow ochre or burnt sienna, build some rock work on a separate board fitted in the space not covered by the aquarium.

The flower pots should stand on wooden blocks, or empty fruit cans turned upside down, which make it much lighter. The branch at one corner is a supplemental affair bolted on; the terminal supports for pots are the collars of gas fixtures, which are admirably adapted for the purpose in size and shape.

To furnish the feroplant do not envy the possessor of hot house rarities, but go to our native woods, and you will find a wealth of ornament hardly dreamed of. Cover and hide the edges of the zinc trough with moss, for which the thin mats torn from the faces of rocks, and sprinkled with polypods are most suitable. Some exotics, as the calla, etc., are in the figure, but for a long time we had nothing but native plants. The immense fern shown is an Aspidium acrostichoides obtained three years ago at Mount Vernon, the home of Washington, and grown in the house. Some of its fronds now measure three feet in length. The mossy bed will grow almost any fern if kept moist, Cystopteris, Adiantum, Asplenium ebeneum, and Trichomanes are among those we have grown, and the unfolding of their green balls each day is an especial charm in spring. If the woods are convenient they may serve as a garden of reserve from which to draw new supplies when the old ones fade or fall. Mitchella thrives well and droops its little waxen trumpets over the side, while on almost bare rock work last spring a bunch of Sedum ternatum bloomed long before its sisters in the woods, hastened by the unwonted stove heat of our room, and its star like flowers set off by the shiny black anthers were extremely beautiful. We have had Tipularia, Aplectrum and Obolaria, all usually considered rare, growing in our miniature garden, while in the aquarium the fish and salamanders glide among the Proserpinaca and the bird pecks at the leaves of the ivy that seems to grow stronger and more rapidly when it has a branch to which it may cling. Hieracium venosum, Heuchera and the white veined Goodyera, are all attractive, and will excite the admiration of those who suppose all beauty is farfetched.

RURAL NOTES.

BY AMATEUR, BEDFORD, NEW YORK.

April 14th, 1875.—I send you a few notes, knowing you take an interest in the progress of the gardening art. Last week I paid a visit to Copake, Columbia Co., New York, and while there went to see the establishment of Mr. Douglas, of N. Y. City. It lies in a romantic little valley about half a mile from the depot of the New York and Harlem Railroad, and under the management of Mr. Vass, the able and courteous manager; is in the summer season a most enchanting spot. There are two lean-to houses on the place, about seventy by fifteen and forty by fifteen, and they are filled with a collection of very choice specimens, among which are a magnificent Latania Borbonica 15 feet high, Seaforthia elegans, 10 feet. An exquisite Palm (Caryota urens,) resembling a huge maiden hair fern, threw its graceful leaves high above a mass of Cycads, Pandanus, small Latania and other plants. I also noticed fine specimens of Bonapartea gracilis, Dasylirion, Marantas, Dracænas, Cyanophyllum, the curious Sanseviera zeylanica, Musa of two kinds, etc. Suspended from the roof and walls were nearly fifty orchids of various kinds. Ferns are in great variety, two specimens of Alsophila australis five feet high, Lomaria gibba three or four plants, two and a half feet high, fine specimens of Blechnum corcovadense, Adiantums, Aspleniums, etc. There are also two plants of the singular Monstera deliciosa, and a plant of the Scotch Broom in full bloom. Trained up the rafters are Passiflora princeps and Abutilon mesopotamicum, both a blaze of bloom. The noticeable features of the collection are the fine shape and perfect condition of the plants. Mr. Vass has every reason to feel proud of his charge for the plants show the skill and care lavished on them by him.

EDITORIAL NOTES.

SCOLLAY'S ELASTIC PLANT SPRINKLER is made of rubber, with a flat bottom and brass, perforated, detachable top. It is used for window and house gardening, sprinking bouquets, dampening clothes, etc.

A PRETTY BASKET.—Many of our amateur readers will be anxious to know what plants would likely constitute the above. The prettiest basket I have seen for a long time was composed of five Roman Hyacinths set in a circle in a small basket standing on a round table in the library here, with the best small plant of Platycerium alcicorne I have seen for a long time in the centre, overhanging the Hyacinths. The effect was really very beautiful.—*Cor. Gardeners' Record.*

Fruit and Vegetable Gardening.

COMMUNICATIONS.

THE LAWRENCE PEAR.

BY P. H. FOSTER.

The Lawrence Pear, a native of Long Island, ripens through December. With care, and a dry cool atmosphere, it may be kept until January. I do not see the reason why the raising of this fine pear may not be made a specialty on Long Island. Its growing qualities are good, being moderately vigorous, entirely hardy does not crack or canker, comes into bearing early. In market, it brings the first price, often selling at $30 per barrel. Long Island is surely the home of the pear, there being no killing blight generated with us, and we have none unless we import it from the north or west. Our wild hedge pear is evidence enough. With few exceptions, they do well in our different soils, although our heavy loam soils do best, where thoroughly underdrained. In light soils they require more attention, by mulching and working in dry weather, and sometimes watering; but all this does not argue, for on any kind of soil, they may be neglected. Pears, with us, require manuring, and other attention, as much as corn. Who thinks of raising good crops of potatoes, or other vegetables without manure, and well working the soil to keep down weeds which are often allowed to grow around fruit trees, and draw out the very nutriment the trees require.

An orchard of pears may be planted with potatoes or other root crops, year after year, if only manured high enough. By that means the soil becomes well stirred, and the crop pays for the labor. There is at present only one insect that destroys the pear to any extent, that is the codling moth, (carpocapsa pomonella,) and that may be kept in check by using the necessary precautions.

APPPLE "MELLINGER."

BY CASPAR HILLER, CONESTOGA, PA.

I am well aware that the number of apples on our lists could with profit be cut down ninety per cent., but occasionally a new candidate for public favor looms up so favorably, that its claims cannot be ignored. Such an one is the Mellinger. It originated on the premises, now owned by Dr. Mellinger, in Manor township, Lancaster County, so many years ago that the oldest inhabitant does not know when the original was planted.

It has the ripening characteristics of the "All Summer," a noted apple also of Lancaster County, which ripens from July to September, but the Mellinger ripens from August to November. It is from medium to large size, conical, fine red color, subacid, quality good, an uniform and great bearer. From its beauty and perfection, as well as from its fine cooking quality, it will always be a popular market apple. Any one desiring to try it, can have a few grafts by sending stamp to prepay postage.

EARLY CABBAGE AND CAULIFLOWER PLANTS.

BY J. M. ROOT, ROCKFORD, ILLS.

In latitudes north of New York City, it is impossible, or at least so difficult as to be impracticable, to keep Cabbage and Cauliflower plants over winter in cold frames. But if properly hardened, early grown hot-bed plants are not a bit inferior, and cost much less labor.

The earliest sowing is made about the 20th of February, in small boxes, in the same manner as directed for tomatoes. When the second leaf is half an inch in width, the plants are "pricked out" or transplanted into boxes an inch or more apart each way. When the plants are nearly large enough to set in the garden, the beds are given considerable exposure for a day or two, and the boxes are then removed to cold frames, and given just enough protection to prevent injury, and they soon become so hardy that repeated freezings, such as usually occur in March, do them no harm if set deep enough so that the stalks are not split by the frost. Of course such plants can be set out just as soon as the ground can be worked, and they can be relied upon for an early crop.

For sale on the stands we usually transplant a dozen into a quart strawberry box, or a larger number into grape and other fruit boxes. An oyster crate holds 300 to 400. But the sales of such plants have never been large with us, the heavy demand coming in at a later time, when hardened plants are not needed. Few, except professional gardeners, will believe it safe to set out any plant at a time when one or more snug freezings are liable to occur.

WHITE HELLEBORE AND CURRANT WORMS.

BY O. S. H., STRATFORD, CONN.

The statement, that White Hellebore may poison the skin, is a misapprehension, originating probably in the coincidence of being poisoned and plucking fruit which had been dusted with it. Twenty grains internally exerts no remarkable effect on the human system, and this quantity is sufficient for dressing several bushes. Even its active principle, several hundred times more potent than the root, never poisons by contact.

The impalpable powder of this root is so thoroughly effective for the destruction of currant worms, so easily and quickly applied to the moist leaves with the dusting bellows, that those who grow currants and gooseberries cannot afford to dispense with it.

An ounce is adequate for two hundred bearing bushes, and all that would adhere to a quart of fruit, even if applied while picking, could be swallowed by a child without sensible annoyance or injury. Those who live a "scared life," or tremble at infinitesimals, should use it not later than the day before plucking fruit.

QUERIES.

THRIPS.—*H. von T., Newburg, New York,* says: "In answer to R. H. N., allow me to give my method of dealing with the thrip on vines under glass. A good fumigation with tobacco, is the first move in the operation. This should be done of course in the evening, when all the thrips will drop to the floor. Now have a large can of tobacco water and go over all the walks and floor, carefully seeing that no space escapes, and as they are all down, few if any escape. This has proved an effectual 'cure,' in case of a house under my charge. The tobacco water should be very strong."

[This is an excellent plan for graperies. R. H. N., however, desires a plan for the destruction of thrips or grapes in *the open air.*—ED. G. M.]

STOCK FOR THE PLUM.—*F.* says: "How many native varieties of plums have we in America or The States, which in your judgment is the best as a stock upon which to grow the prune and the fine plums for market. I like the fine clean willow growth of the Newman wild goose. What think you of it as a stock for these plums?"

[The American red plum, of which the wild goose is a variety, is one of the best of stocks for the plum. It grows slower than the European or cultivated plum, which thus overgrows the stock,—but we don't know that any harm comes from this. We know nothing of the "Newman," what is it?]

SPARROWS AND FRUIT CULTURE.—*R. W. H., Galesburg, Illinois,* writes: There is an effort on the part of some of the members of our "Galesburg Horticultural Society," to introduce the English Sparrow, as a destroyer of injurious insects. I believe this is a two sided question, and not wishing to rely upon my own knowledge, I desire to obtain your opinion, as you no doubt have learned their habits since their introduction into Philadelphia, and had a former knowledge of them in England. I think there is no doubt but they are valuable in a park, but would they be in a fruit garden? or in a rural town like this, where every man raises small fruits and garden vegetables, and every member of our Horticultural Society grows many small fruits and all make grape growing a specialty? Do they eat the codling moth? Do they eat the tent caterpillar? Do they eat the curculio? Do they eat any insect that is destructive to fruit that no other bird will eat? Do they eat strawberries? Do they eat raspberries? Do they eat currants or gooseberries? Do they eat cherries or grapes? Do they eat vegetables such as peas and other garden sauce? Will they live in this climate where the thermometer runs down to 31° below zero, without protection and feeding?

[As our correspondent well says, it is a two sided question. The English Sparrow eats insects and grain. It is not especially a fruit eater. The stories about its destroying fruit buds in England is wrong. It is the Bullfinch which does this, and it is the English Blackbird and Thrush, and not the Sparrow which worry the fruit crops. Our climate is too cold for the Sparrow to spread much to our grain growing and fruit districts. Our hardiest native birds cannot stand it. It can only get through by the aid of the "crumbs" from man and animals, and the shelter of the ornamental evergreens on his grounds. We may say in brief, that our belief is that the English Sparrow will never be a serious enemy to the American farmer or fruit grower; on the other hand it has many good traits and we endorse its introduction to all large towns.—ED. G. M.]

BORERS IN THE STEMS OF FRUIT TREES.—A correspondent goes over his trees and takes out the grubs with a jack knife, and claims that this is better than tying a piece of newspaper around the stem just under and just above the ground and then tarring it. We don't understand how this can be. It takes but a moment to put on the paper. Tied loosely, it does for three years. It keeps the borer *out*, and also rabbits and mice from gnawing the bark, and we doubt whether the jack knife will do this.

GRASS FRUIT CULTURE.—"*Subscriber*," *Jerusalem, Davie County, N. C.*, says: "I have subscribed for your journal among other things, to learn as much as possible about keeping fruit trees in grass. I would like to have the following questions answered:

1st. I see where some sow the ground in grass and then mulch the trees. Do they mulch heavy enough to kill the grass under the trees, or mulch on top of the grass, or mulch under the trees before the grass starts, to keep it down?

2d. Will trees do as well in clover as grass?

3d. How will grape vines do in grass?

4th. Would it be best to leave the grass on the ground to rot, and manure less?

5th. Do wheat and oats injure trees, as is commonly supposed?

6th. Is grass as good for other kind of fruit trees besides the pear?"

[1st. As a general rule, mulching is a costly process,—and we doubt whether whatever may be the benefit to the trees, it will ever become an extensive practice in *profitable* fruit growing. There is labor in getting mulch, and labor in handling and spreading, and then we get no return whatever from the ground, except such as in time the fruit trees will afford. We doubt whether the regular orchard fruits will ever be made to pay their best unless something is made of the ground for the first ten years besides waiting for the fruit. Here we come to three several classes of ideas, some grow corn and grain, some root crops or small fruits, others grass. This last is our choice. As a direct answer to the inquiry, however, we may say that those who mulch usually put it on in winter and spring, before the grass grows, and thus keep the strong grass down.

2d. Better we think in clover than in grass,—but it is more difficult to keep clover than grass,—at least in these parts. In three years or so the clover generally disappears. We sow clover and timothy together. The last holds on after the other is gone. Perhaps orchard grass would be better. It holds on year after year better than timothy.

3d. Probably the best grape grower in Pennsylvania, is F. F. Merceron of Catawissa, whose name indeed is closely connected with progressive grape culture, once rather incredulous as to the propriety of growing any trees in grass, is now one of the strongest advocates of grass covered vineyards. His finest and highest priced fruit are raised in this way.

4th. We have always advocated, as the most *profitable*, to make all the hay one can from the orchard, and top dress annually to make good the loss. Surely there are some fertilizers to be had at a good deal less value than a ton of good hay. If not, why spend labor on mowing it? Why not let it die and rot?

5th. Wheat or oats in themselves do not hurt any more than a crop of hay. If we take off a crop of grain or hay, we have to put some fertilizer back to replace the loss, or the trees starve. Our objection to wheat or any other such crops is, that the roots of the trees are materially injured in the preparation of the soil, and that in the middle and southern states at least, the hot sun striking on the naked ground is an injury to the young fruit tree roots.

6th. For every kind, when under similar circumstances to those above sketched out.—ED. G. M.]

FRUITS FOR NORTHERN OHIO.—"I am really surprised to see on page 111 of *Gardener's Monthly*, above your editorial signature, such serious blunders as occur in the list of apples for *winter market* for Northwest Ohio or for any other portion of the United States. Benoni is a *summer* apple--July to August. Fameuse is a *fall* variety, ripening in Northern Ohio in October. Bullock's Pippin is not a *profitable market* apple, as it is *not* profitable because of the imperfect fruit. To see you state these as among the 'popular standbys' for winter market orchard, is truly beyond my understanding. It seems but a joke. The answer you give is almost as ridiculous as the questions. How he is to need 1,200 bushels of summer apples for 'his own use,' unless he dries them, is queer."—H. E. VAN DEMAN.

[Our correspondents often write ambiguously and we answer as to what they mean, rather than what they ask. Our list was arranged to cover a succession through the season, and was made up *from the reports of Ohio fruit growers*, and one would suppose they ought to know. It is hard to find any two men agree on a "fruit list," still for any errors there may be in our paragraph, we thank Mr. V. for the correction, and should be glad to have a full list from him. As to the "ridiculous" question of our correspondent, we find that inexperienced writers do not always say just as they mean, and we like to treat them charitably.—ED. G. M.]

EDITORIAL NOTES.

WHEELER'S AUTOMATIC COMPOUND LIQUID DISTRIBUTOR.—We do not know of anything that has come before us, with such strong testimonials to its usefulness as this. It seems that most of the leading Horticulturists of Boston approve it, and some of them have written to us as to the value they have derived from its use. We believe from what we have heard that it is an invention of more than usual interest to all engaged in the great war on the bugs.

NEW FRUITS & VEGETABLES.

THE THURBER PEACH.—We find we have omitted to place this Peach on our record, and give the following from the *Carolinian:*

The agricultural editor of the New York *Tribune* gives us the following account of a new peach introduced recently by our friend P. J. Berckmans, of Georgia: "The Thurber Peach (named after Dr. Geo. Thurber, of New York,) which was introduced to public notice some months ago by P. J. Berckmans, of Augusta, Georgia, has since held its ground, and now, at the end of another season, Mr. Berckmans again calls attention to its conspicuous merits, 'without hesitation,' he says, 'as regards its ultimate popularity.' As we mentioned at the time of its first appearance, it is a freestone seedling of the Chinese Cling—that prince of clingstones, particularly for the Southern garden—and instead of having the straggling habit of growth of its parent, the original tree is of a most perfect pyramidal shape. The fruit is large to very large, often measuring ten inches in circumference, round or slightly oblong; skin creamy white, beautifully mottled or marbled with carmine or faint pink cheek; flesh white, extremely juicy, dissolving, sweet, and highly perfumed, quality exquisite. Although coming in at the season when peaches are very plentiful, Mr. Berckmans maintains that its transcendent quality and appearance will always give it the front rank among the best freestone varieties of its period of maturity. All we can say—pending a longer and more thorough trial in different parts of the country—is that the foregoing is very strong praise from a horticulturist of large information, whose judgment has been proved, who is not 'up to small deceit or any sinful games,' who would not, in fact, for any consideration, lend his weighty influence to an unworthy object. The Thurber certainly enters upon its career under the most favoring auspices, and if it has a decent respect for itself and for its sponsors, it will not relapse into any plebeian habits or questionable behavior, but hasten to become what its bondsman guarantees it will become at no distant day—'one of our best known sorts, whether for market or amateur culture.'"

A NEW GOOSEBERRY—THE EARLY KENT.—Is said to be enormously productive, never mildews, and is of a good marketable size fully ten days before the Houghton.

MOORE'S NEW SEEDLING STRAWBERRIES—CAROLINE AND GRACE—The following description of these fruits, made by Robert Manning, Esq., Editor of the Massachusetts Horticultural Society's publications, is published in their transactions for the year 1874, and is referred to in the report of the Committee on Fruits published as supplementary to it.

"*Caroline.*—From John B. Moore. Large, roundish, irregular; the largest specimens cockscombed but not wrinkled; seeds slightly sunken; color, crimson, polished; flesh scarlet next the outside, paler at the center, a little open at the heart; flavor rich and sprightly. Foliage large and robust, foot-stalks long and stout."

"*Grace.*—A new seedling from Mr. Moore. Large but not quite as large as Caroline; very irregular in form, furrowed, often with a projecting point on one side; seeds considerably sunken; color, rich polished crimson, paler towards the summit; flesh white, except next the outside, solid, rich, juicy, and fine flavored. Foliage dark green."

APPLE LADY HENNIKER.—The London *Florist and Pomologist* has a beautiful colored

engraving of this new English variety. It says good apples are so numercus, we hardly need more,—but this is a real advance,—chiefly as a cooking apple. As figured the fruit is five inches deep, by four inches wide, which entitles it to be called "of the largest size."

THE SNYDER BLACKBERRY.—This has now been before the public several years, and this season ought to fix its merits definitely. So far as we hear, we are inclined to think favorably of it.

THE WALDOWER APPLE appears to have obtained considerable popularity in some parts of Ohio.

NEW BUSH BEANS.—The pea is not having all the improvements going. New Bush Beans are lively. Osborne's Forcing Bean is said to be of astonishing earliness.

A NEW FRUIT TREE.—*Idesia Polycarpa.*—This fine hardy plant comes from Japan, and appears to have been distributed from the Botanic Garden of St. Petersburg. It was exhibited in 1867 at the Paris Exhibition, by M. Linden, as a fruit tree from Japan and was afterwards put into commerce under the names of Polycarpa Maximowiczii and Flacourtia japonica. The generic name Idesia was given to it by Maximowicz, and is now adopted by all botanists. A figure of it published in the *Revue Horticole* (1872, 174) represents a specimen bearing only ripe fruits, sent by Maximowicz to the Paris Museum, and which was described as coming from a cultivated tree, 40 feet high. growing on the Island of Niphon, in the neigbhorhood of Mount Fusi, while other specimens, probably wild, bearing only male flowers, were from the forests of Kinosau, in the Island of Kiusiu. Whether or not it is likely to become a useful fruit-bearing tree may be questioned, but there can be no doubt it is a fine ornamental plant, and thoroughly hardy. Its trunk is said to be straight and robust, its branches spreading, and its leaves caducous.—*London Garden.*

THE HICKS EVERBEARING MULBERRY.—In 1852 or 1853, this great acquisition to Pomology was brought to my knowledge by Mr. Simri Rose of Macon, Ga., so long and so favorably known for his love and successful cultivation of fruits and flowers. If I recollect aright he obtained it from Mr. Thomas Elkins, of Effingham County, who planted it in avenues, on his lanes, in his fence corners, and many other favorite-places on his plantation, for his hogs, and it is said that he always had *pork or bacon to sell.*

This mulberry will not grow from cuttings, but can be successfully grafted upon the Multicaulis, by using slips five or six inches long—the slips having been previously deprived of all their buds, to prevent suckering. I have propagated a great many of them in this way, and have grown many trees to bearing size and age, and have never yet seen one sucker from the root. They commence to bear the second or third year, from grafts, and begin to ripen in this latitude in April, and continue full of green and ripe fruit until the first or tenth of August, and sometimes, in wet seasons, will bear until late in September. I heard Governor Watts, of Alabama, say, that upon trees I sold him, he had ripe fruit on Christmas day.

The amount of fruit which one large tree, eight or ten years old will produce is immense—say half bushel, or one peck per day, for five months—the calculation is easily made. I am certain that there would be enough to keep one *porker* in good condition for four or five months. I had two trees in my back yard, in Atlanta, which furnished food enough for a good stock of poultry. Where this tree is grown, grapes and other small fruits escape the birds, as they prefer mulberries to any other food. I know of nothing cheaper or better to feed poultry, hogs, and birds. The trees grow rapidly, and are beautiful for shade or lawn. The leaves, when touched by frost, fall rapidly, and are eaten with great relish by hogs, cattle, and horses. They bear every year, as spring frosts do not affect them.—WM. H. THURMOND, in *Rural Carolinian for March.*

RED THORNLESS RASPBERRY.—*M. J. Stearns* says: "This berry has been tested beside all the popular varieties of the day, and found to have a decided advantage over all others; it is perfectly thornless; it is perfectly hardy; subject to no disease or blight of any kind. It stands the cold of winter and the heat of summer better than any other. Bears indifferent culture better than any that I am acquainted with. A prolific bearer; berry very large, sweet and delicious; in quality excelled by none, and a very vigorous grower.

Natural History and Science.

COMMUNICATIONS.

NOTES ON THE IMPROVEMENT OF THE POTATO.

BY D. S. MARVIN, WATERTOWN, N. Y.

I see you are testing Solanum Fendleri, and that you begin to see signs of improvement. I have been for some years experimenting with seedlings of S. tuberosum, inquiring into the causes of their degenerating, etc., and remembering that I had somewhere seen an account of Fendleri, I hunted up what the Agricultural Bureau Report of 1870 says about it, and sent to Washington and got a few of the tubers to plant this spring. It seemed to me when they came they had deteriorated, and were about as big as good sized bush beans; so I wrote to the Navajo Indian Agent for some of the wild ones. If they come I think they will be better than these. If you would like some it will give me pleasure to divide with you. If you think it would be any advantage to me to try those you have been cultivating it would be a gratification to me if you will be good enough to send me a few. Some years ago I crossed the plains and saw the plant growing in mid-summer, and had been told about it by a traveler in Arizona, but had not seen the tubers, and must confess I am disappointed. It looks like discouraging work to bring them up to a Tuberosum standard, but still there is hope perhaps for us if we live long enough. The fact that they come from low wet lands and a frosty climate is promising in contrast with the dry tropical climate where Tuberosum originated. If you send me, and I can improve, I shall be glad to divide the improvement again. It may be possible that this climate would be favorable to them, and they would improve faster here than at Philadelphia. Do you think there would be any hope for Tuberosum if some one would take the wild plants and bring them up by cultivation in the climate where they originated? I think that the Agricultural Bureau should take steps to have this test applied.

[We have no idea that Solanum Fendleri, and S. tuberosum had a common origin, unless in the dim past of thousands of years ago, nor do we think any one in his one life time, would make much "improvement in the potato," by starting with S. Fendleri. But one always learns something by experimenting and observing—go on and try.

In regard to Mr. Meehan's remarks before the Academy of Natural Sciences, they were more of a scientific than of practical interest. As developed in Mr. Meehan's Hartford paper, his views are that changes in form, which may in time come to be changes in species and even genera, are not always by slow insensible modifications but are the results—the totals of numerous waves and leaps. His case of the Solanum Fendleri was in addition to the proofs of that paper. A round, rugose tuber maintaining this form year after year, suddenly produces some tubers oval, flattened, and with smooth transparent skin. This was all.

As for the improvement of the common potato, by introducing "wild stock," there is nothing in it. We do not often give expressions to mere "opinions," but should not be surprised if the miserable potato fungus, which has played such havoc with our potatoes the past thirty years is due to the good intentions of some "improver," who brought tubers and spores of the fungus together, just as we are now introducing among our Pine trees new fungoid diseases from Californian species. We should recommend the Agricultural Department to let the wild "tuberosum" alone. We are doing tolerably well with the potatoes we have. Bliss, Campbell, Thorburn, and the Vermont boys, are taking good care of the improvements.—ED. G. M.]

THUJA PLICATA.

BY L.

I beg leave to differ from the statement in the March number of the *Monthly*, in regard to Thuja plicata. Thuja plicata or Nootka Sound Arborvitæ, sometimes called Nee's plicate Arborvitæ, as I understand it, is from the Pacific slope, but a variety of the common American Arborvitæ (T. occidentalis) and very hardy. It is distinct from Thuja gigantea, also from the Pacific Coast—a different species and not entirely hardy here. This last has been pretty generally confounded with Libocedrus decurrens, which

it much resembles. There is a weeping variety of the Nootka Sound Arborvitæ (T. plicata), quite distinct from its parent in form.

Since writing the above I have looked the matter up a little, and find that Thuja plicata is to be found on the Pacific Coast, from the northwestern Territories to Mexico. It was discovered by Menzies at Nootka Sound, and by Nee in Mexico. As to its being a variety of T. occidentalis or a distinct species, I knew it was a disputed point, but as I have Loudon, Hoopes, Bryant and others on my side, I felt warranted in making the assertion that it is a variety only. As far as I am able to observe, I cannot see that it is much more distinct than the Siberian Arborvitæ. I hope you will not be offended with the liberty I take in addressing you.

[Why should we be offended? We all want all the information we can get, and are thankful for it from every source. In this case, however, it is now well known that the Arborvitæ found by Menzies and others on the Pacific Coast, and which they called Thuja plicata, was nothing but Thuja gigantea, and so far no other Thuja has been found on the Pacific Coast but Thuja gigantea.

Thuja plicata is simply a garden variety of the common American Arborvitæ, just as the Siberian is, with which it ranks in this respect. Much of the trouble which most people have in distinguishing garden varieties from true species, comes we believe from what—with all due respect to our English friends—we regard as the reprehensible practice of giving latin names to mere varieties. So far as we can understand no good purpose whatever flows from the practice.—Ed. G. M.]

NOTES FROM COLORADO.

BY J. H. F., GREELEY, COLORADO.

Among our hedge plants the Osage *dries* dead here during winter. Honey locust somewhat better but not to be relied on, there appearing to be a great variation in hardiness amoug Honey Locust plants, some standing well, others not six inches distant being killed. Just been reading January *Gardener's Monthly*. You have the right idea about the forest rain fall question, and on "Half Hardy Trees and Wind Shelter," also as to watering trees during summer (page 13). But among the foot hills they have a moist atmosphere, and there things don't *dry* dead like they do with us out on plains, during *winter* and *early spring*. 40° below zero has made some things suffer, but not so much as you would expect. If they had been screened from sun I think but little injury would have been sustained.

[There are many things to be considered in getting to the root of the matter, in the winter destruction of plants. Though the main cause is the drying out of the sap,—there are numerous intermediate causes. Two plants may grow together side by side, of the same kind, and one die, and the other live,—but one may have deeper roots, a richer soil, or a stronger vital power which for the time being enables it to resist unfavorable influences. Again where all the circumstances are favorable as regards a moist atmosphere there may be a bright light from the presence of snow with the low temperature, and there is nothing like light to cause immense evaporation from living vegetable organisms.—Ed. G. M.]

THUJA FILIFORMIS PENDULA.

BY W. BLAKE, CHESTER, S. C.

I have been experimenting with seeds of this and will give you the result. Some years ago I planted some seed and they produced the Chinese Arborvitæ. From these I again planted seed, and the plants I obtained were one quarter Filiformis pendula, the remainder Chinese. From this I have come to the conclusion that Thuja Filiformis Pendula is only a sport from Thuja orientalis. I am also trying what Thuja aurea will do; I have run it through three generations and will plant the fourth this spring.

A NEW DISEASE.

BY P.

Perhaps most of your readers remember having seen in the papers a statement of the curious fact, that the murderer of a man had been discovered by a microscopic examination of the victim's pupil, upon which the very likeness of the man who had committed the crime was actually photographed.

A discovery of a similar, but not less startling nature, has but recently been made in consequence of the lately so frequent occurrence of florists and gardeners dying under very peculiar and in most cases almost identical symptoms. The curious nature of the disease attracted the notice of the Doctors of England generally and of those of London and New York, &c., especially, so as to excite their interest to a high degree,

and it was Dr. Looksharp, one of the most successful Microscopists of the age, who examining the head of a florist in the employ of the well known firm of Pater & Son, found the Cerebrum all gone and the Cerebellum covered with numberless reddish spots, which upon closer examination proved to be representations of as many different varieties of scarlet Pelargoniums. The fact being established beyond a doubt, the Doctors however have not yet agreed—as they never do on any subject—on the name to be given this new disease. Some are for calling it Pelargoniomania other Geraniomania. As this grave question is of such momentous importance to the whole Horticultural world, it is to be hoped that it will be soon decided one way or another, for the incalculable benefit of all concerned in the matter.

EDITORIAL NOTES.

Freezing of Sap.—The *Country Gentleman* excepts to our notice of Pres. Clark's letter, which considered a mere "of course," as a sufficient set off against the numerous facts which the editor and correspondents of the *Monthly* have placed on record during so many years. The *Country Gentleman* thinks we must be wrong, as one of its editors saw ice crystals in a twig of a peach tree the past winter. The remark shows that the writer of that paragraph has not followed the subject very closely as it has been developed in our pages. The presence of ice crystals in wood has been repeatedly referred to in our columns. It is almost impossible to cut down a tree in severe weather without finding ice in some parts. One of our correspondents some years ago noted the curious fact that in cutting down large hickories in Wisconsin in the depths of winter, while there was a great deal of ice among the wood, there was also a *considerable flow of liquid*. Very often there is enough liquid frozen to *burst the stems*, and those familiar with winter forest life in severe climates know that the explosive sounds from splitting trees and branches are not uncommon. Indeed, it must follow the known laws of the expansion of liquids, that if any considerable quantity of the liquid contents of trees freeze, bursting must result. But the water which freezes in peach twigs, or in any part of the tree is contained in *no vital part*, but in intercellular spaces, dead cells, and other portions of the structure of little or no vitality. All this has been repeatedly gone over in our columns, and it seems like a waste of time to repeat it, and we should not only that we respect the good opinion of the *Country Gentleman*.

We may say that all twigs as well as peach twigs have a few ice crystals in them in severe weather, and this it is which makes all twigs snap more readily in winter than in summer, but it does not follow from this that the *liquid contents* of the *living cells freeze*; in other words, as President Clark says, the whole liquid contents of a tree freezes *solid*. Our position is that death results from the freezing of the sap in the cells of plants. So long as the sap in the cells of the Peach bud can resist the frost, it is safe, but when once it freezes, Peach buds are killed!

Heat on the Roots of Plants.—In our earlier essays on the beneficial effects of shading the ground by grass in fruit orchards, we pointed out that there was a difference of 10 degrees between covered and naked soil, and that the temperature of 90° or 100° often found under our hot suns was fatal to success in fruit culture, and we have given the fact as one of the strongest arguments in favor of what is known as the "grass theory." The following in connection with this is from the *Gardener's Chronicle*. By "corn" the writer means wheat:

"In a paper by M. Blondeau on the Effects of Heat on Plants, he infers that heat acts on vegetable fibre much as it does on a muscular fibre, namely, that it puts it into a sort of paralysis, in consequence of which the plant finds it impossible to fulfil its functions. As no organic lesion appeared in the parts he exposed to a temperature quite incapable of disorganizing them, or even of modifying their nature, he concludes it is only paralysis that can explain their inaction. The absence of heat appears to have the same influence on vegetation as the excess of heat. M. Blondeau's experiments lead to the inference that a temperature of 30° [86° F.] is sufficient to paralyze the roots of corn, and in general of all the Gramineæ. Hence it appears that vegetable fibre is sensible to the action of heat like animal fibre; and that in order to its physiological action it is necessary that the energy of this agent should be confined within limits which vary with the nature of the plants, and that beyond these limits, on either side, the irritability of vegetable tissues cannot persist. Hence the importance in practical horticulture of having bottom heat well under control, and of learning the capabilities of endurance, in plants subjected to forcing operations."

TORREYA.—The *American Agriculturist* for May has an exhaustive article on the Torreya. The first was found in Florida, and named after Dr. Torrey by Arnott, forty years ago. Mr. Shelton sent specimens of another species to Dr. Torrey, who named it Torreya Californica. Subsequently Sir W. Hooker named the same thing from Lobb's collections T. *myristica*, which name in spite of the botanical laws of priority, the English maintain to the injury of true science. This is the California nutmeg, but as a nutmeg, Dr. Thurber thinks is not equalled by the wooden nutmegs of Connecticut, if only these are made of Sassafras. There are two other species T. nucifera, from China, and T. grandis, from Japan.

THE PEA WEEVIL.—It has been the impression that the Pea Weevil is only destructive to Peas grown in America. A correspondent from the Hudson River sends us some taken from a package of Carter's 1st crop, showing that English peas are not exempt from the enemy.

PERIODICAL FLOW OF SAP IN TREES.—Baranetzky, of the Observatory at Kieff, has investigated the periodicity of the bleeding of certain plants and its cause. Hofmeister was the first who recognized that this phenomena was one very widely observed among forest trees, and the daily and annual periods of this flow of sap have been examined into by several persons. Among the newer results arrived at by Baranetzky, it may be mentioned that he has been able to show that the daily variations of temperature had but little to do with the flow of sap, the latter being as decided in trees protected from temperature variations, by being enclosed in the hot-houses of the botanical gardens, as in the trees of the open air. The variations are perfectly regular, attending their maxima and minima on the same day and at the same hours, and seem to him to indicate that the influence of temperature on the periodicity of the bleeding is, at least by certain plants, not direct and immediate, but of such a nature that it at first becomes manifest some time after the action of that which causes it. By introducing an artificial temperature variation, this idea was brought to a severe test, and it was shown that the temperature had really but little to do with the flow of sap, although it would be hasty to conclude that it had no influence whatever. It is only in the case of great temperature variations (for instance, a change of 20° Fahr.), that the normal rate of flow of sap is sensibly disturbed.

DISEASES OF THE PEACH TREE.—I desire, with your permission, to call the attention of fruit growers and nurserymen to some observations respecting mildew, and other diseases to which the peach tree is liable. There is good reason to believe that mildew upon peach trees has been more prevalent during the past season on this coast, than ever before; and hence all facts concerning it are worthy of record for the benefit of peach growers. The main object of this communication is to call attention to one peculiarity of this disease, as it has fallen under my notice, viz: That it has been confined, almost exclusively, to trees without glands. The question is naturally raised—are the serrate, glandless varieties of the peach less healthful than those having glands?

The able editor of the *Gardener's Monthly* takes the ground that *the absence of glands is a type of weakness*. Mr. Meehan claims to have shown this fact by a series of observations extending through several years. So far as mildew is to be taken as a type of weakness, my own observations correspond with the above theory. I have had an opportunity of examining a large number of young trees grown from the pit, and found, as previously stated, that nearly all those destitute of glands were covered with mildew, whilst those having glands almost uniformly escaped the disease. Of a large number of budded trees the same general distinction prevailed, though not without some exceptions. Now I do not assume that the principle is settled that glandless peach trees are more weakly than others in any respect. I hold that a long series of observations, conducted by many observers in different localities, and under all the different circumstances of climate and soil, is necessary to fully establish a principle in vegetable physiology, like that suggested above. As the *Rural Press* well says in a recent editorial on "Vegetable Degeneration," "one solitary fact is a poor, weakly thing."—JAMES SHINN, in Pacific *Rural Press*.

QUERIES.

CATALPA SPECIOSA.—*E. Y. Teas* says: "I am charged in a late number of the *Gardener's Monthly*, with the great crime of presuming to name this superb variety of Catalpa. I never contemplated any such impropriety. Dr. J. A. Warder, of Cincinnati, proposed this name some fifteen years ago, and western cultivators, knowing the Doctor to be a Horticulturist and Botanist of considerable prominence, and realizing themselves the eminent fitness of the term, readily adopted the suggestion, and catalogued the new comer accordingly. As speciosa, as applied in Botany, signifies *fine, beautiful, making a good appearance*, we knew of no better or more fitting word to distinguish our improved variety of Catalpa from C. Bignonoides. The habit of growth of the two trees are as different as can well be imagined, at all ages from one year to twenty; Speciosa being very upright, regular in form, and much more vigorous, while the foliage, flowers, and seed pods are each twice as large as in Bignonoides. I have recently compared hundreds of trees in various localities, on different soils, and of differant ages, and find the distinction uniformly so well marked that any observer can distinguish them. I will distribute seeds of C. Speciosa to any one willing to pay the postage on a few." [Mr. Teas seems to have a peculiar weakness in imagining himself "charged" with something, which no one but himself ever thought of. We should not suppose it a "crime," much less "a" great crime for Mr. Teas or anybody else to name a Catalpa or any other thing. As we suppose our paragraph was clear enough to every one except Mr. Teas, we need make no further explanation. We prefer "The Teas Catalpa" as a name for a marked variety like this. We are opposed to latin names for garden forms. We prefer the simple "Rose E. Y. Teas," to the *Rosa Theana*, or any thing like it. But if we must have a Catalpa "speciosa," please let it be Catalpa bignonoides, *var.* speciosa, and the only ones to object will be the general tree planter at the awfully long and as we think unnecessary name.—ED. G. M.]

Literature, Travels & Personal Notes.

COMMUNICATIONS.

THE CONIFERÆ OF THE ROCKY MOUNTAINS.

BY DR. GEO. ENGELMANN.

Lecture before the Washington University.

(*Continued from page* 153)

Leaving these more strictly scientific investigations, and turning to the utilitarian aspect of this family of plants, we find its members to be of the utmost interest, of the utmost importance to the human race—

FROM THE CEDARS OF LEBANON,

which built Solomon's Temple, to the spruces of Northern Europe, which furnished the masts and spars for all the navies of the period; to our own white pines, which, together with some other pines of the South and East, and the pines and red woods of the West, supply the indispensable material for building, on land as well as at sea.

I have mentioned the red woods, one the Sequoias—more important to man than the other—the mammoth tree, and scarcely less colossal. They, too, are conifers, and so are the junipers, the cypresses, and even our taxodium—the bald cypress of the South—not all conifers, you see, are evergreens. The larches, you know, and some others, also, lose their foliage in winter.

The pines then, with their woods, principally, and also their other products, which I have not mentioned, e. g., turpentine and pitch, are the most important trees to man—at least in the northern hemisphere; and wherever soil or climate do not produce them, commerce carries them.

I have alluded before to the distribution of conifers, and that they are often more or less mixed with deciduous trees, but on the higher mountains, and in high northern latitudes, do they exclusively constitute the forest. We touch here at that peculiar feature of the distribution of plants over our globe so odd at first sight, and so easily explained, when we look closer at it. I mean the similarity of a high northern and a high mountain vegetation. This similarity goes so far that the circum-polar vegetation is, to a great extent, the same in America, Asia and Europe; it sends its colonies southward on the high mountains or isolated peaks, which rise much like islands in an ocean, and retain their identity or similarity of vegetation, after the great geological changes of past epochs have

long since severed their immediate connection with the centers of distribution.

Thus we find on the Rocky Mountains, and especially on their Alpine summits, many plants which are familiar inhabitants of the European Alps, or the Scotch mountains, or the Siberian Altai, or even of our eastern Mount Washington and similar peaks.

But in the pine family we meet in the Rocky Mountains, never the same, but often similar species—representative species as they have been termed. Not a single pine in that region is identical with Eastern pines, or with those of the Old World. On the other hand, the similarity of the coniferous vegetation of these mountains and that of

THE CALIFORNIA SIERRAS

is very great. Almost all the coniferæ of Colorado extend to or reappear in California; but this atter country produces quite a numer of species unknown in Colorado. It is richer in varied forms, as we may expect from the varied conditions of soil and climate.

And yet even the limited extent of the Colorado mountains nourishes a large number of species. We find there ten different pines and three junipers. Ten of these thirteen conifers may be seen in a certain district of Colorado—the heart of the mountains it may be called—within a couple of miles.

But do not think that these pines are indiscriminately mixed, like the trees in a park or an arboretum. Oh, no; all occupy their distinct and peculiar stations, though some are more generally distributed, while other are confined to certain latitudes and altitudes.

Enough of abstract generalizations, which may become tedious.

Follow me rather into the mountains, where some of you may have rusticated, and may have seen for yourself, if you have an eye for such observations.

Not far from Denver, between two table-mountains, at Golden, opens the picturesque Clear Creek Valley, which cuts through the mountains from west to east, and carries the waters from the highest range—they call it the Snowy Range—roaring or tumbling down to the Platte River, and thus finally to the Missouri, and then past our city, as a minute tribute to the Mississippi River.

In that wild gorge between overhanging cliffs, sometimes rising to the height of 500 feet, we would not expect forests; scarcely trees find a foothold, yet here and there where the slopes are not too steep, or the rocks leave a little margin on the edges of the creek, are seen two of the most wide-spread conifers of these mountains, and, in fact, of the whole elevated region from the forty-ninth parallel down into Mexico.

The first and foremost of these is the heavy pine *Pinus ponderosa*; the other is the Douglas spruce, called by the mountaineers, usually—for there is great latitude and individual liberty in the use of such names in a new country—called, as I say, yellow pine and hemlock, in remembrance of the trees with which the colonists had been familiar in their far off Eastern home.

I have got to speak of names, words, and am thus trenching upon ground which my predecessor in this hall, in last week's lecture, has so charmingly illustrated. But I fear that I cannot entirely agree with him. The names familiar to us as those of the homes of our youth, certainly revive the pleasantest associations, and if we give them to our new abode, if we found a New York or a Nouvelle Orleans, no fault can be found. But if the first settlers, with more imagination than knowledge, thought they recognized in our junipers a cedar, or in that other conifer a hemlock, and adopted these names for entirely different objects, they adopted errors and propagated them, and by the lapse of time the abuse has become a use, sanctioned by general consent.

AMERICAN JUNIPERS WILL FOREVER REMAIN CEDARS,

though no real cedar may be found nearer than the Lebanon, the Taurus, or the Atlas. But we may attempt, with some hope of success, to prevent the introduction of false names in our day. We find no Eastern white pine or yellow pine or hemlock or balsam in these mountains; and people would understand one another better if they could agree upon appropriate names for objects which are of daily use and interest.

But let us return to our pines. Both species were discovered and brought to the knowledge of horticulturists and botanists by that intrepid Scotch traveler, David Douglas, who, not quite fifty years ago, explored the vegetable treasures of those then far off wilds which he several times fearlessly and successfully penetrated as far as the coasts of Oregon and California, to find a horrid termination of his adventurous life in the pitfalls of the Sandwich Islands.

Fine trees, raised from the seeds which he sent home, now adorn the parks of old England, at Elvaston, Dropmore, Chadsworth and the botanic gardens of Kew and Edinborough, and Douglas' spruce perpetuates his name with the botanist as well as with the literary public. But in the mountains and woods personal names do not seem to succeed; they may seem to indicate a personal claim which, I believe, is never sanctioned by general use, and so we may as well drop it and adopt or propose that of mountain hemlock.

The mountain hemlock is really closely related to that charming Eastern hemlock spruce, now familiar in our gardens, but it is a coarser, less graceful tree, which bears those pretty, bracted or, as it were, fringed cones, so eminently characteristic of the plant. Its wood is coarse, and not much esteemed, but nevertheless used a great deal, where better cannot be had. This tree is scattered over the mountains far and wide, and reaches pretty high elevations, but does not form entire forests, as some of the other species do.

The heavy pine is one of the largest and finest trees of Colorado, and, as I have already stated throughout the West, often three feet through and eighty feet high in the mountains, it grows to much larger dimensions in more fertile and milder parts of the country, alway distinguished by the thick, red brown bark, the long and stout leaves, and the good sized very prickly cones. On the foothills, especially on the divide, as it is called, between the Platte and Arkansas Rivers, it constitutes forests, and is said to be the principal tree in the now famous Black Hills. It rises up the mountains as high as 9,000 feet, where it mingles with the true mountain pines. The heavy and solid resinous wood of this pine is much used in those regions where it is abundant and accessible, and for railroad ties invaluable.

BUT WE ARE STILL IN THE CANYON,

as they call these gorges, with the significant Spanish term. There, on the water's edge, scarcely in any locality but where the torrent may bathe its rootlets, a third conifer, the valley spruce, or, as botanists call it, Menzies' spruce, sends up its tapering trunk. Old trees, with a gray bark that reminds one more of an oak than a pine, look desolate enough, more like a skeleton of a tree, with their thinly covered horizontal branches, showing only in the very top the long, pale, glistening cones.

The young trees one would scarcely believe of the same kind, so different looks their charming pale bluish foliage, agreeably contrasting with the sombre colors of rocks and of trees about them. In many yards about Denver these bluish spruce bushes may be seen in cultivation. Menzies, after whom this spruce has been named, was also a Scotch explorer, who discovered it about eighty years ago, on the shores of the Pacific, where it extends even up to Alaska.

But, extensive as is its geographical range, it is no forest tree, and at least in Colorado it is only scattered along the streams.

The wild Clear Creek canyon is passed. It now expands into a valley, of narrow dimensions yet, but mostly with less abrupt mountain slopes. The same trees continue yet, here and there gathered into groves or small woods. The warm springs of Idaho have the same vegetation, and we continue in the valley up to 8,000 or 8,500 feet above the sea before we meet with any other species of our coniferous friends. On the upper branches of Clear Creek, in the neighborhood of the town of Empire, with its abandoned gold tunnels, and of Georgetown, with its rich and prosperous silver mines penetrating deep into the dark and forbidding rocky faces of its ever-opposed Republican and Democratic mountains—there, where the mountain sides tower higher, where their summits attain Alpine elevations, other conifers replace those seen below. But this dreary yet romantic, bustling yet desolate, valley of Georgetown is not the place for us to study and to admire the forests; they have disappeared, whatever there was of them, into the hungry maws of those roasting and smelting works.

Follow me rather to that sad and quiet village with the proud name, which expresses the excited hopes of a few years ago, perhaps to be realized a few years hence. South of us, as we stand in the sloping streets of Empire City, expands

A LOVELY VALLEY OF NATURAL MEADOWS,

and some attempts at agriculture, closed in by Lincoln Mountain (not the higher and better known Mount Lincoln on the headwaters of the Arkansas) on our right, and Douglas Mountain on our left, names which, like those of the Georgetown Mountains, ever will designate the period when these wildernesses were first colonized, and the land marks named, by a people who brought with them the political interests and the political strifes of their Eastern homes.

This valley is shut by a low rocky barrier, the abrupt and dangerous Georgetown Pass, which leads towards the valley of that name. Behind

this pass higher mountains rise, and further off the Alpine summit of the Sugar-loaf terminates the distant view. In front of us, in the wide opening of this lateral valley, a ridge of low grassy hillocks seems to separate it from the main Clear Creek valley. These are the moraines, the products and the witnesses of the old glaciers which, in earlier geological periods, filled these valleys with their ice masses. Such moraines are found at the mouths of all these lateral valleys of higher mountains, and they would have shut off the valleys and made them lakes or swamps, if the mountain torrents had not broken through them at one place or another, cutting a deep gap for the issue of their waters.

The moraines are generally covered with grass and low herbs, and between these we are surprised to meet with an abundance of globose or ball shaped cacti, from the size of a hickory nut to that of a large apple—plants which we would much rather have looked for in the more temperate Mexican countries than in these high mountains, probably the highest and most northern of any such cacti. It has another interest for us, as it is the same pretty species which was first discovered in Utah by Captain (now General) Simpson's exploring expedition, in 1858 and 1859, and which has been named and described by me, years ago, as Echinocactus Simpsoni.

Let us now follow the main valley westward, open at first, were some fields well irrigated produce a good crop of potatoes and turnips, and some oats, which never mature—such is the climate in these mountains. Near a saw mill, where the well named Mad Creek rushes down, leaping and tumbling from the snow fields on the flanks of Parry's Peak, several pines, we have not yet seen, make their appearance. The place of the valley spruce, which is no more seen here, is now occupied by the much handsomer mountain spruce, a kind of balsam fir, closely related to the Eastern fir, but larger in all its dimensions, often accompanies it; the straight pine, and here and there the squirrel pine, complete the list of conifers seen in the Upper Clear Creek Valley. Only one mountain pine, for which I would propose the name of the hickory pine, the toughest and hardest of all, don't seem to care to leave its high rocky slopes for the more sheltered and more fertile valley.

The others also have their homes higher up on the mountains, but they send down with the streams their outposts into the valley below.

(To be concluded in next number.)

INSECTS IN KANSAS.

BY H. E. VANDEMAN.

You perhaps remember that I said when Jack Frost had locked the last devouring jaw, I would write you somewhat of our experience with insects the past year. It is now almost time for the jaws of some of them to be opened again. I shall say nothing in detail of the chinch bug, which has been far more destructive to Kansas crops than the locust, for it does not attack horticultural crops but the cereals only.

I expect to make a sort of random sketch, for I am not an *entomologist* strictly so called but only an insect fighter. The first of these enemies to visit us was the *rose-chafer*. For four years this insect has been so numerous as to be very destructive. For three years it gained in numbers very rapidly, even so much so as to almost devour the entire crop of grapes and blackberries in the bloom if not persistently fought. In some cases *no* means were found to be effectual because of the numbers to be caught. But last year there was a slight decrease, and we hope they may pass to another region. I should say that this insect up to this time has confined its depredations to the half dozen counties in the South East corner of the State, but is moving northward and westward. But those who were plucky enough to *diligently* use a basin with a little water in it caught enough of the bugs to save their grapes and blackberries, but the roses they almost destroyed under the most diligent hands. In large vineyards they were not proportionately numerous. It is strange to say, only he who had a few grapes or blackberries was the one to suffer.

Next came the *Plum curculio*. We had an abundant crop of the native Chicasa plum, but woe to all the others and to nectarines and apricots also. Well now I must take that back for in one case I did see several trees loaded with the best of plums and another in which a few nectarines were left. But so long as we continue to improve the Chicasas we may look to be able to yet outgeneral *the little turk*. The great, the dreadful, the much-talked of *grasshopper or locust* was the third on the programme.

Now I want to say just here, that there has been much said that is calculated to mislead, and that is really false about the ravages of that insect in these parts last year. In the Nothern and Western portions of the State it did much more damage than in the Southeastern. The great reason of this is that it did not reach here until

August 20th to 25th, and the growth was so far advanced that they did not eat the bark from the young tree shoots except of those that were very late and tender.

I have previously told you of the astonishing development of the apples and pears upon the leafless trees. Can't some of you scientists tell us how this can be? Nearly all the *garden truck* was devoured by the locusts but otherwise very little damage has so far been seen except to young nursery stock, and to evergreens. These latter seemed a special prey except the red cedar and others of the juniper family. However the Austrian and the Scotch pines were almost exempt. Such faithful friends as these will be worth remembering. The red cedar has already been dubbed *The iron clad evergreen* by some of us.

The last of the destructive four is the *Flat Headed Apple Tree Borer*. To the orchardist it was last year by far the worst of all his insect foes. In truth it was not the last to attack us but was the last that was noticed, although it had been at work all summer. Many young orchards had half their trees very seriously damaged and some of them bored to death or completely griddled. It has never before been known to have been one tenth so bad here. But there are rare cases of almost entire exemption. My own is one of them; not a dozen trees out of fifteen hundred were hurt. I gave no other attention than good plowing. Those who were in the habit of yearly using soap as a wash for their trees were not troubled much, but we have a new remedy on trial and so far with good results. It is an application of common coal-tar to the bodies of the trees. It was first used to prevent rabbits from gnawing, and found entirely effectual for that purpose, and it was also noticed last year that no trees so prepared were attacked by borers. No bad results to the trees from the use of tar has been seen, as was thought would be the case.

We have two year's experience, but wish more time before making positive statement as to its merits. Let others try it. Has any one known of detriment to trees that were smeared with coal-tar?

And now that my complaint is done, I shall tell you that we have comparatively little of the other horticultural insect depredators. Scarcely any of the fearful *Codling Moth* in Kansas, *none* in the Southern part. The *Phylloxera* is not to my certain knowledge here yet; we have a gall louse that works upon the leaf of the Clinton and Taylor, but I can see no affection of the roots. I have told you a bad story—the very worst one that I know of for Kansas, but we have plenty else to encourage us. Bountiful fruit crops reward the industrious and vigilant fruit grower. It would not be well to have all our own way, but I think I have done *penance* enough to make you "twice glad."

GARDENING IN GERMANY.

BY O, STUTTGART.

In your editorial of February you pay a high and no doubt deserving compliment to Americans, in which you are pleased to say, that no people more truly love gardens than Americans. I sincerely trust it is so, nor have I a right to animadvert against your "dictum," yet you will allow me to say that love for floriculture exists almost everywhere amongst people of culture and refinement, and perhaps nowhere else in a higher degree than in "Old England," where horticulture has been a knowledge, a pleasant habit, for time immemorial, and where the people entertain a sincere love for Flora's children, which nowhere else can be excelled. Of course America, I mean the States, have for the last thirty years progressed rapidly, and not only has a love for flowers been created amongst that enlightened nation, but the many parks which they have called into existence in their large cities and towns, will forever remain a pride to their munificence and to their desire to plant in the hearts of the people, a love for real high pleasure and for the beautiful. Yet the parks of the nobility of England have nowhere else been excelled nor equaled. I only select a few of the many lovely places which you find in that charming country, There is, for instance, grand and beautiful Chatsworth, the Mecca for gardeners, to a certain extent the creation of that genius of horticultural science, Sir Joseph Paxton, that master mind, who also built the glass palace of Sydenham; then there is noble Harewood house and park, the grand residence of the Earl of that name; the Earl of Pembrokes Park in Wilton. I might point to many more country seats all over England and Scotland,—to the beautiful royal Kew gardens near London, to the Isle of Wight, to Osborne, etc. Of late Germany has made rapid progress; is trying to imitate her neighbor over the channel. The environs of Hamburg on the Elbe, down for miles to the lovely village of Blankenese, are more than charming, they are

superb; the road on both sides is dotted with the mansions, the parks or gardens of the wealthy "burgers" of that old hanseatic town; one place tries to surpass the other in elegance, if that is possible, but all are kept neat and tidy. The grand park of Mr. Bauer in Blankenese, is the largest and finest to be seen is this part of Germany, running clear down to the shores of the fine river, here several miles wide. Then there is the old "Reichstadt Frankfurt" surrounded with lovely villas, promenades and parks, with its celebrated palm garden, the like of which nowhere can be found, though it is said that the "Berlinese" are establishing one on a still grander scale. This Frankfurt palm garden must be seen in the spring when the *forest* of Camelias, Azaleas, Rhododendrons (formerly the property of the celebrated gardens of the Duke of Nassau at Bieberich on the Rhine), are in bloom, when the immense palm house proper, with its large exotic plants, is in most lovely verdure, when immense but beautifully arranged beds of Crocuses, Tulips and Hyacinths and other bulbous plants are flowering outside, perfuming with delicious scent the atmosphere. Then, I say, the palm garden appears to me to be unexcelled, and it must be seen in its gorgeous verdure, so as to understand how the noble art of horticulture is doing so much to refine our taste and to reform humanity.

Here in Stuttgart much has been done in floriculture during the reign of the late king, his principal creation being the famous "Rosenstein," and the splendid "Wilhelma," the latter built in the moorish style. Then the present Queen Olga, of Russia, created her lovely "Villa Berg;" Leins, the great architect, being the builder, and the lamented Coustin (the former editor of the Illustrated Garten Zeitung) with his classic taste, laid out the park and gardens. This Villa Berg is a most charming spot, towering high above the river Neckar, with a fine view south to the chain of the Swaboniar Alb, and north to the picturesque situated city of Stuttgart. The people of Stuttgart with their large well kept park, laid out in English style, extending about three miles to the beautiful little town of Cannstadt, their elegantly laid out Schlossplatz (royal place), their many pleasant walks up to the surrounding hills, certainly had all they needed, yet they are on the "qui vive," and not satisfied with their beautiful surroundings, have laid out in the heart of the city, a small but most lovely flower garden, which they call the "City Garden," and which must be admitted to be a perfect gem in scientific gardening. I never saw anything that would compare to this lovely spot, and that is saying a good deal, since I had the pleasure of seeing so many of the lovely gardens of the new and old world. Last summer I was a constant visitor to this lovely little park, there was so much to see, to study, to admire, that it took some little time before I understand all the details of the place. I think the plan of laying out this little park is excellent, though I think a little too much is done in planting, but the reason for this is that nearly all the many city gardeners, who take a most praiseworthy interest in the embellishment of the garden, are too liberal in providing the same with fine collections from their green and hot houses, and otherwise. The roses in this park are grafted on the rosa canina, and made a splendid show; they grow to perfection and it was a treat to see them in bloom in May and June; many isolated spots dotted in the grass, here and there, showed exceedingly well. This is perhaps somewhat in imitation of one of Paris finest parks, the park Monceau. The system of planting here is similar to that of the park just named, except that here plants are rather more crowded on account of the smaller size of the park,—yet the effect here as there is wonderful,—here you see half a dozen plants of Arundo donea var., there a stately plant of Gyneriun argenteum, of Moss, of Chamærops, of Aralia papyrifera, Phœnix dactylifera and others; large beds of Cactus and Agaves, immense plants of Hortensia, blue and purple Lobelia cardinalis three to four feet high, with splendid brilliant flowers, and very effective and showy, where twenty-five or thirty are planted in one bed; fine large plants of perennial Phlox in brilliant colors, looking so well, here and there rockwork, planted with ferns, sedums, etc.; then beds with varigated Geraniums, edged with brilliant Lobelias; then again large beds with that superb rose, Souvenir de Malmaison, or Hermosa, on their own roots, bended down close to the soil, producing a mass of those sweet scented roses.

THE PASSION FLOWER.

BY M. P. HOWLEY, NEWPORT, R. I.

When the Spaniards discovered South America they saw amongst other plants new to them, a climbing shrub having from two to three fruit bearing flowers unlike any they had ever seen. One day a priest was preaching to the Peruvians or aboriginal inhabitants amidst the wild scenery of their native forest, his eye suddenly glanced at this curious flower which hung in festoons from the trees over head, and like St. Patrick with the shamrock, he saw with the eye of a saint a vivid picture of the sad story of Calvary. The rings of thread which surround the cup of the flower and which are mottled with blue crimson and white, suggested the crown of thorns, stained with blood. To his mind, tutored by meditation, the five anthers on the stamens represented the five wounds, the styles the nails which fixed our Blessed Lord to the cross and the singular column which rises in the centre of the flower were made to bring before the minds of these wild savages the harrowing scene of the second sorrowful Mystery of the most Holy Rosary. So without Bibles or books did this holy man instruct his converts on the passion, and to this day our beautiful creeping garden flower is called the passion flower, which in all languages bears the same name.

EDITORIAL NOTES.

OUR PRESENT NUMBER.—In consequence of some six weeks struggle with sickness, we had to leave the getting up of the present number to our Associate Editor. During two weeks when confined to bed, and unable to move hand or foot, not the least of the writer's anxieties was how the magazine could possibly get along without him. But here we are again at our desk just as the magazine is going to press, with the sheets in our hand, and our young associate begging us to apologize for the short comings of this number. The writer dislikes to thrust his personal sufferings on his readers. Deaths and sorrows have frequently crossed his path since he has edited this magazine,—but these troubles were for himself and not for his friends, and he could not ask consideration for the weakness of some numbers, without exposing the cause. He departs from the rule now, against his own judgment, and especially as he sees nothing to ask consideration for. There may not be as much from his own pen as usual,—but we think the reader will find the number quite as well filled as it ever has been,—and indeed it is a source of great pleasure to the editor to feel as he looks over these sheets, that when again in the order of Providence he may be held back from his labors on the magazine, his presence will not be materially missed.

We see one addition that needs to be made to the paragraph in regard to Mr. Vandeman's note on page 174, on the apples for northern Ohio. Benoni is, as he says, a late summer apple. It was an accident that included it in the winter list. It should have been named as was intended in the other set. It is one of the apples intended to "cover the whole season."

MR. W. T. HARDING.—As we stated recently in consequence of the failure of the authorities to make an appropriation for the gardener's salary this year, Mr. Harding will have to seek a new engagement. Mr. Harding has held several positions as gardener in private places, and as superintendent in commercial establishments, until led off by the unreliable charms of more public positions, and we presume would be glad to return to his first love. We are often asked for gardeners of superior knowledge of their business,—but it sometimes happens when the man is ready, the places are not.

OTTO & ACHELIS.—This large and well known nursery firm at West Chester, Pa., has been dissolved by mutual consent, Mr. Achelis purchasing the whole of his partner's interest. Mr. Achelis is a gentleman highly esteemed by all who have relations with him in any capacity whatever; and all who know him will wish him every success in his new enterprise.

MR. F. R. ELLIOTT.—Whose contributions to our pages our readers appreciate, has taken up his abode in Rochester. He will pursue his profession as a landscape gardener,—and perhaps engage in some useful fruit books—a branch of knowledge on which no one is better able to impart instruction.

RECOGNITION OF MERIT—CHARLES DOWNING.—The *Gardener's Chronicle* of London, England, in its issue of January 30th 1875, gives a tolerably fair portrait of our countryman, CHARLES DOWNING, the well known veteran pomologist of America. After alluding incidentally to the rapid strides made in our country in the great and growing interest taken in fruit growing, it gives a biographical sketch of this good man who has devoted so much of his life to the nomenclature and determining the synonyms of all the fruits grown throughout the length and breath of our vast country. Every one who knows Mr. Downing personally counts him as one of the best of the *good and true* in all that is noble and worthy of being emulated by younger men now following in his footsteps. The *Gardener's Chronicle* is without doubt the *most able, scientific*

and the best conducted paper on horticulture and its kindred sciences that is anywhere published in the English language, and we refer to it with pride that one so deserving as Mr. Downing most assuredly is should be so well thought of even in Europe as well as he is in his own country. May he long be spared to assist us with his great experience and his kind advice which is ever freely given.—*Brigg's Illustrated Floral Work.*

A Beautiful Place for Sale.—We find the following in a Western paper, and we transfer it to our magazine in order to say that it was a source of great pleasure once to spend part of a day at this pretty spot, and to hope that it will fall into some one's hands capable of enjoying the many beauties the place possesses.

"I. D. G. Nelson, of Fort Wayne, Indiana, offers for sale his beautiful country residence near that city, with about 150 acres of land. This place is one of the most beautiful in Indiana Mr. Nelson has long been an enthusiastic and practical horticulturist, and everything about the premises shows his good taste and judgment. This is a rare opportunity for some live horticulturist, or any gentleman who is horticulturally inclined."

New York Botanic Garden.—The April number of the *American Garden* contains a highly interesting sketch of the first American botanic garden, established by Dr. Hosack, on the Hudson, and in whose honor the pretty little American genus of Papilionaceous plant, Hosackia, is named. There is with the article a sketch of the greenhouses.

Saul's Catalogue contains a very beautiful colored plate of the crisped geranium Queen Victoria of which we recently gave a plain cut in our pages.

Pennock Brothers, Cut Flower Trade of Philadelphia.—The *Philadelphia Commercial* has the following in regard to one of the leading cut flower firms of Philadelphia:

"The business was established at the above mentioned location in April, 1864, where they have continued with more than ordinary success ever since, though to make room for their largely increasing business they will remove in July of the present year to their large and commodious store, No. 1514 Chestnut Street, when they will make every effort to still increase their already large business, and at the same time give general satisfaction to their patrons. The hothouse, or greenhouse of this establishment, situated on the Darby Road, near the West Chester Railroad, is one of the largest, most convenient and well appointed greenhouses in the city or country. These gentlemen put up flowers in any style or shape that may be required, and guarantee to give general satisfaction, and to fill all orders intrusted to them at the shortest possible notice. On a recent visit to the Messrs. Pennocks, we noticed a large mound made of white flowers, tea rose buds, lilies and smilax, for the funeral obsequies of the late Dan Bryant, the comedian. In the centre of this mound is a cross two and a half feet high, made of the same flowers. On the beam of the cross is woven or worked, in purple flowers, the name of the deceased comedian. This cross was presented by the theatrical profession of this city, and is composed of over eight thousand flowers. At the last Assemby ball, the Messrs. Pennock Brothers made one hundred and fifty hand bouquets, which cost from eleven to fifteen dollars each, and contained over twenty-eight thousand flowers of different kinds. These they delivered in all parts of the city. During their busy season these gentlemen work from twenty to twenty-five hands. The members of the firm are A. L. Pennock, Thomas Cartledge, John Westcott and H. A. Pennock, all thoroughly practical gentlemen, fully up to the details of their business, giving their personal supervision to every article leaving their establishment."

The Colorado Horticulturist, by J. H. Foster, has made its appearance from Greeley. It is well edited and filled with matter just suited to the wants of the region where published. We hope it will receive a generous support.

Victoria House of the Duke of Devonshire.—*A correspondent of Journal of Horticulture* says: The other most remarkable feature of Chatsworth is to my mind, as I have already said, the Victoria regia house. There may be, for all I know, other houses for aquatics as large as this, but I am sure that none can ever equal it in interest. No one standing within it can ever equal it in interest. No one standing within it can forget that it is the little germ from whence arose the gigantic glass house of 1851 and the Crystal Palace at Sydenham; but whether or no there are others larger there are none more attractive. We have not only the queen of Water Lilies in excellent condition and in full flower; but round the house are different varieties of Nelumbium and Nymphæa, while Palms with their graceful and elegant foliage placed at the edge of the tank add their charm

to the scene. Suspended, too, from the roofs are large baskets of Achimenes, some radiant with their brilliant blue flowers, and others like a sheet of snow; and thus again artistic beauty and horticultural skill go hand-in-hand.

The Walnut (Juglans regia) is a native of the mountains of Asia, from the Caucasus almost to China. It is supposed to be the Enoz of the Bible. The Greeks had it from Asia; and Nicander Theophrastus, and others mention it under the names of Carya, Carya persica, and Carya basilike (or Royal nut). Pliny informs us that it was introduced into Italy from Persia, an introduction which must have been of early date, for, although it be doubtful whether it is alluded to by Cato, it is certainly mentioned by Varro, who was born in the year 116 B. C. The Romans called it Nux persica, Nux regia, Nux eubœa, Jovis glans, Diuglans, Juglans, etc. They recognized several varieties. and amongst them the soft shelled Walnut still cultivated, which several of the commentators have confounded with the Peach. In modern days, the cultivation has been extended, and the number of varieties considerably increased. Jean Bauhin noticed six only. Micheli, under Cosmo III. of Medici, describes thirty-seven, of which the original specimens are still preserved; some of these, however, are scarcely sufficiently distinct from each other.—*Journal of Horticultural Society.*

QUERIES.

Oh! What a Name.—A correspondent asks, can you tell me where I can get the *Abies alba glauca cœrula aurea striata-puncta?* No! if we did we should not dare to tell. Such an inquiry as this is calculated to strike a deadly blow at the very foundation of botanical nomenclature! An American would have called such a variety John Brown, Governor Wise, or some such heroic name, and would have been satisfied with this measure of glory. It must be an English variety.

Horticultural Societies.

COMMUNICATIONS.

OHIO HORTICULTURAL SOCIETY.

HOW THE CURCULIOS ARE CAUGHT.

Two Mistakes Corrected.

BY M. B. BATEHAM.

In the May number of the *Monthly*, p. 158, speaking of the plum orchard of the Messrs. Brown of Norwalk, Ohio, their mode of catching curculios is given as I understood it at the time of the meeting referred to, and when the report was written for these pages; but subsequently the Messrs. Brown wrote me more fully and corrected a couple of mistakes which I had made. They do not use what should be called a 'pounder' in jarring the trees, nor strike a blow at all, as this would be sure to injure the bark. Their jarring implement is in the form of a crutch, about eight feet long, with a head or cross piece firmly attached; and by placing this in the main crotch of the tree a sudden shake is given, which causes the insects to fall.

The other mistake is in stating that the jarring is done by another person than the one that runs the machine; whereas it is found more economical to let one man do the whole work, carrying the crutch on the catcher when going from tree to tree. Two men with two machines went over the orchard of 2,000 trees twice each day without difficulty.

Dr. Hull's Improved Catcher.—I have not as yet seen any mention in the *Monthly*, of the new style of curculio catcher invented by Dr. Hull of Alton, Ill., which is made to operate on the same principle as those that run on wheels, but is so light and portable as to be easily carried by a man, by means of straps over his shoulders, its weight being only 12 lbs. It is claimed that this can be worked more easily and rapidly than those on wheels, especially where the ground is at all rough or weedy as is commonly the case.

I learn that a good deal of plum planting has been done this spring in different parts of the State. There are now, it is believed, not less than thirty thousand plum trees planted in

orchard form in Ohio, of which over one-half are of the Damson variety, in Ross County.

EDITORIAL NOTES.

MARYLAND HORTICULTURAL SOCIETY.–Many attempts have been made to establish a Horticultural Society in Maryland, but always failed through divided counsels as to details of management. The Baltimore Horticulturists—amateur and professional—have shown more wisdom in the present movement, and however much they may differ as to what is *best* to be done, seem to have all agreed that they *will have a Society*, and we believe all unite in sustaining it to the best of their ability. This is the proper spirit, and we shall not be surprised to see the Maryland Society take its place with the two great Societies of Pennsylvania and Massachusetts. One excellent plan they have is to hold the business meeting some time during the exhibition. This ensures a good attendance of interested members. Another excellent point is that they have discussions, or rather explanations of any peculiar object exhibited at the meetings by some one who knows. This cannot but add materially to the interest of an exhibition, and would give something to do to the various "Professors" which some Horticultural Societies appoint, but of whose labors in their respective "chairs" the public is profoundly ignorant. We make room for the following extract from a newspaper report to show in some manner what the Maryl.nd Society is doing:

"The monthly exhibition and meeting of the Maryland Horticultural Society was held yesterday at the Academy of Music, on North Howard street, and was the most successful in the history of the organization. The officers and members have reason to congratulate themselves upon the extent and character of the display which was made, and the very large and appreciative attendance. The Committee of Arrangements had displayed the floral beauties and novelties in an artistic manner upon large tables in the two spacious and elegant cafes fronting on North Howard street, and it was evident that it was their purpose to attract and please the public. At 2 P. M. the free exhibition commenced and the cafes were soon filled with ladies, gentlemen and children intently observing and warmly admiring the many and varied products of the hot houses of Baltimore city and Baltimore county. It was conceded that the display, both of the professional and amateur florists, was very creditable, and such efforts cannot fail to give an impetus to horticulture throughout the State.

FRUITS AND FLOWERS.

As was becoming, the President of the Society, Ezra Whitman, Esq., made an exceptionally fine display, and conspicuous among his contributions was a large orange tree, with eighteen or twenty beautiful oranges hanging from the branches. He also exhibited a Cactus jenkinsonia, with 120 blossoms and buds upon it, which was greatly admired. In addition, Mr. Whitman displayed two handsome bouquets, pansies, fuchsias, abutilons, petunias, a very variegated abutilon, a Queen Victoria daisy (very large and rare), and a large amaryllis. Mr. Whitman's gardener is Mr. F. Fauth, Jr.

Mr. R. W. L. Rasin exhibited a very large and beautiful variety of flowers and ferns, and many were rare. Among them were calceolarias, lycopodiums (five varieties and very fine), Selaginellas, Phormium tenax variegata, variegated hibiscus, from a cutting four and one-half feet high; Sanchezia nobilis, two varieties of Fittonia, Caprosma, Bauerina variegata, golden and silver ferns (choice and strictly stove plants), centauria, begonias and a coleus chameleon.

John Feast, Sr., florist, displayed a japonica tree with a profusion of red flowers; also xerotus, primula amœna, anthurium, pandanas Veitchii, arisœmea (very rare), pandamus utilis, a beautiful heath, begonia macrophylla, auracaria, bidwellania, fine ericas and japonicas, with a number of other choice flowers, including double azaleas, ferns and dracenas.

Mr. R. J. Halliday, florist, exhibited a hanging basket filled with growing flowers and plants, calceolarias, the old familiar Scotch thistle, an Arabian Desert plant, and phormium tenax.

Mrs. Isabella Brown, through her gardener, Mr. John Donn, exhibited a choice collection, including calceolarias, azaleas, cinerarias, zonale geraniums, begonias, brought from her country place, "Mount Dorman."

Andrew Patterson, florist, exhibited a great variety of roses (many of rare beauty), and verbenas, fuchsias, and heliotrope

August Hoen, Esq., brought a fine collection of pansies and heliotrope.

Mr. Wm. H. Perot exhibited azaleas, genista venosa and Chlianthus Dampieri.

Mrs. Charles J. Baker exhibited strawberries gathered from her country place.

Mr. J. Howard McHenry exhibited a large collection of coleus and variegated geraniums.

Mr. James Pentland, florist, exhibited single and variegated geraniums and verbenas.

Mrs. W. W. Spence exhibited cinerarias, azaleas (double white and double pinks), calceolarias and fern (Lomaria gibba).

Mr. Thomas Fairley, florist on Druid Hill Avenue, exhibited a bouquet of "Baltimore buds," which were truly lovely, and showed that "Boston buds" need no longer be ordered by Baltimore florists.

PRESENTATION TO MAYOR VANSANT.

Between four and five o'clock, Mayor Vansant visited the exhibition and was cordially received. Mr. Raisin presented him with a splendid bouquet in pyramidal form. Mr. Vansant returned his thanks in appropriate remarks, and expressing his earnest good wishes for and approval of the society. In a short time after Mrs. Charles J. Baker presented the Mayor with a dish of strawberries from her hot-house at Athol, Baltimore county, and Mr. Vansant renewed his thanks for the consideration shown him, and at some length expatiated upon the objects and the mission of the society, and the elevating influence of flowers. The throng of visitors continued uninterruptedly until the closing hour, ten o'clock, and it is estimated that over two thousand persons visited the exhibition."

THE MEETING OF THE AMERICAN POMOLOGICAL SOCIETY.–Some objections are being made as to the time for the meeting of the American Pomological Society being too early. The time is only two days earlier than many of our former sessions—if later, then it conflicts with Pennsylvania, Massachusetts, and other State shows. Besides, the nurserymen cannot come except early in the month. We must have *men* first, and then fruits if we can. We think the time just right.

CHICAGO BOTANICAL GARDENS.—The South Park Commissioners of Chicago have recently determined upon the establishment of Botanical Gardens in the Parks, and have set apart for the purpose a tract of sixty acres, to which additions will be made from time to time, as occasion may require. Their general management has been placed in charge of the above Board, who have accepted the trust and prepared plans for the gardens upon a comprehensive scale. They will comprise a Botanic Garden proper, provided with suitable houses for the reception of plants requiring protection; an arboretum; a garden for general floriculture; a botanical museum; an herbarium, and a botanic library. The grounds will be prepared, and the erection of houses commenced as soon as the season will permit.

This circular is issued by the Board of Managers for the purpose of soliciting contributions to the several departments of the garden; especially of seeds, cuttings, living plants and herbarium specimens. The solicitation is made with the expectation of being able to make suitable returns for such contributions at an early day, and for this purpose collections of material will be actively prosecuted under the immediate supervision of the Director.

All parcels addressed to H. H. Babcock, Director, 11 Eighteenth St., Chicago, Ill., will be gratefully received and properly acknowledged.

MASSACHUSETTS HORTICULTURAL SOCIETY PRIZES.—This society offers the following prizes open to general competition: For the best essay upon the Culture and varieties of Roses, $25; for the best essay upon Grape Culture in gardens and on buildings, with a list of varieties best adapted to such purposes, $25; for the best essay upon the Culture of the Cauliflower and other vegetables of the Cabbage family (*Brasicca oleracea*), $25; for the best essay upon the principles of Landscape Gardening as applied to small suburban estates, $25. All essays must be in sealed envelopes directed to the Committee on Publication and Discussion, Horticultural Hall, Boston, and must be unsigned, but must be accompanied by the name of the writer in a sealed envelope.

WISCONSIN STATE HORTICULTURAL SOCIETY.—At a recent meeting a committee was appointed to examine the fruit interests of the State. The points suggested were: Amount of tree planting this season as compared with former years, and what success has attended the same; what degree of interest is taken in fruit raising; statistics as to the amount of fruit production; varieties most successful, both in tree and yield of fruit; the extent of small fruit culture, with statistics as to quantity and varieties; amount of blight the present season, and any facts which tend to prove or controvert the fungus theory of its origin; effect of the severe winter on trees and fruit; varieties most affected, and any facts in relation to soil, culture or exposure, which may tend to lessen or increase the amount of injury; efforts made in ornamental or timber planting of trees, and the success attending the same; natural advantages or disadvantages of

different localities in soil, exposure or protection · any facts as to topography of the country, character of the soil, local peculiarities, etc., which would make a change in the present districts desirable, in order to facilitate the collection of facts and statistics. When possible, state actual value in figures, in giving the extent and cost of production.

AMERICAN POMOLOGICAL SOCIETY.—Mr. Barry has issued the following to the chairmen of the various State Committees: At the last meeting of the American Pomological Society, held in the city of Boston, September, 1873, you were elected Chairman of the Fruit Committee of your State. The duties of this committee are thus defined in the by-laws of the Society:

"State Fruit Committees, consisting of five members each, for every State, Territory and Province represented, and a general chairman over all, shall be appointed biennially; it shall be the duty of the several State fruit Committees to forward to the general chairman, one month before every biennial meeting, State Pomological Reports, to be condensed by him for publication."

It has been customary for the State Fruit Committees to appoint their associates, and you are now respectfully requested to organize your committee at the earliest moment practicable, by selecting the most competent and trust-worthy persons, in different sections of your State, to aid you in collecting the information desired by the Society. This information you will arrange in the form of a report, and transmit to me as early as the 20th of August next, if possible, that I may be able to present the report of the General Fruit Committee on the opening of the session, which is announced to be held in Chicago, Ill., on September 8th, 9th, and 10th, 1875.

The nature of the information sought for in your report, can be ascertained by reference to the published transactions of the Society, and may be stated briefly as follows:

1. What *species* of fruit, as Apple, Pear, Peach, Plum, Cherry, etc, etc, are grown in your State successfully?

2. What *varieties* of these fruits have proved to be best adapted to your State, and of the greatest value? The degrees of merit should be stated according to the scale adopted in arranging the Society's Catalogue, viz: Those worthy of cultivation designated by one *; those of great superiority and value two * *; those recently introduced and promising, a dagger, †. In your report under this head you will note the changes, if any, that should be made in the catalogue, as it now stands, for your State.

3. Synonyms, or the various names under which the same variety is known or cultivated in your State.

4. What insects and diseases are injurious to fruits and fruit trees, and what remedies or preventives have been successfully applied?

5. The kinds of soil and situation best adapted to the different species of fruits. The best system of pruning and training; cultivation or treatment of the soil among fruit trees; gathering, packing, keeping, and marketing fruits, and any interesting particulars on the subject within your reach.

The Society does not wish to impose great burthens on its committees, and therefore answers the 4th and 5th series of questions may be omitted where circumstances may render it difficult or impossible to give them.

Answers to 1, 2, and 3 are necessary to enable the Society to extend and perfect its work.

If you find that you will be unable to discharge the duties of Chairman of your State Fruit Committee, you will please notify me or the President as soon as possible after the receipt of this circular, and mention the name of the person, in your judgment, best qualified to perform the service.

BOTANIC SOCIETY OF EDINBURGH.—*Prize Essay.*—The Botanical Society of Edinburgh offers a prize of ten guineas for the best and improved essay on the reproduction of Lycopodiaceæ, to be competed for by students who have attended the botanical class at the Royal Botanic Garden, Edinburgh, during at least one of the three years preceding the award, and have gained honors in the class examinations. The author is expected to give results of practical observations and experiments made by himself on the subject, illustrated by microscopical specimens. The essay and specimens to be given in on or before 1st May, 1876, with a sealed note containing the author's name, and a motto outside. Facilities will be given for carrying on observations and experiments at the Royal Botanic Garden, Edinburgh. A prize of ten guineas is is also offered, through the council of the Botanical Society, by Charles Jenner, Esq., for the best and approved essay on the Structure and Re-production of the Frondose and Foliaceous Jungermanniaceæ. This prize is subject to all the conditions specified above.

The Gardener's Monthly,

DEVOTED TO

HORTICULTURE, ARBORICULTURE & RURAL AFFAIRS.

EDITED BY THOMAS MEEHAN.

Old Series—Vol. XVII. JULY, 1875. New Series—Vol. VIII. No. 7

Flower Garden and Pleasure Ground.

SEASONABLE HINTS.

We are inclined to believe that the best grass for American lawns, has not yet been discovered. In this part of the world we have had great faith in the Rye grass, Lolium perenne, and we have frequently recommended it for this purpose in our pages. It is a beautiful grass for lawns. It is the first to get green in spring, and its shining leaves, shaken by the spring breezes, make a very attractive green sward. But this season, in these parts, it is all dead, killed by the severity of the past winter.

It is a new lesson for us to learn, as we were under the impression that this grass would endure any amount of cold. It seems not,—and although this is the first time it was ever killed in Philadelphia, it is evident it will not be safe for any northern region. The so-called lawn mixtures of English grasses, are worse than this, and should never be used.

Up to the present time Poa pratensis has proved the best, and for the present we should advise lawns to be made wholly of this; we believe, however, that some of our native grasses might prove far superior, and should like to see experiments made. A couple of years ago we received a small package of some kind of grass seed from the dry regions of Utah. It has been now two winters and one summer green in the dryest time, and perfectly hardy,—but, showing no flowers so far, it cannot of course be named. We merely mention the incident to show that in all probability there are native grasses which we could well employ for lawn purposes.

We are often asked about weeping trees. They do not seem to grow well when newly planted, do not thrive often for some years,—and often the stock seems hide bound, and occasionally dies altogether. This is especially the case with the Kilmarnock willow; it is particularly troublesome in this respect. It often comes from the small head, in comparison with the size of the stock. The sap will not flow freely, unless there is a fair proportion of healthy foliage. The general practice is to pull off all the sprouts from the stock, as soon as they appear, letting only the bud at the top to do all the "pumping" work. Often it succeeds in doing it,—but frequently fails, and then commences disease in the stock. It is better to leave on a few sprouts near the top of the stock for a year or so,—not letting them grow strong, or they will compete with the graft. If they show a tendency to do this pinch out their points, and this will check the tendency.

We should like to call attention to a note we gave last year, that some beautiful objects for lawn decorations can be made of Wisterias, by training them as standards. A young plant is selected and trained to a stake six feet high. When the plant reaches this it is headed off. The second year the stake may be taken away, and the young plant will support itself. It will never make running branches after this, as it takes all its nutritive powers to overcome gravitation and sustain itself erect. A beautiful umbrella-like head is formed, and its hundreds of drooping flowers in spring thus shown off to beautiful advantage. Another point of interest to a nurseryman in this, is, that with this check to growth the reproductive powers are called

into play, and the plants then *usually produce seed abundantly.* There is hope for numerous improved varieties as soon as these facts become generally known. This is a very good season to train plants up for this purpose.

COMMUNICATIONS.

LA FRANCE ROSE.

BY E. G. HILL, RICHMOND, IND.

Your correspondent S. S. P., is at a loss to know why American florists persist in classing this rose among the H. P.'s, and affirms that Van Houtte has it in its proper place. I can see no valid reason for classing it as an H. Noisette, for it certainly shows no characteristic of the Noisette class, that I can discern. No one can doubt, on comparison, that Boule de Neige, Coquette des Alpes, Perle des Blanches, are very near relations of Aimie Vibert, and Caroline Marniesse, and others of the Noisette class, and so we find them properly classed as Hybrid Noisette in many of the catalogues. But La France is either a cross between the Tea and H. P., or between the China and H. P. One might fancy there was considerable of Clara Sylvain (china) in the form of the flower; but undoubtedly it is a cross between the two classes mentioned.

There is as much propriety in placing it among the H. Bourbon as among the H. Noisette, or H. Perpetual, for in appearance it is not very unlike S. Malmaison.

But if we must have separate classes for the varieties that are so fortunate as to get Tea, Bourbon, and Noisette blood in their veins, let them be placed in classes where their character and parentage may be readily understood by the name designating the class, or else throw them all into one class to be known as Hybrids of Noisette, Bourbon, China, or Tea. The firm by which I am employed, and many others, give as their reason for not doing so, the fear of multiplying the number of classes, thereby tending to confusion, for the complaint is of too many classes already. My observation fails to discover any very prominent "types" as suggested by your correspondent. Cheshunt Hybrid is no doubt a cross from the Tea section, but it is very unlike La France, being of climbing habit.

Notice Triumph d' Anjers and Mlle. Descamps, the last named having apparently as much of the Hermosa about it, as it would dare take and still retain its identity as cross between the H. P. and Bourbon classes; the first named is undoubtedly a Bourbon as far as habit and freedom of bloom are concerned, and yet it retains much of the H. P. character in the leaf and form of flower; but I can not recall any others that might be called types of La France.

THE CLEMATIS.

BY F., ROCHESTER, N. Y.

Having cultivated several varieties of the newer forms of Clematis during the last four or five years, with your permission I will say what I know relative to them for the guidance of those who may desire to know somewhat of their habits of growth, &c.

First in order it must be understood that there are two very distinct classes of them, as far as their manner of flowering is concerned. There are the spring bloomers blooming in May and June, and the summer bloomers flowering bountifully in July, and giving occasional flowers until late in the summer. The spring bloomers to be effectual must of necessity be hardy, root and *branch*, or no flowers; inasmuch as the flowers from this class are produced on short shoots thrown out the current spring from long canes produced the previous summer, after the manner of grape vines; and as a consequence where these long canes cannot be preserved through the winter there will be no short flower spurs nor flowers the following spring. There are however several varieties whose wood has stood zero and below and the *roots* of *all*, with a slight mulching, will endure almost any cold and throw up again from the crown even where the wood of the previous year is killed, but under such circumstances, although the plant is not lost, the flowers for that season are gone.

But the other class or summer bloomers, are in *all their* qualities much preferable to the spring bloomers. This class, if the wood should not be hardy, is of comparatively small consequence, as the root is hardy and will throw up a long cane which flowers at its termination the same season in July; but of course where the wood is always killed back although never without flowers, you cannot extend the surface covered with the plant; but there are several varieties (Jackmanii notably so) of which the wood can endure zero and 10° or 12° below, and with such a variety every live wood bud will give a long cane through the summer, terminating in many blossoms. A plant four years planted on my house last July had 560 flowers open at one time, and if no mishap occurs and I am liberal to it I do not see why next year (1875) I might not have 1000 flowers on the same plant.

The varieties which have given me most satisfaction are Jackmanii, a beautiful dark blue; viticella rubra grandiflora, almost a crimson, wood hardy. Lady Bovill, a light blue, (wood *not* hardy). The above are of the summer bloomers. Of the spring bloomers, Standishii blue, wood hardy; Fortunii, double white, wood hardy. Each class requires liberal treatment, very so—they want daily watching through the growing season, as the growth is so rapid that a week's inattention would give a tangled mass impossible to undo without the destruction of much of the plant; although they have no tendrils, they twist the petioles or leaf stalk around any small object contiguous to them, and if left to themselves, not always doing so in the most symmetrical manner.

With Clematis in spring and summer, Chrysanthemums in fall, and Chinese primrose in winter, I can safely say from January, 1874, to January, 1875, I was never without a flower.

THE MAGNOLIA GLAUCA.

BY F. R. ELLIOTT.

On page 67, 1865, of *Gardener's Monthly*, is a a question, and I made it of David Thomas, in 1848. He replied, "All the Magnolias need and must have sandy loam soil, none of them belong to clay soil. The Magnolia acuminata is not found native in clay soil. Lime in the soil is destructive to all of the Magnolia class.

"Protection of it is a sham of those who know nothing of its nature. Give the Magnolia (of varieties such as *acuminata*, *soulangeana*, *conspicua*, *glauca*, *cordata*, *speciosa* or *Thompsoniana*) a simple deep sandy loam for the roots, and while it may cast its foliage in the winter, if the ground covering its roots is mulched with straw or other litter one foot deep, there can be no failure in the coming bloom or health of any Magnolia above named where the thermometer does not in the cold season run below 20° below zero of Fahrenheit."

[The observations of David Thomas were probably drawn from seeing the plants in a State of nature. We have seen some magnificent specimens in old gardens, in brick clay. They might have been slow growing at first for anything we know, in these positions,—and would prefer such soil as Mr. Elliott suggests if we had as choice. Still we should regard clay as no barrier to success.—ED. G. M.]

SHADE TREES AT STUTTGART, GERMANY.

BY D.

The Wellingtonia or Sequoia gigantea does splendidly all over Germany, which no doubt is owing to our pleasant summer and mild winter; the seed is imported by the German nurserymen from California and the trees are sold and planted by the thousand. So does Acer var. from Japan do well in this country, the foliage is very ornamental and the tree is planted everywhere. Sycamores called here Platanen, make splendid shade trees. Sixty years ago King William, of Wurtemberg, planted a long row in his park —some hundreds—and now they have grown to such height, that they might be called giants of trees.

THE MANAGEMENT OF COUNTRY PLACES.

BY BRASSICA.

As you know, Mr. Editor, anything tending to the elevation of the many able men who by hook or by crook have their lot cast in this great (big) —country, must be a matter of interest to me, you will not be "surprised to find" that I have read the article by Mr. Poppey in your April number.

I do not at all know what the *Country Gentleman* had to say about it, nor do I think it important in view of the fact that every one must after all adopt a course suited to his circumstances. My experience leads me to the conclusion that it is often very difficult for the owner of a large property to find just the man he wants, or having found him, to keep him. Then anything like perpetual change is not only inimical but disastrous.

No garden can be first rate, nor any farm pay, which is constantly changing its management. Let the owners of any property come forward and say if this assertion is incorrect.

Now, Mr. Editor, you know the state of affairs across the water; you know that it is by no means unusual for a man to begin as gardener on a property, and end as Land Steward. I could name many noblemen who have such well tried, faithful, intelligent servants. I will instance the present Governor General of India, and Lord Southampton, as two which occur to me. The Dowager Duchess of Sutherland is another who has found in her gardener a man possessed of sufficient integrity, and sufficient in-

telligence to take charge of all her outdoor affairs. Any one acquainted with the midland and southern counties of England will fully understand what these names imply, and the kind of charge involved.

Now how many men in America can offer such places to gardeners? how many gardeners in America could muster the courage to live down the inevitable probating course preceding such a charge? There is not in all the American domain such a property as Cliveden, and how such men as Flemming are to be developed the "Lord only knows." No! the importation must go on probation, must submit to a recruiting, a remodelling, or whatever you call it, and I repeat there are but few places offering prospective inducements to a good man—such as will warrant him in submitting to such a course. I look upon this as the end all and the be all of the business, consequently almost every good gardener looks to the commercial heaven in this country. But presuming there are plenty of places, and plenty of men ready and willing to fill them, there is nothing in the world more easy than the management and sub-division of the labor, always supposing the property is large enough to sustain the managerial charges. "But there are thousands of men in this country who are not wealthy enough." Very well, they must cut according to their cloth; no sensible man will undertake to dig and delve, to plough and sow, reap and mow, set a snare to catch a rabbit, to pot, prune, train, water, and grow pitcher plants, orchids, flowers, fruit and vegetables in unlimited quantity without somebody wealthy enough to pay the piper.

So now, Mr. Gentleman, with the taste for country life, come forward like a man (not before the world) but to your trusty man, and say what you desire to invest as capital, what you are willing to devote to upkeep, what interest you expect your farm to pay, what proportion or percentage you are willing to pay for management, and various other confidential items of that sort, and if you do not find the supply of suitable men sufficient to select from, why—try and raise them.

EDITORIAL NOTES.

Garden Labels.—We have very good samples of labels made and wired by machinery from the North Aurora Manufacturing Company, of Chicago.

Bedding Geraniums.—There are indications that the geranium is waning in popular favor in England. An editorial in the London *Gardener's Chronicle*, speaks of "the harsh glare of the eternal scarlet Pelargonium."

The Clematis.—The most popular plant in England just now appears to be the Clematis. Large numbers of hybrids have been introduced, and they are employed for bedding purposes, as well as for numberless forms of ornamental work.

Hardiness of the Eucalyptus.—A correspondent of the *Gardener's Chronicle* tells of this tree dying to the ground in a comparatively frost free region, where even the Dracæna australis lives through the winter unhurt!

Our Beautiful Native Plants.—It has been the habit to overlook our beautiful native plants, until some European florist told us they were beautiful, when we would send to Europe for seeds of our own productions. This is being changed. Our own seeds men get them for us direct from their native places. Vick's catalogue offers many rare Californian beauties for the first time.

Indian Pinks.—These have become so much improved that the edges are as round and smooth as a pansy, and in striking contrast with the lacimate edges as generally seen.

Value of the Irish Yew.—The following paragraph, which we find in the *Gardener's Chronicle*, leads us to express surprise that the Irish Yew is not more frequently found in our collections. It is as hardy as any ordinary evergreen. In this part of the world, though in different seasons, we have known some evergreen or another to "go," we have never known the Irish Yew to be materially injured.

"In the pleasure-grounds at Ingestrie Hall, near Stafford, are growing some splendid specimens of Irish Yews, which are at least twenty feet high, and as much through. They are quite a feature amongst the other fine specimens of arboreal vegetation with which this antique residence is embellished. At the same place is a well-grown Araucaria imbricata of from twenty-five to thirty feet in height."

NEW PLANTS.

Magnolia Halleana.—We have from Mr. S. B. Parsons flowers of this—which we suppose by its name to be a Japanese or Chinese introduction. It appears to be of the same class as M. conspicua, but the flower is composed of

about twenty narrow strap shaped petals; on the whole rather smaller than M. conspicua; white and very sweet. A little more and we shall have a double magnolia.

Arabis blepharophylla.—*Nat. ord.*, Cruciferæ. *Linn.*, Tetradynamia.—"Of the large genus Arabis almost all have white flowers; in a very few species they are yellow, and in this alone of those known to me do the color (pink) and size of flower together recommend it for cultivation. It is a native of San Francisco, in California, where it was discovered by David Douglas in 1833, and has since been collected by Bridges, Brewer, Bolander, and others, and is described as a great ornament in March on the hills of that State. Professor Asa Gray, of Cambridge, was, I believe, the first to send ripe seeds to England—this was in 1865—from which plants were raised at Kew, and by Mr. Thompson, of Ipswich, if I recollect aright; but it was not till quite recently that the plants throve (from seeds sent by Commissioner Watts, of the Agricultural Department of Washington), and appeared in their full beauty. It flowered at Kew in January in a cool frame, where it has hitherto thriven better than in the open border or rockwork; it is, however, doubtless quite hardy, and would succeed equally well out of doors, where, from its beauty and early flowering, it is sure to become a great favorite."—*Bot. Magazine.*

Megacarpea polyandra.—A correspondent informs us that the rare and botanically interesting plant, Megacarpea polyandra (De Candolle), is again flowering at Glasnevin. The plant, which is blooming, was raised from seeds saved at Glasnevin six years ago, and this is the first year during which one of these seedlings has flowered. It therefore takes a longer time to come to maturity than most Crucifers do. In general appearance, this Megacarpea bears a greater resemblance to Umbellifers than it does to Crucifers, and is a good deal like the Parsnip (Pastinaca sativa). The flowers are produced in large corymbs, resembling umbels, and are of a greenish yellow color. The leaves are large, broad, and pinnatifid, quiet like those of many kinds of Umbellifers, and the plant is strong and about the size of them; besides, the fruits are short, flat, and broad, more like Cremocarps than Siliquas or Siliculas. The most remarkable peculiarity is, however, in the andrœcium, which is nearly allied to that of Papaveraceæ, each flower having constantly from twelve to sixteen stamens. It is a native of the higher regions of the Himalayan Mountains, and, to cultivate it successfully, it requires to be grown on a cool moist border, which is shaded from the midday sun, but otherwise, it is quite hardy for out-door culture in this country.—*The Garden.*

QUERIES.

Pinus,—Jeffreyi and ponderosa.—*R. D., Waukegan, Ill.*, writes: "I send some Pinus Jeffreyi seeds, together with a sample of P. ponderosa; you will see they are quite different. There cannot be a doubt that the Jeffreyi is correct, it is a marbled or mottled seed every time, and quite different from any other (over a dozen Pines) we get from the Pacific Coast."

The White Berry Pyracantha in Iowa.—A Burlington correspondent says: "My hedge (Pyracantha) is coming out finely; I can recommend that hedge after *this* winter, 22° degrees below zero, with very strong winds, and no snow on the ground for weeks. Some privet I had dead to the roots. But in this neighborhood it is next to impossible to make the Pyracantha grow, planted in the fall, and it is better, I find, not to plant it out too early in the spring. I had a number of large plants of the Pyracantha moved this spring, and without exception they look very thriving."

Lilacs—Sukers.—*M., New York*, writes: Assuming that my ignorance, dense though it be, is shared by a few kindred spirits, I am going to put a few questions, which you may deem worthy an answer in your magazine.

Most of my shrubbery is well behaved, orderly and respectable. Qualities which I claim for myself and family, and like to see reproduced, or say typified, in my garden. But the lilacs are too much for me. Straggling, shabby, suckering from the roots, defying all propriety, there they are looking very lovely indeed just the few weeks they are in bloom, and then relapsing into stubborn naughtiness and even ugliness. Of course I don't mean the Persian Lilacs, patterns as they are of beauty in bloom, foliage, and general habit. Their good example seems however completely thrown away on the rank and file of the Lilacs.

Now, Mr. Editor, you are supposed to know

all of horticulture. How can I force my Lilacs to grow into better shapes? how can I prevent suckering, how make them spend their strength in branching well and nicely? If things cannot be mended—I dread that answer—let me ask next: If I were to find a Lilac of better habits and shape, will a graft of that same grow like its parent? is reformation possible by selection? In gratitude for the information you might give me on these points I am going to have a fling at learned gardeners and nurserymen in general.

I have had catalogues with a list of more than half a dozen different kinds of Lilacs in them. *Violacea*, *purpuracea ceruleacea*, *insignis*, *insignificans* and what not. When I read the names, how I rejoiced! Novelties of my favorite shrub—by this time you must have found out my partiality—thinks I; and bought them, dearly too. And waited, one season, two seasons, three seasons to show me their peculiar charms. Nary a charm saw I. There was no difference further than I could find in the paternal rows. Snares and delusions all! fancies of moonstruck nurserists, by them exchanged for the hard-earned stamps of innocent, foolish amateurs. Shrubs they were, developing no new feature whatever, unless you call imprecations on my part a new feature in Lilacs, for these, I own, they did develop.

Now, Mr. Editor, if there was no imposition, was there not ignorance? Cannot a really blue Lilac, once found, be made to stay blue? Will seed do it? Will grafts? Are Lilacs neglected by nurserymen? Are they not deemed deserving of their attentions, their study, their propagation? In my eyes they are all that; and moreover we owe them thanks for their sweet office of ushering in spring, and for being the first to gladden us with the beauty of their bloom and their delicious scent. They lead the chorus of the garden.

[Lilacs may be made to look *tolerable*, by occasionally cutting back,—but this occasions loss of flowers for a few years. No defense against the suckers but pulling them out every spring. The various varieties of Lilacs are not very distinct. The Germans have made sturdy attempts to "break" and improve them, but with no great success. Still when the plants of each variety are growing side by side they show their characters better. The new kinds can be preserved by their suckers just as the old ones are.—Ed. G. M.]

Destruction of Ants.—*C. F. Z. J.*, *Burton*, *Washington County*, *Texas*, writes: "Do you know of any recipe that will destroy the common large red ant? I have a great many in my garden, and they do much injury. I have tried everything that I could think of, and such as had been recommended to me by others, but all to no effect. If you know of anything that will destroy them, I will be thankful for any such information."

[In these parts we pour a little coal oil, or any cheap oil in their nests, and they trouble us no more.—Ed. G. M.]

House Gardening and Glass Structures.

SEASONABLE HINTS.

Often we have questions why plants fail in window gardening. Some think that there must be a great art in it, and the failure is because they are not adepts in the art. They get the most approved books on the subject, read them through, fail, and then conclude there must be some *a*, *b*, *c*, that they are presumed to know, and so has been omitted to be taught. Then they write to the *Gardener's Monthly*, begging us to begin from the very beginning, to teach them the alphabet of plant culture, so that their things may go on and grow. Now we can take these good people to places where girls in short clothes and boys not yet in pants have their little window gardens, and where the Geraniums and Roses and Fuchsias grow like weeds. The "slips" stuck in, always grow, and the plants bloom, and are healthy and happy. The pots may not be drained,—the soil often hard clay,—the watering of a very haphazard kind—the "alphabet" of good culture utterly defied. Ask these little ones how they do it! They make no mystery, but tell you the things "grow themselves." And this is the truth. Our experience with room plants is, that it is almost impossible for them not to grow if they are kept in

rooms that are not lit by coal gas; and almost impossible where it is, unless precautions are taken to protect the plants from the atmosphere while the gas is burning. The excuse is put on the heaters, and dry air, and we find innumerable contrivances for giving moisture to the room. Pans of water, steam, and so forth, but none ever do any good against the real evil. Those who use gas for lighting their houses, should have cabinets made near the windows to protect the plants,—but often mere curtains let down at night, are sufficient. This is the "alphabet," and one easily learned. After this, window culture will be found very easy. It will soon be time to put one's house in order for the fall and winter, and therefore these hints will be seasonable, as arrangements can be made to have the window flower quarter made gas proof.

COMMUNICATIONS.

CYCLAMEN PERSICUM.

BY J. C., CHELSEA, MASS.

I am pleased to see that the cultivation of this elegant class of plants is becoming more appreciated as they are better understood. There is no more attractive house plant nor one of easier cultivation, and they are constantly in bloom from December to April; their lovely forms, delicate and handsomely marbled foliage would add a charm to the finest conservatory, and to those who have used them, they become indispensible, in the formation of bouquet and other floral designs.

The chief difficulty heretofore experienced by cultivators, was their dependence on imported

bulbs, which usually reach us in a shriveled condition, from which no amount of skill can produce a good specimen. However the cultivation and demand has so increased within a few years. that the choicest strains can be obtained of home grown seedlings and producing many fine varieties hitherto unknown, many florists making them a specialty.

One grower in the vicinity of Boston (James O'Brien, Jamaica Plains) raises many thousands annually, and his method of growing them may be found detailed in the first part of the transactions of the Massachusetts Horticultural Society for 1874; it differs entirely from the old method. From the time of sowing the seed the plants are kept in vigorous growth until they flower, and in from twelve to fifteen months from the time the seed was sown, he produced fine specimens completely covering a six inch pot with foliage and flowers.

The specimens exhibited at the rooms of the Massachusetts Horticultural Society in 1874 and for which the silver medal was awarded, were large healthy plants, in full foliage, and the flowers were very large and of fine form, ranging in color from crimson to pure white; some of the plants bore double flowers, having eight or more petals, though it is questionable whether the doubleness adds anything to the beauty of this delicate and graceful flower.

CHEAP GRAPERIES AND HENNERIES FOR THE MILLION.

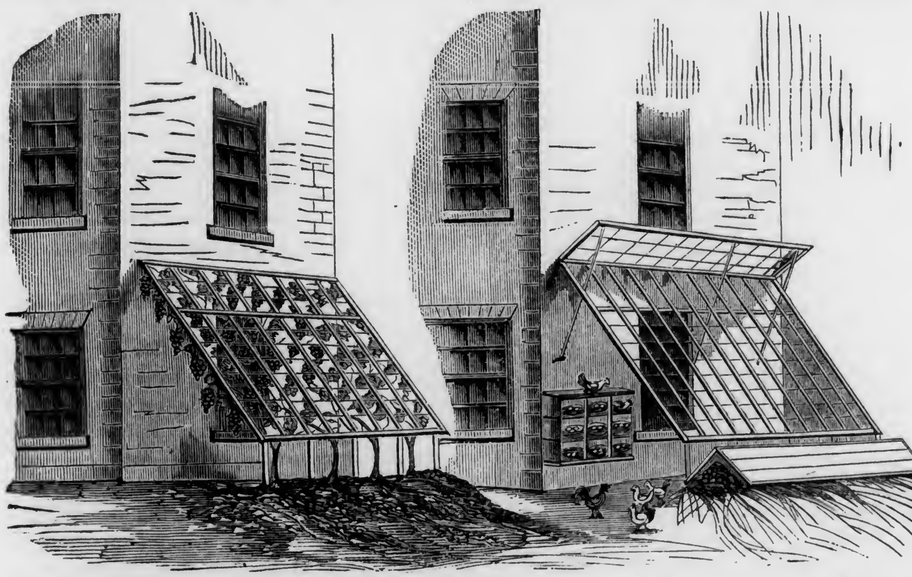
BY WM. T. HARDING.

There is no valid reason why Frank Harvester, the farmer, Samuel Sawboard, the carpenter, or Thomas Tidyman, the tailor, (all first rate fellows) with their loving wives and children, should not enjoy fresh laid eggs, and rich ripe grapes, as well as Governor Goodfellow, or President Placidman. One naturally supposes that "we the people" of the modern Canaan, overflowing with paper and pewter money, having equal rights, if not equal means, should at least have an equal share of the fruits of the earth, if we can only get at them. Without prolixity I mean to show how it is to be done, and tell my honest and worthy neighbors in mediocre circumstances, how to combine pleasure with profit from Black Hamburg grape vines in the summer and autumn, and Black Spanish fowls in the winter and spring. Neither the history of the vine, nor the pedigree of poultry concerns us; nor whether the learned naturalist calls one Vitis, and the other Gallina, I care not. No matter whether Adam or Eve, Noah, Nehemiah, or Nicodemus eat grapes or eggs ever so long ago if we good citizens, in this year of grace, can

only get them now. With the aid of pen and pencil I trust I shall be able to make myself understood when describing the modus operandi.

Presuming the reader has a local habitation and desires to build a cheap lean-to grapery on the south side of his domicil, or any other suitable building, he may do so at a moderate expense. See pencil sketch, which will give a better idea in one minute of what I mean, than my pen will do in an hour. Both houses are one and the same, with this difference: the one on the left shows the summer grapery, and the other, the winter hennery. The ends are left open to show the inside arrangement; but they are to be glazed in, the same as the roof. The border in which the vines are planted is entirely in some temporary perches, and a number of boxes in compartments for nests, and the house will be amply furnished for the Spanish tenants. As most dwelling houses are constructed over a cellar, it would not add much to the expense to build a furnace in, and from it run a smoke flue through the hennery, to warm, aid, and comfort the happy family of feathered *Senors*, *Senoras* and *Senoritas*. With the warm bright sun shining through the glass in clear weather, and with fire heat when dull and cold, they will diligently carry on the egg business, as if they had a contract, all through the winter and spring, and thus pay well for their board and lodging.

The ventilators are a simple contrivance, hinged at the top, two feet wide, and open in



outside; the reason is obvious. They are planted 3½ feet apart, close up to the front, and the stems brought through holes in the boards, and fastened to wires fixed about sixteen inches from the underside of the sashes, from front to back. After the crop is gathered, the wood ripe, and the foliage falling, they may be pruned, painted, and put by for the winter in this manner: Unscrew the front boards, and carefully drawing the vines outside, lay them along the front,—wrap them in mats or straw—and cover them with boards as seen in sketch. *Presto*, and the grape-house becomes a hen-house.

Clear out all the leaves and litter, and white-wash with quick-lime and sulphur, thoroughly brush it into all parts inside, except the glass, put sections; (see cut.) At each end, over the door, a ventilator may be made to open on pivots, so as to admit more air during the hot summer days. As with the front, the ends may be made up with grooved boards two feet high, above which must be glass. Good sound posts, well set, three feet deep, and five feet apart will serve to support the roof, and fasten the boards to. The roof is fixed or stationary, and if the sash bars are strong enough, say 2½ inches wide, and 4 inches deep, it will not require heavy rafters. Glaze with 8x10 inches, or 10x12 glass, and paint all the wood work.

As the structure is a cheap one, so may be the border. To save the expense of excavating and draining, elevate the bed in which the vines are

to grow, so as to keep the roots above the wet and bad soil below, and slope it to the south. Any good loamy soil with a fair portion of rotten manure, some bones, and lime rubbish will do. When ready for planting procure from the nursery as many two year old Black Hamburg vines as are requrired, and plant them about the middle of March, or as soon as the soil is in good working condition. Spread out the roots regularly and cover them up with some nice earth, (not too deep), then lead the stems through the holes in the front boards, cut off all the buds to three of the strongest from the top of the cane, tie up to the wires and the job is done.

Soon after growth commences, when the buds have made shoots some 10 or 12 inches long, prune off the part disbudded and the two weakest shoots, and lead the one left straight up to the top, and as far down the back as it will grow the first season. Syringe the vines daily, and endeavor to imitate nice pleasant growing weather as much as possible within, and the vines will flourish amazingly. Ventilate when the temperature rises to 70° in the morning, and close early in the afternoon. If the day is hot, air freely; if not, act accordingly. Avoid cold draughts on the young leaves and succulent wood. In August when the wood begins to turn brown or ripens, use the syringe less, and leave the ventilators a little open all night, until the middle of September, then open them wider, and use less water. In October admit all the air possible day and night until the leaves turn yellow, and begin to fall; then about the end of the month prune off the top of the cane to about four feet in length, and they will then be ready to put to rest, as advised, for the winter. Before putting by, paint them well all over with a mixture made as follows: Nux vomica, in powder, 1 oz, whale oil soap, 4 oz; tobacco, 8 oz; sulphur, 4 lbs; stir well up in 2 gallons of boiling water, with as much quick-lime added as will make it as thick as city cream, and if thus laid on it will be too nasty for either insects, rats, mice or other vermin to eat when the hard time comes in winter. The size of house will be ample, if from 30 to 40 feet long, 14 to 16 feet wide, 2 feet high front, and 12 to 14 feet at back. I have not attempted to write an elaborate or exhaustive article on the subject, but have endeavored to be as concise and explicit as possible, and if I have failed to make myself understood, I will willingly answer any questions I am able, if asked. The future management of the vines will differ from the first year's treatment; and I would suggest that the amateur wanting further information, should watch closely the contents of the *Gardener's Monthly*.

EDITORIAL NOTES.

A Sensible Premium is offered by S. L. Boardman, Editor of the *Maine Farmer*. A silver vase of the value of ten dollars, to that woman who shall present to the Society the best original plan for a town or village flower garden, with a list of the plants grown in each bed, and accompanied by a description of its management and general culture; the plan to be presented and the prize awarded at the winter meeting in 1875.

Plant Trellises.—Neat trellises are seldom to be had when one wants them. W. H. Page & Co., have left on our table a catalogue of illustrations of many pretty designs. They are made of wood, yet have a light and elegant appearance.

Adiantum Farleyense for Hair Decoration.—It may not be generally known that fronds or parts of fronds of this Fern, when fully matured, answer admirably for ladies' evening head-dresses, and that immediately submerged in cold water when done with for the evening, they will be as fresh and good the second night as when just out.—Richard Nisbet, *Aswarby Park*, in *London Garden*.

Adiantum Farleyense—There are in Mr. B. S. Williams' Victoria and Paradise Nurseries at Upper Holloway some very fine specimens of this noble Fern, the smallest of which equals if it does not exceed in size and beauty, the original plant alluded to in your columns some time ago. Two out of five plants here are truly admirable specimens of chaste beauty and successful culture, the large pendant fronds possessing many pinnæ exceeding two inches in diameter, and the plants two and half feet in depth, and the same in width.—*Opus*, in *Gardener's Chronicle*.

Succulents.—The *Gardener's Chronicle* says: Succulents, such as hardy Sempervivums and tender Echeverias, are now much in request, together with a few close growing Sedums, for small flower gardens. They have the great advantage of being wintered with comparative ease; and they grow from small to large plants with considerable rapidity in early summer. Many offshoots of Echeveria secunda, and the

glaucous variety also, have been wintered in shallow boxes, pricked in thickly in August and September, and now growing into charming rosette-like plants. These want room. They don't require potting, as they are well able to take care of themselves, and what we would suggest is that a bed of fine soil be made up under a warm wall, and the plants placed out there in rows, giving each a little space to grow in. Unless the weather should come in very badly—cold hail-storms, snow, rain, and frost—no protection will be needed, and a net thrown over them at night will keep them quite secure. If much wet weather comes in, and cold with it, so raise the mat over the surface of the bed as that it will form a kind of sloping roof, and the rain will then fall away on either side. Sedum glaucum, silvery-grey, and S. lividum, deep bright green; Sempervivum californicum and S. montanum, and those two charming grasses, Festuca viridis and F. glauca, are perfectly hardy, and they can be planted out ready for use by-and-by, in neat beds, in lines a little way apart.

THE BALSAM OR "LADY SLIPPER."—That this plant ever had the name of "Lady slipper" attached to it by Americans, shows that those who represented Adam in the naming, must

have been familiar with a very poor variety, for only in the single one is there any resemblance to a "slipper." Few persons know how beautiful it is as a pot plant, when good double kinds are selected, and the plants well grown. We give an illustration to show the doubleness of the flowers as grown in Europe. It stands the sun well when watered enough, and it is a capital thing for lining terrace walks or setting on piazzas.

THE MIGNONETTE AS A WINDOW PLANT.—The *Gardener's Chronicle* says: "Give the necessary attention to *Mignonette* in its several stages. To do it well in the winter season there are few plants that require a better light situation, otherwise it becomes weak and puny. Keep the plants intended for the earliest flowering regularly tied up, with neat sticks placed to the principal shoots. The way pot Mignonette is frequently tied with a row of sticks round the inside of the pot, and a strand of bast run round them in different heights, is most objectionable in appearance, and make the plants look like miniature brooms stuck in the pots. Keep the earliest if possible in a house where they receive 45° in the night; give the succession and late flowering plants plenty of air.

NEW PLANTS.

A NEW LOBELIA.—The variety Lobelia *erinoides* is commonly known for its creeping habit, healthy and good growth, blue flowers, etc., as one of the good plants, to say the least, among those for basket or vase planting. We learn that Geo. McLeod, gardener of West Cleveland, Ohio, has originated a seedling from this variety, which has all the good qualities of its parent but has variegated foliage. We have not seen the plant, but are informed that some who have carefully examined it, give it favor as a novelty that will prove of value.

A CLIMBING SENECIO.—The *Garden* says: In the current number of the *Botanical Magazine* is a colored figure of Senecio macroglossus, a large flowered scandent species, closely resembling the common Wood Ivy in its habit of growth. The flowers, which are eight-rayed, are about two inches across and of a clear yellow. Dr. Hooker states that it is the largest-flowered species of the extensive genus to which it belongs—a genus which contains nearly a thousand species, of which our common Groundsel (S. vulgaris) is a well-known example. In point of size, however, we are inclined to think that the beautiful purple-rayed, golden-eyed S. pulcher (Bot. Mag. t. 5,959), introduced to our gardens by Mr. J. Tyerman, of Penlee, Tregoney, is still larger, and certainly far more showy. S. macroglossus is similar in habit to S. mikanioides (German Ivy), a plant largely used in Germany, Russia, and America, as a pot plant, and for training around the cornices of apartments.

STENOSPERMATIUM WALLISII.—Under this name the *Gardener's Chronicle* figures and describes a new Aroid which seems to promise a distinguished career. It grows in tufts sending up many stems two or three feet high, and the white flowers, somewhat resembling our calla Æthiopica, are produced on pendant stalks at the top. It is a warm greenhouse plant.

FORCING ROSES.—In Mr. Ladd's nursery, at Bexley Heath, there are many houses for forcing Roses, most of which are very large, the latest put up being a fine light house, 300 feet long by 25 feet wide. We have seen many large houses used for forcing Roses in America, where Tea Roses are in great demand in winter and spring; but never anything like this. It now contains what may be described as a meadow of Roses, Niphetos in the centre and General Jacqueminot around the side. These are now blooming abundantly, and the half-opened flowers are cut by thousands every evening.—*Lon. Garden.*

ANTHURIUM SCHERZERIANUM VAR. WILLIAMSII.—Our readers are hardly yet familiar with the original species, which is one of the most striking introductions of modern times. It has been exhibited during the past year or two at our leading horticultural exhibitions. The plant belongs to the same family as our Calla Lily, but the white spathe in the Calla here is a *crimson*, in the Anthurium the central column is also crimson. The new variety above noted, has the spathe *white*. This will be a pretty contrast with the scarlet central portions, and will no doubt be esteemed when it reaches our shores.

HYDRANGEA STELLATA PROLIFERA.—This is an exceedingly handsome and free-blooming variety, producing immense corymbs of fine double star-shaped flowers of a beautiful rose color. It is extremely distinct and attractive.—*Wm. Bull.*

HYDRANGEA JAPONICA SPECIOSA.—A beautiful sub-evergreen variety of *H. japonica*, of neat, dwarf, and compact growth. The broad rich green-edged leaves are finely marked by a broad flame or bar of pure white running throughout their centre. It is exceedingly effective, and well adapted both for conservatory decoration, and for planting in warm flower-garden borders in the summer.—*Wm. Bull.*

QUERIES.

GLASS.—*W. R., Austin, Texas*, asks: "Do you know of any address where I can buy some glass for hot-beds and greenhouses? Answer in the next number, if you please."

[We do not like to break our rule of never editorially recommending any business firms; as we think all commercial affairs should be strictly left to our advertising columns. As, however, there are no glass firms on our list just now, we will this once say that B. H. Shoemaker & Co., Philadelphia, deal in nothing else but this glass for windows, hot-beds, greenhouses, &c., but, as we know that one of the firm is a regular reader of the magazine and must know that horticulturists need glass, and yet do not advertise it, we suppose they have as much of this kind of business already as they care to do.

If our correspondent finds them willing to wait on him, we doubt whether he could do better on glass anywhere.—ED. G. M.]

PLAN OF A CONSERVATORY AND FORCING HOUSES.—*E. C. N.*, sends us a rough diagram of houses he proposes to build this summer, and asks for information as to heating, ventilation arrangements, quantity of pipe, and so forth. It is not possible to give any intelligent answer from the material before us. So much will depend on local influences. Our correspondent does not even give the State in which he resides as a guide, and a very different arrangement would be required in Minnesota from Texas. So far as we understand our correspondent, we think the plan would work well.

SPIRITUAL FLOWERS.—A correspondent sends us a specimen of a flower which was distributed "from the spirit world," and the "like of which was never before seen by human eyes." He asks if we know it? When we read his letter it gave us great comfort to know we should have flowers "in the spirit land," but a damper came over "our spirit" when we found it only the *Bougainvillea spectabilis*, and which did not we fear come from the "spirit land," but from this good world of ours. The "flowers were dropped about in considerable quantity in the dark Sceance by the spirit hands," but we guess the "spirit hand" that dropped them in this Massachusetts country town first gathered them about Boston. It was "cute" in the "spirit" to take this rare flower for distribution, and it would be interesting to know who about Boston flowers it so easily as to have them to spare for "spirits." We had not seen a flower of it before for twenty-five years, and we thank the "spirit" through whose medium we received it.

Fruit and Vegetable Gardening.

SEASONABLE HINTS.

The most seasonable hints are those which relate to insects. It is no use to disguise the fact that it requires hard and constant work to keep them down, and after all the work we often find they beat us. We believe it would often pay to put more work into insect fighting than we do, and that often we should find that we need not work as hard as we expected. In this part we are troubled with the Pear Slug. If we let them alone, we have not a leaf on the trees in August. A few years ago we commenced systematically to have boys go over the trees, and "pinch" them. We found the job not near so big as it looked, and would not change the plan for all the washes, or patent plans ever thought of. In like manner people think it a big job to put woolen rags around trunks and main branches to trap the codling moths, or to dig out the stem borers with jack knives, but we believe in most cases these little attentions will be found to pay; especially if we have no more trees than we can look after *well*. This is especially the season to look after fruit insects, and a look over back numbers or volumes to see the many modes of warfare recommended will be time well spent.

In the vegetable garden, the great insect evil will be the Colorado potato beetle, and we judge that even here hand picking will be best; of course for extensive field culture the agriculturist has to use more rapid remedies, that are not safe in a garden.

COMMUNICATIONS.

FRUIT NOTES FROM INDIANA.

BY T. J. WARD, VIGO COUNTY, IND.

The prospect for fruit in this locality is rather discouraging. Of apples we shall not have over one-third of a usual crop. Peaches, pears and cherries are nearly a total failure. Blackberries were nearly all winter killed. Of raspberries, Philadelphia and Clark were damaged considerably by the cold of last winter; Herstine, Naomi, Brinkle's Orange, and Red Antwerp were killed to the ground; Mammoth Cluster and the Southern Thornless Red seem to be iron-clad. They were not injured in the least by the cold of last winter. Even the cold spell we had in April did not seem to affect them in the least.

I never saw a better prospect for a crop of raspberries than they present now. They are now beginning to bloom.

There is a very good prospect for Concord, Martha, and Clinton grapes. Catawba, Ives, Hartford, Allen's Hybrid, Isabella, and Mary Ann are slightly injured. Eumelan, Delaware, Diana, Iona, Israella, Brant, Salem, Matthew's No. 13, Alvey, Norton's Va., and nearly all of Rogers' Hybrids are very badly injured.

There will be about two-thirds of a crop of strawberries. Of apples, Ben Davis, Rome Beauty, Willow Twig, Limber Twig, Jonathan, Wine Sap, Jenneton, Maiden's Blush, Duchess of Oldenburg, and Red Astrachan are the most profitable for this section of country.

By the way, can you give us any history of the Norwood Prolific and Amazon Raspberries? The Amazon is said to be an even bearer, hardy and of great productiveness. I have them both coming on, but know nothing reliable of their history. I have also the "Thwack" Raspberry from Louisiana, Mo. It is said to be very hardy and productive; color, red. It has not fruited with me yet, and of course can't give an opinion of it. Have you, or has any one of your readers had any experience with it?

[We shall be glad to have replies to the queries.—Ed. G. M.]

DWARF APPLE STOCKS.

BY F. R. ELLIOTT.

The Paradise versus the Doucain Apple stock. I rejoice that Mr. Ellwanger has clearly made the difference between these two plain. Not only is the foliage and habit of growth distinct between the Paradise and Doucain, but the Paradise can easily be propagated from cuttings, and offsets or suckers are often found from shoots on trees three to four feet high, when loaded with their conical shaped fruit. Unfortunately too many trees are sold as Dwarf Apple trees when they are but half dwarfs or Doucain stocks. Again, too many plant the stocks all below the ground as they do the pear or quince, and the result is, the graft or bud forms roots from its insertion and so soon becomes a half standard.

CURE OF PEACH DISEASE.

BY W. M., JR., MAGNOLIA, NEW JERSEY.

I felt considerable sympathy for L. F.'s misfortunes in the fruit line, and thought perhaps it would not be out of place to *revive* a recipe, an old one I believe in a few localities in Pennsylvania and New Jersey, and which might be more generally tested.

It is simply one part of saltpetre to two of salt, placed close to the body of a tree before a rain. It seems not only to destroy any fungoid growth or vermin which may be infesting the roots, but to act as an excellent fertilizer.

I received some large fruit trees a few years ago, sent by some friends a distance of 90 miles, and they were considerably mangled in the transit. Two of them were probably not less than four years old, a peach and a plum; the first got the yellows or the blues the succeeding season, and the second wouldn't perfect its fruit. I gave them a dose of the medicine, when they spunked up and rejuvenated, put on a new garment of emerald green, and promised amendment for the future. The succeeding year I got two bushels of peaches, and 10 lbs. of perfect fruit.

I might add that these old *successful* fruit growers were in the habit of drawing the earth away from their trees in the fall and sprinkling liberally with lime; they were *left* in this condition till spring, when the earth was drawn back again and recipe as above applied.

GRAFTING GOOSEBERRIES.

BY ALBERT BENZ, BAYSIDE, L. I.

Noticing a few remarks about grafting gooseberries and currants, under the head of new fruits and vegetables, in a recent number of your valuable paper, I am tempted to give you my experience on this subject, which will perhaps prove to be quite new and interesting matter to a large number of your readers.

In the well known Pomological Institute of Dr. Lucas, in Reutlingen, Germany, I had occasion not only to see how this beautiful and important branch of the nursery business is carried on, but to practice it myself. The demand for these grafted gooseberries and currants is increasing largely every year, and it would surely pay our leading American firms to go into it on an extensive scale. By growing said plants in standard form not only their general appearance is beautified greatly, but also the productiveness is increased, and the fruits themselves get larger than ever I have seen them on plants that stood on their own roots.

The stock we used for the stands was *Ribes aureum*, a perfectly hardy shrub that is often found in our gardens on account of its little yellow sweet scented flowers. To secure a large stock in the shortest possible time it is necessary to have or plant old bushes of said Ribes in a good rich soil. As soon as the young bottom shoots get from 2 to 3 feet high, they must be covered with loose soil to the height of about six inches, so as to make them strike roots on their lower ends. A few cuts in the bark, where you want the young roots to come out, will help materially. Plenty of water should be given to them all through the dry season; and where they can be flooded for a few days, it will be the better. In August or first part of September some trimming is necessary. Remove all the small and weakly wood in order to strengthen the remainder. Wherever you find two or three good top branches on one shoot leave them, and save these plants for grafting both gooseberries and currants, or different sorts of each kind to one stand. To make sure of getting plenty of stock with branched-off tops you have to top the required number of shoots at the proper time, when they are about 4 feet high.

In fall when the plants have dropped their foliage, dig all around the old plants, and take off the young shoots that you find strong enough and well rooted. It is best then to pot them right away in a soil that contains plenty of sand and leaf-mould; place the pots in a cold frame and cover them when the weather gets cold.

About or after Christmas they have to be removed to a greenhouse that is kept in an average temperature of from 45 to 55 degrees. In a short time the plants will make a start and now the grafting can begin.

The best method of grafting all kinds of Ribes is by copulation. As tying material use common paper that you spread over lightly with some grafting wax, and cut in narrow strips about six inches long. This is far better than cotton or anything else because it never cuts in. During the grafting and after it is done, the house should be kept in a moderately warm and moist state, and must be shaded whenever the sun comes out strong. In from two to three weeks the buds on the graft as well as those on the stem commence to swell. The latter have to be taken off as fast as they come out. A

light spraying with tepid water must be given daily as soon as you see some leaves breaking out of the graft.

Thus they should be kept till all danger of frost is over; then take your plants carefully out of the pots and plant them out-doors in the nursery or in their definite permanent places. There they require a few ties to suitable sticks to keep them straight and protect them against the wind. I will remark here that the stems, at the time you take them off the old plants, can also be planted in moss, that is held fast to the ball by a few windings of common wire. In this shape they are somewhat handier for shipping and transplanting.

Already the first year after the grafting you may expect a good crop of large showy fruit which will increase in quantity annually and then consider yourself well awarded for the time and labor that you spent on raising your standards.

Sorts that I can recommend you as doing very well in the above described form are the following: Of currants: Raby castle, Early Bertin, Versailles currant, Chenonceau, Macrocarpa, etc. Of gooseberries: Smith's White, Jolly printer, Primrose, Sampsons, Cromtons, British Hero, Royal George, Jussitia, and others.

[Our readers, we are quite sure, will regard this as one of the most interesting contributions to horticultural knowledge made for a long time, and thank Mr. Benz accordingly. A fuller account of the mode of grafting would be more desirable. Perhaps the *Ribes floridanum* would make a good stock. Its growth is more vigorous than the *R. aureum*.—Ed. G. M.]

EDITORIAL NOTES.

Frost Proof Apples.—That some Apples will come out of a freeze in better condition than others is well known. The following account of one, from a correspondent of the *Country Gentleman* indicates that the variety referred to is more than commonly well adapted to resist frost:

"The Spitzenburgh and Jonathan, though smooth and crisp, were not so much so as their Virginia rival, the little Winter Blush. The latter, a small flat yellow apple with closed calyx in shallow basin, was hard and smooth as when picked from the tree in October. They were described by the grower as capable of withstanding any ordinary freezing and considerable rough usage with impunity. They are not eatable till midwinter. The tree is a regular and heavy bearer. If the Winesap—our favorite winter apple—was there it was eclipsed by the other."

Wild Fruits of Colorado.—These seem to be of tolerably good eating quality,—judging from the following from the *Colorado Farmer*:

"We are indebted to B. H. Eaton for a liberal supply of mountain raspberries, which are growing on his farm and doing well. This fruit is certainly unexcelled. Also to Mr. McLellan for dwarf mountain cherry trees, and for mountain plum trees which were marked last fall as of excellent quality. We ought to welcome all these native fruits and give them the best kind of treatment that superior sorts may gradually be developed."

Curculio and Fruit Gatherer.—The *Western Agriculturist* describes a contrivance which is a wide sheet suspended on a light frame, and hung from the boughs, into which the curculios are jarred. It is yet strong enough to collect apples jarred from the trees in the fall at ripening.

Josephine de Malines Pear, is highly praised by a Hudson river correspondent of the *American Garden*.

Healthy Cherry Trees.—The *London Journal of Horticulture* tells a correspondent that one of the conditions of health in a cherry tree is that the ground under it be never dug at all. This has been found still more necessary in our country where the summer heat is greater than in Europe.

Ohio Beauty Potato.—A neighbor who had a few of this variety last year, reports it an admirable keeper. He showed us some on the first of June as solid and sound as when they were put away last fall. It has a tendency to get hollow in the larger ones.

The Himalayan Blackberry.—In the Geelong Botanic Gardens a plant known by this name has been growing for some time without attracting as much notice as it seems to deserve. The curator has sent us specimens of the branches loaded with fruit, and we must acknowledge that it is superior in both size and flavor to that of any other blackberry we have seen, not excepting the Lawton. In size it equals a large mulberry, and its flavor is wholly devoid of that mawkishness which characterises English blackberries; it is brisk and at the same time rich; the fruit would, indeed, be likely to make a nice preserve, only that is to be had fresh from the tree all the year round. As a covering for arbors or unsightly fences the plant has special merit owing to its foliage. We think it will become very popular both for its ornamental and useful qualities.—*Australasian.*

NEW FRUITS & VEGETABLES.

Cox's Orange Pippin Apple.—Mr. Downing says: "Cox's Orange Pippin, and Cox's Pomona, have fruited here for some years, and both are good and promising apples for the garden, but I think are not as well suited to our climate and will not prove as profitable for general use as many of our varieties ripening at the same season."

A New Seedling Apple—The Southern Queen.—In the October number of the *Rural Carolinian*, we noticed an apple of extraordinary size, sent us by Mr. T. W. Beaty, editor of the *Horry News*, and grown by Mr. Daniel Brown, of Horry County. The specimen measured fourteen and a half inches in circumference and weighed nineteen and a quarter ounces. We were asked to name it, on the presumption that it is a new seedling. Though not recognizing it as a named variety, we were not disposed to take the risk of adding to the confusion already existing in the *nomenclature* of our fruits, by giving a name to an apple which might possibly prove to be an old one, with several names already attached to it. We have since received from Mr. Beaty the following account of its origin:

In 1856, a Mr. Whitehead supplied the farmers of Horry with fruit trees from his nursery in Richmond County, N. C. His trees were grafted on seedling stocks. Maj. Samuel Brown bought from Mr. Whitehead several trees, among which was one which bore a medium sized fruit of choice flavor. From the root of this tree, some seven or eight feet from trunk, sprung a shoot, which Major Brown took up and gave to Mr. Daniel Brown; and this is the tree which bore the apple in question. Mr. Brown assures me that he has several trees, now in bearing, from grafts taken from the limbs of the tree from the root of which the shoot was taken, and the apples are entirely different in shape, size and flavor from the fruit of the root-sprout. I have myself bought trees of Mr. Whitehead, who has assured me that his entire stock was always grafted on seedlings.

With this evidence before us we are willing to admit the new comer to a place on the list of Southern seedlings, of which we have so many good ones, and to indicate its pre-eminence, in size at least, by the name given above, The Southern Queen.—*Rural Carolinian.*

Newnan's Prolific Strawberry.—Alluding to some fine strawberries the Petersburg, *Virginia Messenger* says: They were the Newnan's Prolific, a variety now become quite famous in the Carolinas, being the earliest in cultivation, and therefore always commanding a good price. It is grown largely for market in the vicinity of Charleston, S. C. These gentlemen, we learn, will have some of this variety for sale the coming fall.

A New Gooseberry.—The Early Kent is said to be enormously productive, never mildews, and is of a good marketable size, fully ten days before the Houghton.

Favorite Morel Pear.—A recent number of the *Revue Horticole* contains a colored plate and a description of a new pear named Favorite Morel, a seedling from William's Bon Chretien, raised by M. Morel, of Vaise-Lyon. The fruit is of good size, and handsome in shape and color, the flesh is white, fine grained, melting, juicy, and agreeably acidulous, ripening from the end of September to the middle of October or later. The tree produces abundantly, and does well on the Quince stock. M. Carriere recommends the fruit as being in every respect of first-rate quality.

The Newman Plum.—A friend says this is an improved variety of Chickasaw, which may not mean a great deal as to quality,—but is probably "hardy, healthy, and productive."

QUERIES.

Some Scarce Peaches.—"Subscriber" asks: Does the Park's Cling peach turn out valuable as a variety? Have you ever tasted the Letherbury's Lake peach? What has become of willow peaches mentioned a few years ago as promising to be good late peaches?

[We shall be glad of information in regard to the two peaches. So far as we know the willow leaved peaches referred to, have not found their way into the trade.—Ed. G. M.]

THE COLORADO POTATO BEETLE.—*W. G. K., Philadelphia*, writes: Our Eastern States, Pennsylvania, New Jersey and Delaware, are now the victims of the potato bug to a fearful extent. If you have any relief you can offer them in advice in your columns you would render them invaluable service. Are you aware of their attacking the tomatoes with injurious effect?

[Hereabouts they attack the tomato and egg plant equally with the potato. Any solanaceous plant satisfies them. Often in our past volumes we have given remedies;—indeed the popular "Paris green" was first suggested by one of our correspondents. Paris green is still the best remedy for potatoes,—but people will apt to be poisoned if used on egg plants or tomatoes. For these we should recommend persistent hand picking by children. On very large tracts, where this is too great a job, we have no adequate plan to offer but Paris green.—ED. G. M.]

IRON NAILS IN FRUIT TREES.—A correspondent, Oswego, Kansas, writes: I hear a good many persons say that nails driven in fruit trees will prevent borers and also add to the general health of the trees. Is this true and if so, will it apply to all fruit trees? I have now planted about one thousand trees of different varieties and don't want to commence nailing them without knowing more about it. We have in apple trees here, only the flat headed borer.

[We have never tried this,—nor do we know of any who have. It is so difficult to see any connection between a nail in a tree, and healthfulness, that if we were to be shown a healthy orchard, with nails in each tree, we should probably see so many other causes for the good appearance, than the nails would not enter into the account. We may of course be wrong,—but until we have more evidence than what we have yet had, we should as soon think of trying to have prosperity and happiness by nailing a horse shoe over the doors as to have healthy trees by merely putting nails into them.—ED. G. M.]

MOLES IN A GRAPERY.—*P. W., Vineland, New Jersey*, asks: Can you inform me what will destroy moles? My grapery is badly infested with them? If they become very numerous will they destroy the vines? Have you ever heard of their doing any damage to vines? By giving me any information you may have on the subject, you will confer a favor, and greatly oblige.

[It is not so easy to trap them in the soft earth of a grapery. The best plan is to drive them away. Rags dipped in coal tar, and buried in the ground, will do this.—ED. G. M.]

COPPER PLUM.—In the Philadelphia market the Richland plum is sold as the "Copper plum," and they are regarded as synonyms. It will be seen from the following note from Mr. Downing that he regards them as distinct. In our own immediate vicinity, the curculio gets all the plums, and we thus have but few opportunities of judging them as they grow on the trees. Mr. Downing says: "In speaking of profitable plums in your last number you advise Copper *or* Richland, which means a choice of either, but I suppose you intended both and it should have been Copper *and* Richland."

DISEASED PEACH TREES.—*I. S. C., Sergeantsville, N. J.*, writes: "I should be obliged if you can give me some *light* in regard to peach trees. I have an orchard five years old; up to last fall it was considered the finest in this neighborhood, where there are several orchards. This spring the leaves did not come out right and the trees have a sickly appearance; they have been ashed every year since they were set and well attended; had corn among them for two years and potatoes one, the balance of the time there have been no crops on the ground. Would fresh lime be of any service to them? I find now that they are full *of pismires*. The roots have small holes in them from which numbers of these little pests will run upon being disturbed. Any suggestions will be thankfully received and greatly appreciated. Hoping for an early answer.

[It is not possible to answer a question like this without more knowledge of details. Leaves will come out sickly in spring from a variety of causes, which would call for as great a variety of treatment. Perhaps the roots are injured,—look and see. They may get injured merely by frost alone. Frost has been very destructive to roots the past season. It may be they are preyed on by a minute fungus,—examine with a strong lens. Sometimes an aphis attacks the roots to almost incredible extent,—see how it is in this respect. Again the vital power of the trees may have had a severe strain by over bearing,—a severe drouth,—or injurious modes of culture,—in which case the wood freezes more readily than it would otherwise do. Cut some of the branches across and examine it. If this is the case the wood will show it, as those parts frost bitten will be black. The wood nearest the pith goes first. Sometimes even the cells with the strongest hold on life—last years growth—will get frozen as well as the interior, in which case the wood will be black clear to the bark. Thus it will be seen that only an examination can tell the cause or cure for the trees.—ED. G. M.]

FRUITS IN TEXAS.—Under date of May 18th, a Brenham correspondent says: "Our fruit crop looks splendidly, and we expect some ripe peaches in a fortnight. Texas crops good but late. Grasshopper complained of on the frontier. Weather warm by day, cool at night, rain moderate, would like some more."

THE WALDOWER APPLE.—*Mr. Downing* says: "The Waldower Apple mentioned in your last number, I have been told is a synonym of Fallawater."

PRIORITY IN THE NAMES OF FRUITS.—*Mr. Downing* says: "There ought to be an understanding among Pomologists which should be the recognized name of fruits where there are many synonyms. For instance *Buckingham*—which from all I could learn was the name most generally used, but some authors put *Fall Queen* as the original and the others—as synonyms; another *Equinetely* as the standard, and the others as synonyms. Now would it not be well to have a meeting of the leading Pomologists and decide which should be the standard name and all agree to adopt it. As it now is, it is all confusion.

[The subject introduced by Mr. Downing is a very important one. Uniformity in nomenclature is especially desirable,—but we doubt whether any single society can secure it. If the great mass of the people get hold of a name, it prevails in spite of all rules of right and wrong. Our greatest society enacted that the Lawton Blackberry should be called the "New Rochelle," and if we mistake not, the Dorchester, was to be "Lovett's improved,"—but in spite of all effort, they have remained Dorchester, and Lawton,—and we might refer to many other cases. If all our leading agricultural and horticultural newspapers could be brought to agree on any one name, the way to uniformity would be clearer than it is now. It would however require a good deal of watching and correcting of correspondent's MSS.]

Natural History and Science.

COMMUNICATIONS.

AMONG THE WILD FLOWERS OF SAN DIEGO, CALIFORNIA.

BY JAMES S. LIPPINCOTT.

The vegetation of San Diego presents an extraordinary appearance to the visitor from the Northern and Eastern States; and if he be blessed with scientific proclivities will prove exceedingly interesting. If he arrive in December, his attention will be early arrested by the peculiar mildness and the even range of temperature at this earthly paradise. This uniformity permits the continued blooming of many plants, whose congeners he is accustomed to find greeting the early spring in his Eastern home. In December, 1873, the mean temperature for the month was 54°, the mean of observations made at 7 A. M. being 49°, never falling below 41°, nor rising above 58°, the mean of the noon temperations was 66°, the lowest observation having been 56°, and the highest 72°; while for many days in succession the variation at 2 P. M. did not exceed *one* degree of temperature. The equable character of the temperature through December is quite as characteristic of January and February, and is well expressed by the stagnant condition of certain incipient flowers, which, having advanced to the condition of colored buds, await through the three months named for a few warmer days in which to evolve their full colors. One of the most remarkable of these, is the *Isomeris arborea*, a plant allied to the Caper of Southern Europe. This is a low shrub, which early in December exhibits a sparse budding, and continues to labor under the difficulties of its condition, making no advance, until March shall have brought a few degrees of

additional heat, when it opens its fine yellow flowers, and soon its large inflated brown or copper colored seed-vessels appear at the extremity of the long protruded pistils.

The plant which first appears upon the lowest *mesa* or branch, is a Saxifrage. This, like its eastern sisters, leads the floral throng, but blooms in December, and unlike them, enjoys the advantage of a bulbous root,—a necessary aid for preserving its life during the long droughts of summer. Drawing sustenance from a depth of four to six inches, it sends up its long, slender scape, develops one simple leaf, and a pale diminutive flower, but anchored below, resists the unfavorable agencies that would destroy every eastern saxifrage though accustomed to meagre fare and taking fast hold in "the clefts of the rocks." In the sunny exposures in sheltered arroyas, or the dry beds of streams which flow for a few days after rain, a white leaved *Salvia* and a showy, shrubby *Eriogonum* with pretty heads of white flowers also bloom in December. For several weeks no others are conspicuous.

As the warmth increases a bright yellow *Œnothera* hugs the soil which it adorns with its bright stars, and the yellow *Viola pedunculata*, its petals shaded on the back with a rich brown and its throat marked with dark lines, throws up its long peduncles from its leafy prostrate stem. Over the clumps of *Lithraea laurina*, an Anacardiaceous or Sumac-like bush, which affords much of the fire wood of this region, soon begins to trail the long green stems of the mandrake cucumber, *Megarrhiza oregana* or *Echinocystis* and to hang out its racemes of white flowers. This extraordinary plant is provided with a vast storehouse of supplies and appears to be capable of enduring a siege through years of drought. Its form is a solid mass, often exceeding in size that of a bushel measure; to the taste exceedingly bitter, and is said to be one of the ingredients in the "Vinegar bitters." From this mass the long stems arise annually and adorn large clumps of shrubbery with their green palmate leafage, and on the pistilate plants are developed in March, the green spiney cucumbers. A few days bringing increase of heat appear, and life springs upward, bloom and beauty increase around us, and the purple blossoms of the Alfilerilla (pronounced Elfillarie) from Spanish *Alfiler* a pin, the clover of this region, *Erodium moschatum* appear. This plant presents the aspect of the flattened tuft of fine-cut leaves pressed to the ground, but where the soil is good, and it can obtain an undisturbed growth it produces a heavy crop of leaves, which probably would prove as valuable for hay as it does for pasturage. It appears to endure protracted drought with extraordinary persistence, and to flourish upon hill-sides where the true clovers would assuredly fail for want of moisture. It will probably surprise our eastern readers to learn that the horses, cattle and sheep of Southern California are pastured upon geraniums, for to that order the *Erodium* belongs, being placed indeed between the *Geraniums* and the *Pelargoniums*. Intermingled with the Alfilarilla appear the slender succulent stems and narrow spatulate leaves of the *Calandrina Menziesii* which is allied to the *Claytonia Virginica* or spring-beauty of the Eastern States. The Calandrina often spreads over wide areas, adorned by its small magenta blooms peeping from among the bright green of its leaves; but in favorable situations after heavy rains, it puts on a magnificent aspect, standing a foot or more in height and massing its brilliant coloring, rivals the glory of a bed of Portulaca to which genus the Calandrina is closely allied.

As the vegetation of this region is influenced by the elevation and exposure, it may be described more clearly by watching the changes as we rise from the bay shore to distant heights. At the lowest levels, over which the highest tides flow, *Salicornia* and salt grasses appear; and upon the clay soil, elevated but little above the reach of tide an ice-plant, *Mesembryanthemum*, abounds. The leaves of this species, though rather small are brilliant with a rich setting of gem-like vesicles filled to the utmost with saline juices, and cover the surface with their varied curving masses of green and purple, and bright with starry flowers. Many acres of fallow ground, and abandoned gardens, are covered by this Mesembryanthemum, accompanied at times by another species of much more robust growth, whose leaves, twice the size of one's hand, resemble bunches of luxuriant lettuce, almost tempting the observer to gather for his palate's delectation this green herb, which certainly would need no salt in its dressing. A walk over acres of these singular plants saturates one's boot-soles; and the sportive pedestrian, with but moderate effort may slide upon the slippery surface. Another ice-plant, producing leaves of the thickness and length of one's finger though tringular in section, abounds on the land-side of the sand dunes of the neighboring Isthmus of San Diego, where its long trailing stems, beset at short intervals with unique leaves and large red-fringed radiant flowers are interesting to the most casual beholder. The empty skin of former year's growth stretching far behind the growing plant, resembles the exuriæ of a snake; while the bright green of the advancing growth seems hurrying away from its dead progenitor.

On the bay side of these sand dunes often occur extensive growths of *Abronia arenaria*, which cover the sloping sands, adorning them as if they had been planted with bright red Verbenas. On the landward side of these dunes and higher up and more inland, a fine *Anacardiaceous* plant, *Styphonia integrifolia*, appears, and with its head of white and roseate small daphne-like, but inodorous flowers, thick coriaceous leaves and strong growth, forms a highly ornamental shrub. This plant occurs again on the high *Mesa*, near the city; and in Paradise Valley, three miles South of San Diego, it becomes a tree of respectable size. In the latter locality to the surprise of the Northern botanist, there flourishes a species of Elder, *Sambucus*, which much resembles a well grown apple tree. More remote, but still not distant from the waters of the Bay, the lower levels are delicately tinged with the light blue flowers of *Gilia dianthiflora*, and the Magenta-flamed *Orthocarpus purpurascens*, which is allied to the *Castilleia* or painted cup of the Eastern States. This blue and purple display of lovely carpeting is sprinkled with the delicate white stars of *Eritrichium Californium*, a near ally of our Forget-me-not or *Myosotus*; and is again varied by frequent growths of the humble plaintain, *Plantago patagonica*, which seems to be almost universally distributed. The yellow *Erysimum asperum*, and many less showy cruciferous plants also abound; and *Sanicula bipinnata* an umbelliferate, is also of frequent occurrence.

As we rise higher, the American cowslip or Pride of Ohio, shooting stars of the boys, the *Dodecatheon Media*, literally twelve gods, but wherefore is not clear, abounds in favored spots, sometimes covering many square rods and hanging out its pink-and-white banners with a singular abandon as if conscious of its eminent claims on our admiration. On some low hill sides in Paradise Valley, four miles East of San Diego, we have seen masses of this unique and beautiful plant standing one foot in height, of extraordinary vigor, and everywhere putting on a character and coloring so diverse from our eastern species, as almost to induce us to believe it really distinct. The brilliant beauty of the *Dodecatheon* is however eclipsed by the crimson of red poppy, *Meconopsis crassifolia*, in this vale of paradise.

(To be concluded in next number.)

NOCTURNAL GROWTH OF PLANTS.

BY REV. L. J. TEMPLIN, UNION CITY, INDIANA.

The books teach us that plants do not grow in the night. This is explained by the fact that the vascular structure of the vegetable is composed principally of carbon, much the larger proportion of which is absorbed through the leaves in the form of carbonic acid gas. This gas being composed of carbon and oxygen, is decomposed by the plant, the carbon being appropriated to the building up of the vegetable structure, while the oxygen is given off by exhalation through the leaves. But we are taught that this absorption, assimilation and rejection can take place only in the presence of light. It is even held that this process is reversed during the darkness of night, and that the plant actually loses more or less of its substance during the absence of light. This is the theory. Do the facts sustain it? Two years ago I tried measuring a stalk of growing corn, morning and evening, for a succession of days, and found that it grew in height more during the night than it did through the day. Recently I have tried a similar experiment on several different plants, the results of which are given below. And though the extension of a plant in length may not prove conclusively that the substance of the plant is increased, it certainly does raise the question and throw some doubt on the correctness of the above theory.

The following is a summary of my late observations:

Plants Measured.	Average During the Day.	Average During the Night.
Corn	3-4 inch	3 8 inch
Potato	1-2 "	4 10 "
Pea	3-4 "	10 12 "
Onion	7-8 "	1 2 "
Hop-vine	7 inches	3 inches.

It will be seen that the greatest difference is but little over one-half, while in one case the nocturnal growth was greater than the diurnal. How is this apparent growth of these plants to be accounted for if they do not grow in the absence of light? These observations were made at a time when there was no moon shining at night, the light of which could affect the growth. The weather was warm and clear, and had been preceded by a few days of showery weather that

caused a rapid growth of vegetation for so early a season as May. Will some of the savans tell wherein our observations are at fault, or reconcile these facts to the commonly received theory, or shall we conclude the theory erroneous?

EDITORIAL NOTES.

BUG OR BEETLE.—A western cotemporary takes an eastern paper to task for writing of the potato "bug" when it should have said *beetle*. It was a good chance to get off a little learning. But it was a little funny to note in the editorial columns of the same paper, a talk about Rose *bugs*, when it must have meant beetles, surely. It reminds one of a little story about motes and beams, but perhaps our readers can remember it without a quotation from us.

SPARROWS EATING PEAR BUDS.—A correspondent of the *Country Gentleman* is worried because some friend told him that he saw with a telescope the English sparrow eating the buds from a pear tree. It is more than likely his friend was mistaken. The poor wretches will have a hard time of it in our American winters, and will not wander far away from where the crumbs fall from the table. "Our street" in Germantown, is not very closely built up, and during the last winter many died from want. "Our office" is at the foot of the street, and many wandered so far as this in the hope of finding a few seeds on a mass of grass the dry tops of which were above the snow. Here they fraternized with the snow bird and the American sparrow. They were often together, and though food was uncommonly scarce, they never once quarreled. But, and this is why we write this paragraph, the only tree that they could alight on in sight of our window, was a Dearborn seedling pear tree, about twenty-five years old, with thousands of blossom buds, and we can vouch for it, that not one bud did these starving creatures destroy. It needed no telescope to observe them, as the trunk of the tree is but fifteen yards from our window.

VITALITY OF SEEDS.—Usually scientific men run counter to popular opinion; but once in a while they seem to take up and adopt notions that have less evidence to sustain them than those they reject. One of these is that seeds usually with a limited vitality will live for an indefinite period when in the ground, or "Egyptian tombs." There has been no good evidence of this. In the May *Horticulturist* Robert Douglas has some common sense remarks, showing how much of the mystery attending sudden appearances, can be explained without resort to any "great vitality theory" in seeds.

FORESTS AND THE HUMAN RACE.—It is now the Hon. Alex. Delmar who is terribly worried about the consequences. He pleads that "when the earth first became the abode of man, its habitable surface was wholly covered by trees" The mound builders of this country, cut away the forests for agricultural purposes, a dry desert followed, and thus they had to vacate the country. And they cut away all these forests, we suppose, with their stone axes! Then he quotes a newspaper paragraph, from some irresponsible writer in a Philadelphia paper of thirty years ago, that Pennsylvania would very soon be dependent on Ohio for wheat, as it can't grow much more since the destruction of her forests,—but since that time Pennsylvania has become independent of all States for wheat, notwithstanding the immense increase in her manufacturing and consequently consuming population. The ignorant Chinese who has cut away most of his forests till he has to depend on the Bamboo for his timber ought to be about to follow the migratory example of the mound builder by this time,—but the following newspaper paragraph, according as it does with well known facts, tells another story. It may be worthy of Mr. Delmar's consideration:

"The Chinamen, who walk over bridges built 2 000 years ago, who cultivated the cotton plant centuries before this country was heard of, and who fed silk worms before king Solomon built his throne, have 50 000 square miles around Shanghai, which are called the garden of China, and which have been tilled by countless generations. This area is as large as New York and Pennsylvania combined; is all meadow land, raised but a few feet above the river (lakes, rivers, canals) a complete network of water communication; the land under the highest tilth; three crops a year harvested; population so dense that, wherever you look you see men and women in blue pants and blouses, so numerous that you fancy some fair or muster coming off, and all hands have turned out for a holiday."

VIOLA PUBESCENS.—The *Gardener's Chronicle* has a good word for our Viola *pubescens* which it describes as having flowers of a beautiful blue mauve. It no doubt means Viola saggitata. V. pubescens is a yellow species.

FREEZING OF THE SAP IN PLANTS.—It was our impression that we were almost alone in horticultural literature in maintaining that the juices of plants, commonly hardy, cannot wholly freeze, and yet the plant or the parts frozen retain its life.

But we see that the *Gardener's Chronicle*, edited by one of the foremost of vegetable physiologists, Dr. M. T. Masters, is evidently of the same opinion. In an editorial article on the subject of injury by frost to wholly hardy plants, in that paper of May 15th, it explains that plants usually hardy, "may have its sap crude," though we do not quite understand what is meant by this; but at all events when this is the case, the sap *has not the power to exclude the frost*, and the result it is "frost bitten" and dies. This is the same doctrine we teach.

NEW PLANTS OF UTAH.—Dr. C. C. Parry spent last season in Southern Utah, exploring the botanical features of that country, and finding some twenty species, which were before unknown, and which have been named accordingly. An amusing criticism appears in a western agricultural paper. The editor thinks Yucca brevifolia must be wrong. He "cannot find it in Loudon,—and it is probably Yucca superba." Yucca baccata, he says, "is not described by the old standard authors, and is probably Yucca angustifolia" He thinks Dr. Parry utterly mistaken in his classification of the Larrea Mexicana, which in his opinion, "should be placed among the Laurus tribe." Malvastrum coccineum, he thinks, "must certainly belong to the Malva tribe." He does not feel sure about the Lycium, but quotes what "Clusius says" about them, and so he "might go on, and cover a quire of foolscap." In physiological botany, we often find matters questioned because 'Senebier' or T. A. Knight or some other one hundreds of years ago knew nothing of them,—but it is something new to have similar criticisms in this department.

CONIFERS FROM COLORADO.—Some good cones and foliage of an interesting Conifer (Abies concolor) have recently been received at the Kew Museum. Its history has been given by Mr. Andrew Murray at p. 105 of the present volume of the *Gardener's Chronicle*, and Mr. Murray's opinion as to its close resemblance to P. grandis we readily endorse. The cones referred to above were sent by Dr. Englemann, some from the gorges in the foot-hills of the mountains in Southern Colorado, and the others from Southern Utah. Of these Dr. Englemann thinks there are two forms, differing in shape of cone - one described as pointed, and the other retuse, and also differing in their bracts and scales. One of these cones had fallen to pieces on its journey, therefore we are not able to speak on that point; but so far as the bracts and scales are concerned we must confess ourselves as being unable to distinguish between them. With regard to the "question of which is Douglas' Abies grandis and which amabilis?" quoting from Dr. Engelmann's letter to Dr. Hooker, he says, "I should like to know whether any of the different forms have yet borne fruit in England;" and he states that a tree with very dense, dark green foliage, white on the lower side, which he saw in the Edinburg Garden under the name of amabilis, and another at Dropmore, where it was called grandis, are undoubtedly the true amabilis. It is singular, Dr. Engelmann says, that none of the forms of grandis should have fruited in England, while in Colorado it fruits at the age of twenty-five years.

The following list of Colorado Conifers, with the altitude of each species, from the pen of such an authority as Dr. Englemann may be valuable to some readers of the *Gardener's Chronicle*:—

Abies gradis.—Altitude from 8500 feet to the tree limit.

A. concolor.—Between the waters of the Platte and Arkansas; between 6000 and 7000 feet.

Tsuga Douglasii.—6000 to 10,000 feet.

Picea Menziesii.—In valleys near mountain streams; 6000 to 8500 feet; never forming forests.

P. Engelmanni.—In valleys, and especially on mountain slopes, scattered, or in extensive tracts; 8500 feet, to timber line 11,500 feet.

Pinus contorta.—Extensive forests on mountain slopes; 9000 to 10,500 or 11,000 feet; in valleys running down, scattered as low as P. Engelmanni.

P. Ponderosa.—Lower down at the base of the mountains than any other Pine; at an elevation of about 5000 to 9000 feet.

P. aristata.—9000 and, more especially, 10,000 feet to timber line, and in scraggy bushes even above it, up to 11,500 or 11,800 feet.

P. edulis.—Only in Southern Colorado, from Pike's Peak southward to between 6000 and 7000 feet.

P. flexilis.—9000 to 10,500 feet, probably not up to 11,000 feet, in valleys coming down to 8500 feet.

Juniperus communis.—Up to 9000 or 10,000 feet elevation.

J. virginiana.—Up to 9000 or 9500 feet; over the territory in the southern part (Colorado Springs to the Arkansas) in very unusual forms, short trunks, broad flat heads, &c.

J. occidentalis.—Only from Pike's Peak southward with Pinus edulis, especially on the Upper Arkansas River.—*Gardener's Chronicle.*

QUERIES.

JUANULLOA PARASITICA, is the plant referred to in the following from D. G., Poughkeepsie, N. Y.: "Will you please and see if you can give us the right name of the enclosed flower; it is one of the old greenhouse plants; most of them are getting all forgotten now a days, and even good gardeners do not know them, not even our neighbor, Mr. F. W. Poppey. I took it for a Brugmansia; it flowers mostly in the fall; perhaps you have the name, and will give it in the *Monthly*, and oblige."

NAME OF WILLOW.—*Young gardener*, Great Barrington, Mass. It is but a chance that one can name a willow from a small sprig with any certainty. Yours appears to be Salix purpurea.

Literature, Travels & Personal Notes.

COMMUNICATIONS.

THE CONIFERÆ OF THE ROCKY MOUNTAINS.

BY DR. GEO. ENGELMANN.

Lecture before the Washington University.

(*Continued from page* 184.)

The stateliest, most striking of all, is the mountain balsam or mountain fir: Abies grandis, the great fir, our old friend Douglas named it, when he met with it on the waters of the Columbia River. There it has a right to the name; there trees of five or eight feet in diameter and 200 feet high are said to be not rare. The severer climate of Colorado never permits them to reach such dimensions. The largest I have seen were scarcely three feet in diameter. and 100 or 120 feet high. But a stately tree it is, nevertheless; look at the smooth, white, column like trunk; the regular pyramid of the head, tapering to the very top with spreading branches; and spreading foliage, lighter green than the sombre spruces, with a paler tinge on the lower surface, and in the top, on the uppermost branches, those deep purple cones of cylinder form, rising perpendicularly up like huge tapers of a Christmas tree. Its wood is coarse and light, and of no more value than that of most firs is. We do not find forests of it, but meet with it in suitable damp localities, almost up to the timber line, and cannot help always a welcome to its form, as graceful as it is majestic.

The valley is narrower, the creek wilder, the mountains higher; now perpendicular cliffs jut out from the mountain side, with here and there a lonely pine, like a sentinel, on an inaccessible pinnacle; yonder the more even, I can not say the more gentle slope, bears the thickest of those grand pine forests, which for miles and miles clothe with eternal verdure the flanks of those giant mountains as high up as physical causes will permit them. to 11,500 feet altitude—above that elevation no trees can live.

But we are in the valley yet, and can not leave it without noticing the numerous flowers which spring up in the gloom of the forest. Above all the abundance of low rose bushes is striking, such as we have not met with in the lower valleys, covered with fragrant flowers in one season, and not less beautiful in autumn when their large, bright pendulous pods glisten in the sun, brighter than the finest corals; nor must we forget the red raspberries, the most delicious and most plentiful fruit of the mountains, and the blue and red huckleberries, which for acres and acres cover the soil under the pines. Several kinds of gooseberries and two of strawberries are also found here, but not in sufficient quantity. Other fruits, cultivated fruit, are unknown in this climate, unless they are brought from California, which they often are. Another humble, but quite interesting, berry of these higher mountain woods is what they call the mountain grape. What botanist, what pomologist could guess

that thus they name and thus they use here the black, astringent berries of the low, evergreen, mountain barberry, sometimes called mahonia? Fermented with the addition of sugar, the juice really makes a palatable and wholesome wine.

Two trees only constitute the bulk of the forest here. The straight pine covers the upper part of the valley and the mountain sides from 8 500 to about 10.500 feet altitude, and then gives way gradually to the mountain spruce, which is the prevailing tree at the last 1,000 feet below the tree limit.

The tree I would designate as the straight pine was named by its discoverer *contorta*—the crooked one—perhaps on account of the frequently twisted cones. Douglas, so often mentioned, found it near the mouth of the Columbia River, whence it extends up and down the coast, and as well to the mountains of the Pacific States as to the Rocky Mountains, with the heavy pine—one of the widest-distributed Western pines, but a more northern tree than that, not found in New Mexico or Arizona.

Look at the straight, slender trunk, covered with thin, scaly, light gray bark, and say whether straight pine is not the more appropriate name? The dark green, short and stiff leaves, in pairs, characterize the tree not less than the small prickly cones which cover the branches, old and young, in long strings. These cones do not drop at maturity; they often do not even open their scales to cast the seeds, as if to store them up for future use. Thus, the branches are loaded with the cones of sometimes eight or ten years. No European pine has such a tenacity; and of our Eastern pines only one exhibits something like this character, and has from this property received the name *serotina*, the tardy one. Quite a number of Californian and Mexican species have the same peculiarity, the purpose of which is yet unexplained. The trunks of the trees are only one or two feet thick, but the wood is of excellent quality.

The mountain spruce, *A. Engelmanni*, now mingles with this pine at its upper limits, and soon takes its place completely, and forms the highest forest belt. You recollect that we have met with it in the valley, not far above Empire, but its true home is in the high mountains. Here, just below the Alpine slopes, it is the prevailing forest tree, and extends south to the mountains of Arizona, and north and west through Montana to Oregon; but its peculiarities escaped botanists until the first scientific explorer of Colorado, Dr. Parry, of Davenport, brought it to light, twelve or thirteen years ago. The cinnamon colored thin bark, detached in flakes, covers the straight trunk, on which the narrow top rises like a spire, densely covered with dark green, or sometimes paler or even bluish foliage. Then pretty pendulous cones of purplish or bronze color are crowded on the extremity of the uppermost branchlets. It is a valuable tree, with soft, white, close grained wood, whence the mountaineers often call it a white pine. A gentle bridle pass leads us up through these woods until we reach open ground; a charming little park, covered with flowers, irrigated by springs which send off their waters to both oceans; we are on the crest of the mountains, in one of the best passes, the easiest and pleasantest in these mountains, Berthoud's Pass as it is named after one of its first explorers. Back into the high mountains of the head of Clear Creek, forest clad below, bare and enclosing extensive snow banks higher up—the view opens, and forward into the wide expanse of Middle Park. with its grassy valleys and rocky pinnacles—right before us, in the distance the rugged forms of Long's Peak.

In the pass itself dense groves of the spruce trees two and a half and three feet in diameter, attract our attention. We have examined the age of smaller trees, just cut down, in the construction of a wagon road over the pass, and find that trunks of six or eight inches in diameter show 120 to 180 annual rings, so slow is their growth; those largest ones must then date back 600, perhaps 800 years.

But the pass can not hold us long; we hasten to see the last of the timber, and explore what we have repeatedly spoken of as "timber line."

On both sides of the saddle-like pass the mountains rise higher. We follow the woods up four or five hundred feet, without noticing much change in the size or closeness of the trees; the larger ones, to be sure, have disappeared, but middle-sized trees crowd around us, till suddenly we find ourselves on the edge of the timber, and the Alpine slopes open out before us grassy and flowery; or, as the case may be, stony and rocky, rising sometimes between 2000 and 3000 feet higher up. But the forests do not give up their domain without a struggle. Between their boundary and the bare summits is a belt of, as it were, debatable ground, where, scattered, the hardiest pines try to encroach, gain a foothold, persist, perhaps for years, in constant struggle

with the elements, are injured, thinned out in colder winters, until only a few of the toughest are left, scattered, perhaps, where the ground affords a slight protection, but always woefully maltreated and crippled by the overpowering forces opposed to them.

This belt, this bat le field, narrower or wider, according to the nature of the ground and the steepness of the slope, has amost picturesque but at the same time a most dismal aspect, the very image of living nature in its combat with the elements.

Suppose we approach it from the east, or on an eastern slope. The last trees, still a foot or a foot and a half in diameter, and thirty or forty feet high, are behind us, before us, a few hundred yards, or, may be, a quarter of a mile, crooked or gnarled bushes bent toward us, sometimes almost prostrate on the ground, smaller and farther apart as we rise higher. They are apparently well covered with leaves, and abundantly branching, and often of unimpaired fertility, and covered wi h cones.

We have passed this belt, and now turn round. What a moment ago were fresh and fruitful, though misshapen bushes, are now turned into white and ghastly skeletons. Bare trunks and branches only are in sight; stripped of leaves, and of bark even, and bent over to the east.

The terrible Western winter storms and pelting hail, against which there is no protection in these altitudes, have killed the entire western half of these bushes; only their eastern succumbent half lives a precarious life.

Is it not singular that photographic art has not among the hundreds of mountain views annually taken preserved a single one that I could discover of such remarkable scenery?

One of the pines which thus encroach upon the Alpine domain is our mountain spruce, the other is the hickory pine which we meet here for the first time. We might have seen it, however, on Douglas Mountain, near Empire, where it comes down to about 900 feet above the ocean. It is often seen in Colorado, from that altitude to the timber line, wherever the soil is rocky and barren enough, while the spruce prefers more fertile and damp ground.

The hickory pine (*Pinus aristata*), also a discovery of Dr. Parry, has its name from its very hard and tough wood, which when communication with the east was more difficult than it now is, was used where we employ maple or hickory. It is one of the five leaved pines like the white pine, but with very different, short, oval, dark purple cones.

On Douglas Mountain, and here and there over the higher mountains, between 8,000 and 11,000 feet altitude, still another and very singular pine occurs—the squirrel pine P. flexilis—still more like the white pine, but with large edible seeds, much esteemed by the former Indian owners of the soil, and as well by the squirrels, some species of which inhabit these woods, and leave their traces in the shape of torn and plundered pine cones under the trees.

The action of animals to obtain the seeds of some of these conifers is often very ingenious. The cones, as I have said, usually open at maturity, and scatter the seeds far and wide. To prevent such a waste of the good thing, some animals, most probably birds, cut the small branchlets just before the cones mature, and drop these to the ground, where they can feast on the seeds at leisure.

In two of the junipers of the Colorado Mountains we meet old acquaintances.

One is the well-known juniper bush of the North and East and of Europe, and the other, what we usually call our cedar. They are the only conifers extending from the Atlantic to the Pacific.

We have lingered so long among the pines of the Snowy Range and the Clear Creek Valley that your patience is, I fear, well nigh exhausted, and I will scarcely find time to do more than allude to the conifers which are peculiar to Southern Colorado; to that part of the State—State it is since yesterday—watered by the affluents of the Arkansas River.

An elevated country between Denver and Colorado Springs called the Divide separates not only a northern from a southern slope, but also a northern from a southern flora.

The mountain hemlock and the heavy pine are common to both districts; other northern or sub-alpine conifers are also found in congenial locations of the southern mountains; but a few species, which we have not yet seen, make their appearance about the base of the mountains.

A new balsam fir, named by me many years ago—from Santa Fe specimens—Abies concolor, because of its light bluish leaves, of the same color on both sides, graces the gorges in the sandstone formation at the foot of Pike's Peak, the Ute Pass near Manitou, Cheyenne Canyon, and, above all, the charming Glen Eyrie, a tree

that will be highly prized in Europe, where it is just now being introduced.

How different is the scenery near Canyon City, where, fresh and green, the young Arkansas breaks through that great gap in the mountains. No woods are here, such as we have seen in the Clear Creek range; dark clumps of bushy trees dot the rocky slopes; southwestern forms which here find their northeastern limit.

The nut-pine is one of them, the small, round, knobby cones of which include large edible seeds, well known in the markets of New Mexican towns by the name of pinones. Dr. Wislizenus, of our city, brought the first specimens of this tree from Santa Fe, which I described under the name of *Pinus edulis*. In New Mexico, as well as Southern Colorado, the wood is considered the very best fire-wood.

The other tree or bush, as the case may be, generally growing with the nut pine, is a kind of juniper or cedar—*Juniperus occidentalis*—which I only mention as the last of the thirteen Colorado conifers, because said to be an entirely useless tree. It does not split, but splinters; and in an open fire cracks and flies, but is excellent in a stove. It is used for fences, but splits so poorly that it is not otherwise used.

I thank you, ladies and gentlemen, for the attention with which you have listened to, perhaps, too dry details; but let me hope that what I have said may add to the interest and pleasure with which one or the other of you may hereafter visit the forests of the Rocky Mountains.

EDITORIAL NOTES.

FIELD AND FOREST.—This is the title of a new monthly magazine of Natural History, issued by the Potomac Naturalist's Club, and edited Mr. Charles R. Dodge. It is much of the character of the excellent little Bulletin of the Torrey Botanical Club, only that it takes in every branch of natural history. Such well known scientific names as Dr. Coues, Dr. Abbott, Prof. Cyrus Thomas, Dr. Geo. Vasey, and Prof. Chickering appear as contributors to the present number.

REPORT OF THE STATE ENTOMOLOGIST OF THE STATE OF MISSOURI.—As our readers mostly know Missouri has a State Entomologist, employed at a small salary, to find out all that can be known of the insects that may have an influence, noxious or beneficial, on the agriculture or horticulture of the State. Mr. C. V. Riley has filled the office since it was established, and the result of his labors is not only a great benefit to Missouri, but the whole world feels under an obligation to that State, for what it is doing in this line for knowledge.

The present report has an exhaustive article on the Potato Beetle, containing all that is absolutely known about it both in its natural history, and the means for its destruction. Similar respects are paid to the Chinch bug, so destructive to Western wheat fields.

TRANSACTIONS OF THE KANSAS STATE HORTICULTURAL SOCIETY FOR 1874. From Geo. E. Brackett, Secretary, Lawrence.—It gives an abstract of the laws that have been made by the legislature on various arboricultural and horticultural topics, and the body of the work made up of reports from various parts, and discussions at the meetings; many of the essays are of a high order of intelligence, and would do credit to a more pretentious work. The Report is not only full of interesting matter to Kansas individually, but shows what Horticulture has done for it.

TRANSACTIONS OF THE ILLINOIS STATE HORTICULTURAL SOCIETY. From O. B. Galusha, Secretary, Normal, Illinois.—This is a large volume of 200 pages, beautifully bound, and profusely illustrated by cuts of injurious insects, of which full descriptive accounts are given. When the great value of these Reports are taken into consideration, it is surprising that all the leading horticulturists and agriculturists of the State are not members, yet only about one hundred are on the roll. In a prosperous State like Illinois this ought at least be multiplied by ten.

TRANSACTIONS OF THE MASSACHUSETTS HORTICULTURAL SOCIETY, 1875. From E. W. Breswell, Corresponding Secretary, Boston, Massachusetts.—At the present time, growing in age, this honored Society shows all the vigor and activity of healthy youth. It is not long since that the publication was commenced, but it is quite as useful as the exhibitionss. It is no honor to an exhibitor to take premiums unless the horticultural world knows of it, nor does the world care to know Mr. this or that took a premium, unless it knows what he took the premium for, and all the particulars go with it. The Massachusetts Society gives the former fully in its Annual Report, and in these transactions gives abstracts of discussions on topics brought out by the exhibitions and exhibition incidents.

It is a pity there is no index. In a general way we note that there is a charming essay on the Azalea by Col. Wilder; on Strawberries by B. G. Smith; Shade Trees by John G. Barker; Pelargoniums, by Wm. Gray, Jr., with a list of the best kinds, and no one can speak from better experience; Ferns by John Robinson; on Seedling Fruits by J. B. Moore, in which the origin of the "Sweet and Sour Apple" was discussed; Parlor plants by Mr. Rand; Orchids by James Cartwright; Gardening by C. M. Hovey, and an address by Mr. Parkman. If there be any of our Massachusetts readers who are not members of the Massachusetts Horticultural Society, and so do not get these Transactions, they miss some excellent and profitable reading.

HORTICULTURAL WRITERS.—A correspondent calls our attention to an editorial in *American Rural Home*, an agricultural paper of Rochester with a good reputation, but which does not come to our exchange table, which says that the writers in the *New York Tribune* do not know as much as they ought to do, "probably because they do not live at Rochester." Our correspondent should not feel badly about this, however. If Rochester people know as much as they ought to, and have no more to learn, it is not a safe place to live in. But we doubt whether any considerable part of intelligent Rochester Horticulturists share this sentiment. The writer merely had a "jolly" moment, when he penned the lines.

THE POSTAL LAWS.—The Boston papers say boldly that the postal outrage was the work of Senator Hamlin, acting under the whip of the Adams Express Company. It appears it was not intended to include transient newspapers, perhaps books and some other things, which do not interfere much with the express, and it is said that the "law will be repealed next winter." But unless our Horticultural and Agricultural friends look pretty sharp they will find the law will not be altered as it affects *them*. The Adams Express Company having been powerful enough to ride over them, will doubtless be in a position to keep the advantage they have gained.

THE NUTMEG.—This spice, so much used in every family, is indigenous to the Moluccas, reaching its greatest perfection in Amboyna. This island belongs to the Dutch, who do not permit the cultivation of the Nutmeg in the other islands under their control. The Nutmeg tree is 25 to 30 feet high when fully grown, with foliage of a rich dark green, and very plentiful. It reaches maturity, or full productiveness, at the fifteenth year for planting. From the blossom to the ripening of the fruit takes about seven months; but as the tree is a perennial bearer, there are always blossoms, green fruit and ripe on the tree. The yield is most plentiful in the last four months of the year. The average yield per annum of a healthy tree is 5lbs. of Nutmeg and 1¼ lbs. of Mace. A plantation of one thousand trees, requires the labor of seven coolies, fifty oxen, and two ploughs, for cultivation and harvesting. The fruit is gathered by means of a hook, attached to a long pole. It is shaped like a Pear, about the size of a Peach, and has a delicate "bloom." The nut has three coverings; the outside one is a thick fleshy husk, having a strong flavor of Nutmeg. This husk preserved in syrup when young, is a favorite sweetmeat in the East Indies. Under this husk is the bright red mace, which is carefully flattened by hand, and dried on mats in the sun. It loses its rich scarlet, and becomes a dull orange color, and requires to be kept perfectly dry to preserve its flavor. After the Mace is removed from the fruit, the nuts, in their brown shells are placed on hurdles over a slow fire, which is kept constantly burning under them for two months. The nuts then rattle in the shells, which are cracked with a wooden mallet, the sound nuts selected and packed in wooden cases, and sprinkled over with dry sifted lime, and are then ready for market. The best Nutmegs are dense, emit oil when pricked with a pin, and can always be known by their heavy weight. Poor ones are light and easily detected. —*The Garden.*

CUTTING RED WOOD TIMBER.—A correspondent of the *Country Gentleman* says: Striking off from the beaten paths of tourists, the writer lately determined to find material for a letter to the *Country Gentleman* in a visit to the red-wood forests, and the saw mills, on Russian River. The nearest mill was twenty miles distant. But such was the purity of the atmosphere, the timber can be distinctly seen looming up in its gigantic height twenty miles away, on the mountains. After a sharp drive across the plain we descended to the river through Pocket canyon where forests of fir and laurel line the hill sides. At this season the river is a stream of fifty feet in width, about knee deep. The other bank is the margin of the red-woods. A mile beyond we came to Murphy's mill, located in a valley in the heart of the timber. Though it has been running continuously all summer, with a force of

twenty-five men, and a capacity for sawing 25,000 feet per day, they have not succeeded in clearing the trees away from dangerous proximity to the buildings.

Having read newspaper and magazine articles, and books of travel, laudatory of everything here, to a tiresome extent, I took the precaution to carry a tape line, and propose to set down the sober results of measurements, and will leave the speculative and poetical departments entirely out. The men live in little houses scattered along a trout stream near the mill, the stumps of the trees being as large in many instances, as the houses. The mill building is 40 by 90 feet, two stories high. The engine is 60 horse power, having furnace, consuming less than one-half the saw dust and slabs produced. A car bears the surplus away to a pile, always on fire. The gang of laborers is divided a follows: 16 men in the mill, 8 in the woods, 1 cook, and four yokes of oxen. The wages for the eight Chinamen are $26 per month; other common laborers, $40. The engineers and sawyers receive from $65 to $80, and the axemen who fell the trees are paid $80 per month, all being "found." The axeman is the most important man on the premises, for the reason that, if he is not expert in felling the timber, great annoyance and destruction would follow. The timber is soft and straight grained, and splits better than chestnut. His axe is light, with a narrow blade, and a helve 42 inches long. All trees are cut from two sides only; there is no girdling or haggling. He chops both right and left handed; yet has to reach a long way when the trees are very large. In contriving to throw the trees away from the mill, or away from other timber, no matter how they lean, brings out the skill of the woodsman. But he does it every time. Not only that, but his employers will wager that, his skill is so great, he will drive a stake set 150 feet distant, with the falling tree; and showed me where he dropped a ten foot red-wood exactly between two stumps, either of which, if struck, would have shivered it. There was less than a foot to spare on either side. As will be at once understood, the point is to work up the timber without loss or delay, and to the best advantage. A mistake made in lodging one of these huge fellows against another, would entail hundreds of dollars in the expenses and trouble of clearing away the debris. In the older settled States there are few men left who could take their fathers' places as "corner men" at a house raising. Enough are left to bear witness to the wonderful efficiency of an axe, when wielded by skillful hands. It requires more judgment to manage than does the handling of his weapon by a swordsman. This was made plain during the war of the Rebellion, by the great superiority of lumbermen and Western men over others, when it came to slashing timber for rifle pits and road making.

THE HAZEL NUT (Corylus Avellana) is said by Pliny to derive the name of Avellana from Abellina in Asia, supposed to be the valley of Damascus, its native country. He adds, that it had been brought into Asia and Greece from Pontus, whence it was also called Nux pontica. Theophrastus calls these nuts by the name of Heracleotic nuts, a name derived from Heraclea, now Ponderachi, on the Asiatic shores of the Black Sea. Hippocrates gives them the name of Carya thusia. Dioscorides says they were also known by the name of Leptocarya, or small nuts. Other ancient writers confound the Nut with the Chestnut and the Walnut. But all the above indications of importation from the East relate only to particular varieties, for the species, as is well known, is common enough in Europe and a great part of Asia in a really wild indigenous state.—*Journal Horticultural Society*

ORIGIN OF THE LINNEAN SOCIETY.—The Linnean Society, like many another great institution, had its origin in an accident. The late Sir John E. Smith, then a medical student, was breakfasting one day with Sir Joseph Banks, when the latter told him that he had just had an offer of the memoranda and botanical collections of the great Linnæus for £1000, but that he had declined to buy them. Young Smith, whose zeal for botany was great, begged his father to advance to him the money, and at length persuaded him to do so, though not without difficulty. It may appear strange that Sweden should consent to part with the treasures of her far-famed naturalist; and indeed the king, Gustavus III., who had been absent in France, was much displeased on his return at hearing that a vessel had just sailed for England with these collections He immediately dispatched a vessel to the Sound to intercept it, but was too late. The herbarium books, MSS., &c., arrived safely in London in 1784, packed in twenty-six cases, and cost the purchaser £1088 5s. In the following year Smith was elected a Fellow of the Royal Society, and devoted himself more to botanical studies than to his profession as a physician. In 1792 he had the honor of being engaged to teach botany to

Queen Charlotte and the princesses, and he was knighted by the Prince Regent in 1814. Additions were purchased by the Linnean Society.—*Journal of Horticulture.*

Horticultural Societies.

PENNSYLVANIA HORTICULTURAL SOCIETY.—The spring exhibition was held this year in June, and was not equal to others which have preceded it. It is always difficult to get a good spring show. Earlier in the spring gardeners are too busy with spring work,—and later people are away; or their plants not in condition for a public appearance. With a few good exceptions, the articles exhibited on this occasion showed no extraordinary skill in culture, and for the encouragement of which skill the society offers premiums.

The best grown things exhibited were perhaps the Double Zonale Pelargoniums; but only here and there was there a plant with more than three or four trusses of bloom. Some of the kinds were very showy. We never saw Asa Gray look better. It is indeed one of the best. Among some newer ones we noted Jewel a crimson,—Jacobæ, a shade darker than Jewel, and foliage distinct,—Crown Prince of the class but darker than Mad. Lemoine. There were some good seedling singles on exhibition for the first time, of which one crimson with a distinct white eye named Mr. Mackinson, will probably take high rank. There was a pretty *white flowered* silver edge leaf, named Wm. Mappin, in one of the collections.

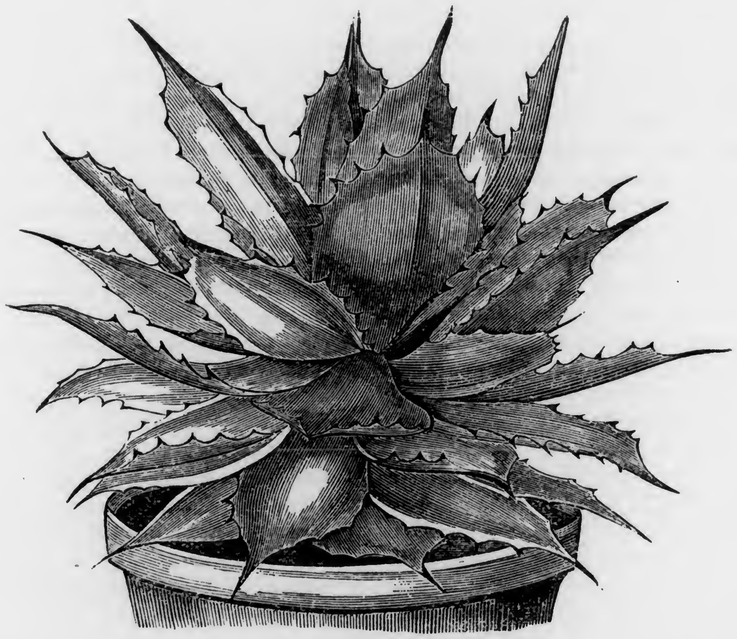
Among some small pots of Gloxinias were some novel shades of color. Topaz, a rosy mottled flower, and Candeur, a blush, were the best. These are of the cylindric flowered forms. There was a small plant a few inches high without a name, of an amaranthus, which appears to be the new A. Hendeni, and which is represented to be far superior to the well known A. salicifolius.

There were several good collections of Echeverias, Cotyledons and similar succulents, which in their curious forms, served to give a little novelty to the exhibition Among the few things which did appear as if some skill had been bestowed on their culture, was a collection of orchideous plants. A Cattleya Skinneri had seven spikes, each with about twelve of its large rosy flowers. An Epidendrum fragrantissimum had seven spikes. The flowers of this species are not very showy, but the immense quantity of twine like roots, extending down and completely hiding the pot, adds very much to the interest of the plant.

A beautiful plant—almost a foot over—of the dwarf Lobelia, Azure Globe, was one of the best things exhibited. It is a good pot plant for early spring.

There were some good Palms, Yuccas, and the larger class of leaf plants,—one of the best of which is still the old (now) Ananissa variegata, or varigated Pine Apple. A rather scarce Palm is Martinezia Lindeni, in which the leaves as abruptly terminate as does the Tulip poplar among our trees. Dion edule is a particularly graceful palm of the Sago class. The narrow slender leaves four feet long, have quite a fern like appearance.

Among the larger growing aloes of which there are now so great a variety grown, there was a beautiful specimen of A. Verschafeltii, which is one of the prettiest and of which we give an engraving herewith. Agave coccinea, with broad green leaves and very small serratures, is very distinct as also is A. lætevirens, a dark green, with a few scattered, upturned membraneous spines on the edges.



AGAVE VERSCHAFELTII.

MISSOURI STATE HORTICULTURAL SOCIETY.—The annual meeting was held at Hannibal this year, a place of about ten thousand population, on the banks of the Mississippi. Vice President Evans, (who in his own language had spent his first twenty years when there were six Indians to one white man) presided over the Convention with excellent skill and good taste. The results of the sessions were about these.

(1.) Fruit crop nearly a failure for 1873 Peach trees largely killed by the previous winter. But other trees in a generally healthy condition.

(2.) The planting of fruit has gone on with wonderful rapidity during the past year. The pear grows in favor as enduring the climate admirably.

(3.) Among the apples most favorably reported on for this climate were Ben. Davis, Huntsman's Favorite, Willow Twig, Rawle's Janet, Red Romanite, Northern Spy and Yellow Bellefleur. Among the pears highly commended were Sickel, Duchess, Lawrence, Vicar, Howell, Bonne de Jersey, Sheldon, Buffam, Bartlett. The matter of blight is all a chance so far as most varieties are concerned, a few like Madeline being peculiarly susceptible of disease. The list of grapes generally repeated included Catawba, Salem, Iona, Concord, Goethe, Delaware are the standards; and Croton and Senasqua among the newer ones, are very promising. Considerable nonsense was included in the reports on small fruits, owing to the fact that our horticulturists work too much on pioneer principles to insure success.

(4.) These general principles were developed for fruit growing: Plant on high, well drained, heavy soil. Grow trees slowly and bring into bearing not too rapidly. Do not cultivate with plough, &c., but carefully mulch, especially the pear.

(5.) Resolution was passed highly commending the work of Professor Riley, the State Entomologist, and demanding of the Legislature that the office be not abolished. (Yet the bill has since passed the House—to the disgrace of Missouri) and that resolution asks for a more thorough organization of the State Agricultural College.

A third resolution seconds the proposition of Prof. Le Conte, concerning the Agricultural Bureau at Washington. Certainly if Missouri can dispense with Prof. Riley's services, the Government would do well to give him the charge of the National Bureau. But the Convention did not put any one in nomination,—it being generally understood that Flagg, of Illinois, is their first choice.

(6.) The questions of hybridization and the best method of originating new and better varieties elicited considerable attention. The tables were spread with a fair show of apples and a meagre display of pears and wine. The pears were exclusively D'Alencon and Nelis—both in fine flavor. The Society will meet hereafter at St. Louis as being everyway advantageous for a large display of fruits, and for the accommodation of delegates. Henry T. Mudd was elected President for the ensuing year. Rev. E. P. Powell, of St. Louis, was requested to occupy Wednesday evening with a talk on Spectrum Analysis. This

he did, illustrating his lecture with colored crayons. Prof. Riley was present during a portion of the sessions and explained the nature and work of the mischievous phylloxera.

CINCINNATI INDUSTRIAL EXPOSITION.—This opens on Wednesday September 8th, and closes October 9th. The Horticultural Department has a very full schedule, and the premiums, ranging from $5 to $150, strike us as being very liberal. $10 for a single Begonia,—$20 for the best Cissus discolor,—$20 for the best Philodendron, —$25 for best cut Roses,—$40 best basket of cut flowers, $20 for best dozen Dahlias,—$40 best wreath of cut flowers,—$25 best 30 Gladiosus,—and so on, ought to bring out competition, if there is virtue in money.

A CITY FLOWER SHOW.—They have in London an exhibition especially to encourage floriculture among the poorer classes. A correspondent of the *Gardener's Record* thus writes of one:

"The competition was open to any inhabitant of the city, that all plants must have been in the possession of the exhibitor for three months previous to their being exhibited; and in the entry papers each exhibitor was called on to state the time the plant had been cultivated by him; and the judges, in making their awards, were instructed to this effect, that the length of time a plant had been so grown was to influence their decisions. There were classes for Geraniums Nettle Plant (Coleus fruticosum), Fuchsias, Myrtles, Musk, Creeping Jenny, Canary Creeper, Climber other than Canary Creeper, Begonia, Fern, Onion Plant, Orange Tree, Stone Crop, Houseleek, Campanula, Mint Window Box of Plants, Fern Case, Nosegay of Flowers, and Evergreens. Then there were certain medals to be awarded, offered by the Royal Horticultural Society, viz., a silver medal for the best plant in the show, and three bronze medals at the discretion of the judges. A goodly number of plants were staged, the best part of them showing signs that they had been reared amid shade, smoke, and dust, and under conditions that were anything but favorable for the growth of plants. The silver medal of the Royal Horticultural Society was awarded to a very healthy plant of Lycopodium denticulatum that had been grown for eight years under a glass case; and the bronze medals went to a fine old plant of Coleus fruticosum; to a Date Palm growing in a small barrel, reared by one of the keepers in Leadenhall Market; and to a set of eight Dahlias in pots, this being the fifth year they had been so cultivated. The prizes were distributed by Her Royal Highness the Princess Louise (Marchioness of Lorne), which greatly assisted in giving *eclat* to the proceedings, and the fine old Hall of the Drapers' Company was made very gay in honor of the occasion. London is now getting quite famous for shows of this character, and it is well to note that they are being introduced into our large provincial towns."

HORTICULTURE AT THE AMERICAN CENTENNIAL.—The Bureau of Horticulture has arranged their department into the following classes:

Ornamental Trees, Shrubs, and Flowers.

CLASS 700.—Ornamental trees and shrubs.

CLASS 701.—Herbaceous perennial plants.

CLASS 702.—Bulbous and tuberous-rooted plants.

CLASS 703.—Decorative and ornamental foliage plants.

CLASS 704.—Annuals and other soft-wooded plants, to be exhibited in successive periods during the season.

CLASS 705.—Roses.

CLASS 706.—Cactacea.

CLASS 707.—Ferns, their management in the open air, and in ferneries, wardian cases, etc.

CLASS 708.—New plants with statement of their origin.

CLASS 709.—Floral designs, etc. Cut flowers, bouquets, preserved flowers, leaves, sea-weeds. Illustrations of plants and flowers. Material for floral designs. Bouquet materials, bouquet holders, bouquet papers, models of fruits, vegetables, and flowers.

Hot Houses, Conservatories, Graperies, and their Management.

CLASS 710.—Hot-house and conservatory plants.

CLASS 711.—Fruit trees under glass.

CLASS 712.—Orchids and parasitic plants.

CLASS 713.—Forcing and propagation of plants.

CLASS 714.—Aquatic plants under glass, or in aquaria, etc.

CLASS 715.—Horticultural buildings, propagating houses, hot-beds, etc., and modes of heating them. Structures for propagating and forcing small fruits.

CLASS 716.—Portable or movable orchid houses and graperies, without artificial heat. Frames, beds.

Garden Tools, Accessories of Gardening.

CLASS 720.—Tools and implements. Machines for the transplanting of trees, shrubs, etc., portable forcing pumps, for watering plants in greenhouses, and methods of watering the garden and lawn.

CLASS 721.—Receptacles for plants.—Flower pots, plant-boxes, tubs, fern cases, jardinieres, etc. Window gardening. Plant and flower stands, ornate designs, in iron, wood, and wire.

CLASS 722.—Ornamental wire work, viz: fences, gates, trellis bordering of flower beds, porches. Park seats, chairs, garden statuary, vases, fountains, etc. Designations, labels, numbers.

Garden Designing, Construction, and Management.

CLASS 730—Laying out gardens,—designs for the laying out of gardens, and the improvement of private residences. Designs for commercial gardens, nurseries, graperies. Designs for the parterre.

CLASS 731.—Treatment of water for ornamental purposes, cascades, fountains, reservoirs, lakes.

CLASS 732.—Formation and after treatment of lawns.

CLASS 733.—Garden construction, buildings, etc.—Rock work, grottoes. Rustic constructions and adornments for private gardens and public grounds.

CLASS 734.—Planting, fertilizing, and cultivating.

SOUTH HAVEN POMOLOGICAL SOCIETY.—The South Haven Pomological Society having appointed the undersigned Committee to investigate and report upon the cause of the root killing of fruit trees, we respectfully ask:

1st. During the past three years have trees died from this cause in your vicinity?

2d. Have the large or small trees suffered most?

3d. Have those on light or heavy, high or low, moist or dry soils suffered worst? If so, which?

4th. Has the exposure to the wind made any difference, if so, from what direction?

5th. What kind of trees have suffered most? and what varieties of the several kinds?

6th. Was the ground where the trees were killed covered with snow during the extreme cold of the last three winters?

7th. Were trees killed where the ground was covered with snow, if so, at what point was the injury done?

8th. Have you tried mounding around the base of the tree in the fall as a preventive and with what success?

9th. What other preventive experiments have been tried and with what success?

10th Have you observed this root killing except after very severe winters?

11th. Have you, or do you know of any theories of the cause of this root killing, and what are they?

Any information you may give should be furnished soon and will be duly remembered and acknowledged in our report in June.

Yours truly,

A. T. LINDERMAN,
A. S. DYCKMAN,
I. S. LINDERMAN, } *Com.*

THE AMERICAN POMOLOGICAL SOCIETY.—The American Pomological Society will hold its fifteenth biennial session in the City of Chicago, September 8, 9 and 10, 1875, and we solicit your presence and co-operation in making the meeting a success.

The Society will hold its meetings for discussions in the Methodist Episcopal Church, southeast corner of Washington and Clark streets. These will be attended, as heretofore, by leading horticulturists from all parts of the country.

Under the auspices of the Illinois State Horticultural Society, there will, also, be held, in the Inter-State Industrial Exposition building, a national exhibition of the fruits and other horticultural products of North America. Seven thousand square feet of space in the south end of the main floor and gallery of the great Exposition building will be assigned to the various States, Territories and Provinces; and in the space assigned to each State, Territory or Province will be arranged the State, County, Society or individual collections contributed therefrom. It will be our effort to have every section of the country from Nova Scotia to California, and from Key West to Oregon, suitably represented in a truly continental exhibition of fruits; and to this end we solicit your personal effort and influence to secure a complete representation of your fruit products

Upon the same day, and in the same building, the great Inter-State Exposition of the Arts and Industries will begin its four weeks' exhibition. Free tickets, admitting them to all parts of the Exposition during the convention, will be issued to all members of the American Pomological

Society and to contributors of fruits for the Exhibition. Railroads will make reduced rates.

In imme iate proximity is the Floral and Plant department of the exposition, for which we also solicit contributions from those within reach, that it may be made to correspond in quantity and quality with the Fruit Exhibition.

The Wilder Medal of the American Pomological Society will be awarded for meritorious objects.

As it is anticipated that hundreds of thousands of people will visit this grand show of frui s, in connection with the great Exposition, you will recognize the importance of having your own State and locality properly represented.

Please report as soon as practicable the probable amount and character of the contribution which will be made by yourself or your State, so that proper space may be reserved.

As the Exposition will continue four weeks, it is desirable that the collections should remain; and the Executive Board of the Illinois State Horticultural Society, who have charge of the fruits, will have a committee in attendance during the entire time to see that all collections are kept in good order—decaying fruits removed and their places filled with similar ones, as far as can be done.

Correspondence relating to the Exhibition should be addressed to the Secretary of the State Society, at Normal, McLean County, Illinois.

Packages of fruits, with the names of contributors, may be addressed as follows: American Pomological Society, care O. B. Galusha, Chicago, Illinois. Shipments should be made in time for arrival by the 6th of September.

O. B. GALUSHA,
Sec. Ils. State Hort. So., Normal, McLean Co., Ill.
W. C. FLAGG,
Sec. Am. Pomological So., Moro, Madison Co., Ill.

INTERNATIONAL HORTICULTURAL EXHIBITION, COLOGNE, FROM AUG. 25TH TO SEP. 26TH, 1875.—We have the following letter from Baron Von Oppenheim, Austrian Consul, at Cologne:

"Work is progressing speedily on the Exhibition grounds; the great flower or fruit hall is almost completed, and the hall for Machinery will be ready in a short time. The foundations for the glass houses—eight of which have been already announced—are nearly finished. The ground has been prepared and beds cut out for the roses, flowers and plants in general in the Exhibition ground adjoining the Flora. Some of the ground has been already planted, and we are happy to state that the plants are flourishing. The grass seed has been furnished by the well known London firm of James Carter & Co.

"The Prussian Minister of Agriculture has placed at our disposal two gold, and four silver medals of State.

"The governments of Anhalt, Baden, and Saxon Weimar co-operate with us and will be duly represented at the exhibition by Commissioners who have already been appointed. The Danish government has also displayed warm interest in our undertaking, and there is every prospect of a large contribution from Denmark.

"The government railways have agreed to a reduction of 50 per cent. on the ordinary rates of freight, as have also almost all rail and steam navigation companies.

"Much interest has been taken in the exhibition of fossil plants; contributions have been offered from all sides, from government, private and public associations, and from mine owners. Dr. Andrae, Professor in Bonn, is at the head of this department.

"Architecture and decorations will be represented by the most celebrated home and foreign firms.

"The announcements of machinery are very numerous, and the exhibition will open to professional men as well as to amateurs, many new inventions.

"We, in conjunction with the Minister of Agriculture, are about to select a jury for the prize distribution, and we hope soon to be able to prove to those interested that a sound choice has been made.

"The illustrated Guide, together with catalogues, 50,000 copies of which will be published in due course, are in the hands of the Cologne firm of Rudolf Mosse.

"Job Bellstedt's firm in Bremen have undertaken all contracts for buildings.

"Belgium and France have arranged to exhibit each collectively, and the reports received from them are extremely favorable. We expect soon to be able to send a detailed report of the preparations made in Paris by the French Commissioners.

"*Cologne, May 31st*, 1875."

QUERIES.

SCOTCH BROOM.—J. H. McH., Baltimore. Your plant is Scotch Broom, *Genista scoparia.*

The Gardener's Monthly,

DEVOTED TO

HORTICULTURE, ARBORICULTURE & RURAL AFFAIRS.

EDITED BY THOMAS MEEHAN.

Old Series—Vol. XVII. AUGUST, 1875. New Series—Vol. VIII. No. 8

Flower Garden and Pleasure Ground.

SEASONABLE HINTS.

We go to Europe, and see and admire its magnificent summer gardens, and we return and try over again what we have seen done there. And the Horticultural journals have to keep up with the times, and give the people such reading as they want, and they know that everything that is striking in the English summer gardening, has to be reproduced for American readers here. We do as the rest do, and are often sorry. Still we have the chance of entering a protest now and then, and this is all we can do. Our American gardening should be essentially spring and fall gardening.

The gardening we need for summer is the cool western breezes, and the delicious shade, the green sward, and the artistically arranged trees and shrubs which we can look at from our shady nooks and appreciate from a distance. A good spring garden is especially a delightful spot. There is a succession of beautiful things till the last roses open—summer roses, for those which bloom "all the time" are of little more consequence than those poets who would have spring-time to last all the year.

When we speak of spring blooming plants, the Hyacinth, the Tulip, and the Crocus of course are thought of, and indeed it was because we thought of them, which are now being ordered for fall planting, that we take the whole matter to be seasonable.

There are many beautiful bulbs not at all common, which might be brought into good use. In most parts of the country we have no doubt the Amaryllus formosissimus, always an especial favorite of ours, (and of which we give an illustration,) would be hardy enough to set out at

the regular fall planting; at any rate, it could be planted in pots and kept in cellars for spring use. But besides this there are an immense number of beautiful flowering plants, almost unknown outside of the hardy herbaceous grounds or our own woods of which admirable effects might be made, far superior to popular foreign plants now in use. For instance one of the plants much sought after is Cerastium tomentosum, yet the American *C. arvense* blooms three weeks earlier, and forms a complete carpet of snow white flowers. We commend this subject to our readers and correspondents.

COMMUNICATIONS.

GARDENING AT GALVESTON, TEXAS.

BY W. FALCONER.

Galveston is the flower garden of Texas. The city is built on the east end of the island, which

is some 30 miles long, 2 to 3 miles wide, and distant from the mainland some 2 miles, the only connection exclusive of boats being the bridge of the G. H. & H. R. R. The city, which is laid out in true American style—in long parallel avenues crossed by long parallel streets—is the largest, wealthiest, and most commercial in Texas, containing a population of 35,000, and is increasing more rapidly than any city I know of. The island throughout is a sort of level prairie only a few feet above sea level; the soil being poor and sandy, and much impregnated with salt. There is a good strip or ridge of land stretching longitudinally along the island, and on which are some of the finest gardens and farms. West, the island is a deal of marshy land, the water being salt or brackish; indeed the same was the case near the city, but now these marshes are being filled up with sand from the beach and built upon, and it is out of this sea sand that many of the pretty gardens to be seen there have sprung.

The business men and tradesmen of the city have nice little homes in the suburbs, where too are many fine mansions, and all seem to strive for superiority as gardeners, particularly the ladies. Of shrubs and roses they have a goodly quantity, but of little or herbaceous plants the selection is limited. A carpet of grass is a rarity, still in some instances it is to be found. They arrange their flower garden in scroll-patterns, by edging the little beds with wood, inverted bottles, bricks, shells, plates, &c. They endeavor to have their houses and part of their gardens shaded by trees, for which they use Oranges, Umbrella Chinas, Cotton woods, Mulberries, Persimmons, Live Oaks, Honey Locust, and such other kinds as they find native to the soil. Small plots have generally close wooden fences around them, and are a good deal sheltered by the houses, but in big gardens some means of affording shelter with hedges of trees is resorted to. Trellises covered with vines of different kinds are scattered here and there, and every garden of any pretensions has an arbor covered with grape vines.

Amongst the little flowers I may mention Verbenas that grow here outside summer and winter, reproducing themselves from seed and rooting along as their branches grow. I never saw finer Verbenas than some of these at Galveston. Phlox Drummondi grows wild all over Texas, and sometimes the prettiest are permitted to grow unmolested in the garden, but the inferior colors are rooted out. Pelargoniums of the Zonale and sweet scented types survive the winter out-of-doors and are quite common. November flowers or Chrysanthemums are in every Dutchman's garden; and common seedling Pansies are much prized. Carnation pinks are highly valued, but not over plentiful, and they have a goodly variety of bulbs. Conspicuous amongst these was a splendid red amaryllis, clumps of which were in full bloom whilst I was there in April. The largeness and brightness of these Amaryllis blooms and the lavishness with which they were borne surpassed all my previous acquaintance of this class.

Shrubs comprised double and single bridal wreaths, great favorites; mock oranges, beginning to be known; Althæas regarded as second-rate; Crape Myrtles whose only objection is their easy growth and likelihood of becoming too common; Plumbago capensis, appreciated by some but not by others; (the finest Plumbago I ever saw were in the gardens of Key West, Fla., where they attain the dimensions of six and eight feet high, dense bushes as much through, and are a cloud of azure); Deutzias, coming into fashion; Weigela rosea, only met in a few gardens, but there it has proved as good as in the Northern States; Lavender shrubs good growers and bloomers and liked for their fragrance; Lilacs, tried by many but so far as I have seen with bad results; Calycanthus, as dying scrubs, tried by many but without success (same case at Brenham); Snowballs, that thrive in a corner at the north side of a house when no sun can touch it, but will die immediately where they are exposed; Hydrangeas, that have the same peculiarities as Snowballs, red and white Oleanders that grow everywhere, and some others.

Amongst evergreens may be mentioned the Cape Jessamine, with which great pains is taken. The people at Houston grow the finest Cape Jessamines in America, using them as ordinary evergreens, hedges, or fancy shrubs; whereas at Galveston no amount of coaxing will make them flourish. Pittosporum tobira and its variegated form are perhaps the most favored evergreens on the island, and are found in most gardens; sometimes they are permitted to take nature's course, but more frequently are clipped into fancy shapes for which formal character they are better suited than English Yew, Privet, Weymouth Pine, Cedar, or Box. In March and April too they are laden with

flowers. The Viburnum odoratissimum is one of the finest and most prosperous shrubs here, growing three feet in a season and blooming prodigiously. The common Spindle tree known here as the "Evergreen" is made into little belts surrounding the flower gardens just inside the fence and is planted here and there wherever fancy dictates. In planting, slips or cuttings are merely stuck into the ground wherever they are to remain, and they root very readily. The American Cedar is largely used to prune into stiff columns and round headed blocks—a very old and ugly fashion.

Though Myrtles are common enough, Galveston as a home for them cannot be compared to the Isle of Wight. Magnolia grandiflora along Buffalo Bayou attains the dimensions of immense timber trees, but at Galveston they are not so thrifty. Some 20 feet high trees may be seen, but I did not observe any to exceed that. Three to four feet high plants with a naked stem and a nice head retail for $5 a pair, and small ordinarily grown ones for $1 per foot in height. Galveston is no place for pines, but the golden and Chinese Arborvitæs grow very well, and the pyramidal Cypress has no equal for adaptability. The American Arborvitæ does not thrive here nor anywhere I know of in Texas, neither is the Irish Juniper to be depended on. The Chinese Tea Plant, Olea fragrans, and Banana shrub, are first rate Texas plants, but I did not see a plant of one of them at Galveston, or converse with anybody who knew them. Grand Duke Jessamines are in most gardens and very tenderly cared for. In winter they are protected with barrels and by other means, and although they are often killed down considerably they generally start away briskly in Spring.

QUERIES.

Death among the Plants.—*F. K. Phoenix, Bloomington, Illinois*, writes: "Timidly let me through the *Monthly*, approach the august American public with a horticultural want and woe unutterable, pertaining to, I may say, much the larger part of the territory of these United States.

The blessed Ivy, the dwarf and tree Box, the Laurels, Yews, the Hollies, the Evergreen Barberries, and a host of such indispensable evergreen trees and shrubs won't stand our winters. And I want you to tell us if you think we can or even ought any longer patiently to submit to such outrageous frowns of fortune and the American climate in unholy combination against us? Approaching the holy Centennial of American Independence (headquarters in Philadelphia) do you advise any more such unworthy submissions on our part to boasted British Evergreen superiority? I trow *not*.

Mr. Editor, have you and your *Monthly* magnates, any compassion for such *nevergreen* sections and countries? Do please manifest it forthwith in our behalf. Tell us what science and art and skill combined in the direction of hybridization can or hopefully might soon accomplish for us.

Is there not some evergreen member of the Ampelopsis that we can cross with that deciduous glory, A. quinquefolia or hederacea? Is there not some possible cross between our beautiful neglected native Yew and the foreign Yews? Surely there must be untold possibilities in the way of hardy evergreen Berberries by hybridizing on our hardy native Berberry. And so on through the whole realm of trees and shrubs and plants, deciduous as well as evergreen.

Friend Meehan, have we any practical American Hybridizers or Botanists? And if so, will you call their attention to this vast field,—this, as I believe exceedingly rich and so far almost wholly unworked mine? Will you kindly take in hand the rising generation—the very large class subject to your benign visits and influence and let us ask for ten thousand times as much interest in American Horticultural improvement as we now exhibit?

When I think what we need in the way of new improved varieties of trees and plants of all kinds I am I confess dumb, speechless at our want of effort in that field.

Where are the horticultural societies and our princely American amateurs who will take hold of this and offer adequate premiums for improved varieties? I well know the wilderness of unworthy trash it will evoke and plunge us into. But I also know that the Promised Land, radiant and beautiful, awaits us just beyond."

[Our correspondent makes some valuable suggestions. There is a great deal too much of a following of European gardening. We want to investigate and find things suited to our own exigencies. There is one thing however we might do, and that is shelter ourselves. We have so often called attention to this that we begin to lose pity for those who have heavy losses with

ordinary things. We know "loads" of people about here who can grow "nothing." Every thing is too *tender* for them while a neighbor perhaps has all the rare things in perfection. We know of one place where the Deodar cedar, Abies Smithiana, Abies Douglassii, Picea Pinsapo, Picea Pindrow, and numerous things usually regarded as tender, are all growing in admirable luxuriance, though ninety in every hundred people would say, they could not be grown in that part of our country. And why ? The whole place is studded with Norway spruces, which make an absolute protection from wind. This is all that is needed. Even the holly, the yew, and many other things which are actually native near here where we write, people say "are not hardy." In nature they have the shelter of the forests near where they are growing, and some form clumps of themselves thus sheltering each other.

It is astonishing how little protection will save a great deal. We saw this spring a hedge which had been carried several hundred yards along a four railed farm fence, and then across the ground where there was no fence. The latter were all killed, but very few of the others. One could hardly suppose an open rail fence would protect much from wind ; but it did. We have no doubt that so far as the thermometer was concerned, the figures were the same in both cases.

We could give many such instances. Let our Illinois friends and for that matter, our friends in all cold regions agitate for shelter, and plenty of it, and half the difficulty with the rarer evergreens will be removed.]

Singular loss of Plants.—A Hudson River, N. Y., correspondent details some singular losses in transplanting of some Yuccas and Hollies, and then goes on to say that he attributes the losses "to what I consider the most unaccountable of our unaccountable winters. About the time of transplanting these plants, I moved an Abies Whitmanii, a perfectly strong vigorous plant two or three times transplanted from one end of a bed to another, three minutes out of ground, on a soft genial day. Within twenty-four hours it began to droop, the leaves turn brown, wither, drop off, and the plant in a week as brittle and dead as possible. In December early I moved, with a perfect ball, (not a root exposed) the finest specimen of Thuja Lobbie in the country, nineteen feet high, perfectly furnished from the ground. It was most carefully planted, in fact there were eight men at work on it for over a week.

Nothing could have looked finer or greener than it has until last Sunday—nearly seven months—when suddenly it began to turn brown, and the leaves to fall off, and I suppose in spite of my shading and syringing, I shall lose it. Quantities of pears fifteen in a row, Espalier, blossomed profusely and as suddenly faded away and died. Several hardy evergreens in the vicinity of a Cryptomeria died—the Cryptomeria not even being burned or scorched. My idea is that the prolonged steady cold of the winter, thermometer at zero during nights for several weeks, and some three to five feet of frost, so demoralized (if I may use the expression) the ground as to make it entirely irresponsive to the external air, which was mild and balmy, being very hot at one time —85° in the shade—when the ground and roots would hardly be above frost, a midsummer heat for two or three days acting upon trees and plants in a most exhausting way got no assistance from the roots or soil, and a sort of *coup de soliel* took place, and this I think affected the Hollies and Yuccas.

Some peach trees from Rochester, received in most perfect condition, buds just beginning to swell, planted in pots, went off in the same way. Some eight or ten plum bushes biannually removed with a mass of roots, simply lifted and put back again, have failed to come out this spring.

My feeling is that in this part of the country, at least, we are in a state of chronic drought which has lasted now summer and winter for several years, and which seems to have destroyed all connection or much connection between the roots and the tree. Another misfortune of this condition or want of harmony between the ground and the air is that the trees, especially evergreens, become so debilitated (their young and feeble growth) that a sort of fire blast or furnace, blowing over them about this time, (perhaps the sun coming through a fog or mist), burns or scorches the tree until it is quite brown, and in this condition it must remain a year, as the leaflets being once half burned, there is still vitality enough to enable them to hold on in this disabled and unsightly state."

[We can give no explanation whatever of our correspondent's experiences, and the one offered by himself does not commend itself to our judgment, and yet what can the matter be ?—Ed. G. M.]

Buffalo Grass, for Lawns.—Mr. H. C. Van Deman writes : "I feel rather under conviction of neglect for not telling you sooner in answer to your suggestion in March number that the Buffalo grass of the plains is not in my opinion good for lawn for two reasons : I have patches of it growing close to my place (only small patches a rod in diameter) and have seen it on the Buffalo Range.

"First, it does not start as early as blue grass by two or three weeks, and second, it becomes dry and parched by August 20th, or September 1st. The plains burn in September. It will stand very hard usage and holds its own well and is never over two or three inches high, commonly only an inch, and as fine as fuzz."

[Thanks for this valuable note. It puts a *quietus* on any hope from this as a lawn grass.—Ed. G. M.]

Variegated Symplocarpus—*Amatuer, Bedford, N. Y.*, writes : "Yesterday while taking a stroll, I found a finely variegated plant of Symplocarpus (Skunk cabbage) of which I send you a few leaves. It looked so handsome that I brought it home with me. If the variegation could be fixed would it not be worth cultivation ? The great objection would I suppose be the odor but it is no worse than Stapelia and Rophala corcovadense. I also saw another with leaves greenish gold, but that I did not remove."

[The leaves were very beautiful.—Ed. G. M.]

Scale on the Pine.—*W. A. H., Dubuque, Iowa*, writes : "An amateur friend handed me a few leaves of the Austrian Pine (which are covered with a black scale) for examination, and if possible to find a practical remedy for it. The tree the leaves were taken from, has one or two large branches literally covered with it ; the rest of the branches appear perfectly free. If convenient, please give name of *scale* and *treatment*, if practicable, through *Gardener's Monthly*."

[This is a small species of coccus and easily destroyed by a solution of soft soap thrown over the tree by a garden engine.—Ed. G. M.]

EDITORIAL NOTES.

Good Roses.—Our neighbors Miller & Hays have a soft spot for new roses, and as the writer owns to a similar weakness he stepped in about the time they were in their prime to look at them. Many of the new ones do not prove as good as the old ones,—while some are decided additions. At this call the Hybrid perpetuals were in their prime. Among the best, new or old, we noted the real rose-colored roses, Paul Neron, chiefly for its size, being here near five inches across,—Madam George Schwarz,—Ed. Morren. Baroness Rothschilds,—or as the catalogue says, Madame Le Baronne de Rothschild,—was a beautiful blush,—or again quoting the catalogue, "pale rose shaded with white." Of violet purples Eugene Notting is charming. Purple rose, John Hopper, and Eugene Verdier. In deep crimson Duc de Cazes, Mons. Boucarine, and Frederic Bihovel were in excellent condition. There may be better than these,—but on this day's visit, they struck our fancy.

A Tree Protector.—There was on exhibition at the New England Fair, at Narraganset Park, a model of a very simple elastic guard for keeping horses from gnawing the bark from roadside trees. It is a simple paling of slats to surround the trunk ; but instead of being nailed to the tree or set on the ground to rot, it was suspended by elastic springs which would give as the body of the tree enlarged. We consider it well worthy the consideration of owners of roadside shade trees. It is utterly absurd to spend time and money in planting trees along our streets, when the first horse that comes along is allowed to stop and leisurely make a dinner from the bark, while the owner is perhaps, thoughtlessly smoking a cigar at a neighboring saloon. The invention, we believe, originates from Woonsocket, R. I.

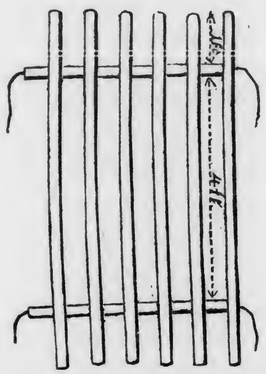
The above is what the *New England Farmer* says. It is very much like an idea we once saw in the *Rural New Yorker*, with the exception of the elastic band, and of which we here give the following account with illustrations:

Procure poles of any straight-growing tree, six feet or more in length, and two inches in diameter at the thickest end ; they should have holes drilled through them at the top and bottom about one foot from each end. Get a similar hole drilled two or three inches up the centre of a stake, and then saw off the length which has had the hole drilled through it, and which will give a piece that, when the string or wire is drawn through it, will resemble *b* in *fig.* 1. Repeat the operation till as many pieces are drilled and sawed

Fig. 1.

off as may be wanted. Pass a strong piece of wire, or thick tarred string, through one stake by the hole at the top, and then through one of the two-inch pieces, then through another stake, and so on, separating each stake at the top and bottom by one of the two-inch pieces of wood, until you have enough to surround your tree loosely, leaving plenty of space for growth. When this is done, the appearance of the guard, before being put on, will be as in *fig.* 2. Place the guard thus formed round the tree and fasten the ends of the wire or string. The guard is much the same as the cradle put round the neck of a blistered horse, to prevent his gnawing the ir-

Fig. 2.



ritated part. The ends of the stakes merely rest on the ground, and they should be cut quite flat at the bottom to prevent their sticking in it. At the upper end they should have a sharp slanting cut with a bill-hook, to throw off the rain. The motion of the tree will not be in any degree impeded, and the bark cannot be injured, let the wind blow as it may, for the guard moves freely with the tree in every direction. If a tree is growing rapidly, it will want room before the guard requires renewing; in which case it is only necessary to untie the string or wire at the top and bottom, lengthening the string or wire by tying a piece to it, and introduce an extra rod, and two extra separating pieces. As a principal feature in this guard is, that the tree is left quite at liberty to be blown about by the wind in every direction, of course it does not obviate the necessity of staking a newly planted tree until it becomes fairly rooted.

Fig. 3.

Fig. 3 shows, a large scale, the ground-plan, or rather horizontal section one foot from the ground, and a portion of the elevation of a tree so fenced. In this figure the wire or string is shown passing through the upright rods and horizontal short pieces, from *c* by *d* to *e*, but from *c* by *f* to *e*, the wires are only shown passing through the upright rods; the short pieces being seen in vertical profile, as they are in nature.

House Gardening and Glass Structures.

SEASONABLE HINTS.

The calceolaria in the hands of a skillful cultivator is amongst the most beautiful of pot plants. Much attention is given to them in England,—and their improvement still continues. Mr Young, a florist, has become quite famous in this respect, and "Young's Hybrids" are all the rage. The accompanying illustration represents a flower.

Seed of many things may also be sown for winter and spring blooming, particularly Cineraria, Calceolaria, Pansy, Daisy, Chinese Primrose, and some of the annuals. Great care is necessary with the Calceolaria. The seed is so small, that

Calceolaria, Young's Hybrid.

it rebels at the smallest covering of soil. The best way is to sow it on the surface, water well, and then cover with a pane of glass until fairly germinated; this will prevent evaporation and consequent drying of the seed.

NOTES ON A SUMMER TOUR.

BY WILLIAM SUTHERLAND, PHILADELPHIA.

I paid a visit to the Nursery of George Such, which is under the well-known skillful management of James Taplin, (late gardener to the Duke of Devonshire), and was a perfect fairy spot among the surrounding woods and sand hills. Here were immense beds of Lilies, Tuberoses, Gladiolus, Verbenas and Geraniums; besides large beds of Aloes, Yuccas, Cannas, Coleus, Echeverias and Sempervivums. All seemed to be in their native element, growing in the sandy soil. I also noticed a fine collection of Aralias many of them new and exceedingly unique in their appearance. Also a superb collection of Lantanas, embracing every shade of scarlet, yellow, and white; and one I noticed had a decided blue cast in the flower. There were quite a number of new Abutilons, and judging from the formation of the leaf, must be very distinct. None of them were in bloom except the white one Boule de Neige, which Mr. Taplin informed me was the freest blooming variety yet introduced, a statement confirmed by several plants in thumb pots, with two and three blossoms. In such profusion were the Tuberose flowers that they filled the surrounding air for quite a distance with their sweet perfume. Verbena beds were superb, and so varied were they in shades of color, that any attempt to describe their beauties would be almost endless.

There was a magnificent collection of double and single Zonale, variegated, bronze, and scented Geraniums. A description of their various colors would occupy too much space; suffice to say that they embraced every shade possible in a Geranium. Among the doubles I noticed one called Mad. Bourcharlat, which appeared to be a very free flowering variety of a deep rose color. I also noticed a very fine bronze one called Black Douglas, which kept its color in spite of the extreme dry weather.

Many of the Agaves were very striking. These arranged with the Yuccas, and the dark leaved Cannas in the background, with edgings of Echeveria, gave them a very pleasing appearance. There were some fine specimens of Agave Ghiesbrechtii, vivipara, Verschaffeltii, Mexicana, and Xalapensis. The collection of Yuccas also contained many fine specimens, prominent among them were some handsome plants of Alba-spica quadricolor, recurva, canaliculata variegata, and Parmentieri. The collection of Cannas was very fine, and embraced many novelties both in flower and foliage. The tall ones had been planted in the back row, next came the medium growers, and lastly the dwarfs. The contrast in the colors of their foliage was very effective. Some with bright green leaves, others almost purple, while Canna tri-color, with yellow markings in the leaf, added lustre to the whole. I noticed some fine specimens of Mareschal Vaillant, Auguste Ferrier, and Princess de Nice that must have been fully eight feet in height, whilst Adele Lavellois was among the dwarfest I have yet seen. It is the practice here to plant the Canna roots very deep, say 8 inches to 1 foot below the surface and forming a basin or ring some two feet in diameter, fill in with some well rotted stable manure, which, during the hot weather, has some 4 or 5 gallons of water poured in every other day or so. This system brings the Cannas out to their full perfection.

The Coleus were gorgeous, but among the profusion of varieties there were but few to beat the old kinds, such as Verschaffeltii, Chameleon, Queen Victoria, and Golden Beauty.

The Caladiums had been planted out in very rich soil, and the beds being kept well watered

showed the beauty of their leaf markings to the fullest advantage. There must have been some sixty to seventy distinct varieties arranged according to their height of growth.

The Echeverias and large growing Sempervivums were truly magnificent, and prominent among them I noticed some gigantic specimens of Echeveria metallica, lutea grandiflora, metallica glauca, (a hybrid which takes after glauca in style of growth and metallica in the size of its leaves,) also atropurpura, sanguinea, pulverulenta, racemosa, and farinosa; the latter variety is of elegant shape, and the whole plant has the appearance of having been dusted over with some silvery white powder. Among the Sempervivums were some fine plants of arborea, arborea rubrum, arborea variegata, tabulæforme, Bullii, philoides, repens, and Donkelarii, which to the lovers of the curious are indispensable.

But if the plants outside excited my admiration, those inside were wonderful almost beyond description, and my traveling companion was justified in the expression that it exceeded any Horticultural exhibition in interest.

In the Orchid house I noticed several specimens of different Orchids growing in 20, 24, and 30 inch pans, while quite a number were suspended on clay blocks and baskets made to imitate the well known Log Cabin basket, which not only held the moisture but afforded no harbor for insects, and had a very neat and clean appearance.

I saw one specimen of Peristeria elata, the Holy Spirit plant, with six spikes of blossoms, and all in full flower, while gigantic specimens of Cypripedium seemed to be without end. One variety, called Rœzlii, was almost always in bloom. Mr. Such grows mammoth plants of Cypripedium insigne for cut flowers, for which there is a steady demand in the New York market. I also noticed some superb specimens of Phaijus grandifolius, while some plants of Lœlia anceps and superbiens must have measured two feet in diameter. Zygopetalum Mackayii and crinitum were grown in large pans probably 30 inches in diameter. There were also some specimens of Dendrobium and Stanhopea in baskets which one would think required extra support for the roof to hold them, likewise some magnificent plants of Oncidiums, Saccolabiums, Lycaste, Vandas, Cattleya and Ærides.

Here were some of the largest Eucharis Amazonica I have ever seen, if indeed any larger ones could be grown without planting them in a house built expressly. Several specimens were in tubs of no mean proportions, while others were in 24 and 30 inch pans. Mr. Such has such a number of these desirable plants that some of them are always in bloom, but the main crop of flowers is generally produced during the winter months, when the demand is the greatest.

It has often been a wonder to me that this plant is not more generally cultivated by our florists than it is, as large plants will produce hundreds of white sweet scented blossoms, which are always in demand for bouquets and floral forms of all descriptions. I was informed by Mr. Taplin that Eucharis flowers sold last winter at ($50,00) fifty dollars per hundred wholesale, and the supply was not equal to the demand even at that price.

This plant is of easy cultivation, and by a little judicious management can be had in bloom at almost any time of the year. It does well in a light soil composed of one-third peat and sand, one-third loam, and one-third well rotted cow manure. Delighting in a moist atmosphere of about 60 degrees, it should be shaded from the sun and grown as near the glass as possible. It requires to be well drained and freely watered during its growing and flowering season, but must be more sparingly watered when it is partially resting, which should be during the summer months if the flowers are wanted in the winter, but on no account should the soil be allowed to become so dry as to wither the leaves, as this plant always retains some of its foliage. Another variety of this plant with smaller flowers is known as Eucharis candida, of which I saw several fine specimens.

The Ferns were magnificent, embracing not only the leading species, but many rare and beautiful kinds. Conspicuous among them were the Gymnogrammas of which there were quite a number of fine specimens. One variety of Gold (Gymnogramma triangularis), a recent introduction from California, it is thought will prove hardy in some situations.

The Adiantums, some twenty-five varieties, also attracted my attention. Some specimens of Adiantum Farleyense were three and four feet in diameter. The Aspleniums, Pteris, and Polypodiums were also in great variety. While among the Tree Ferns I noticed some gigantic specimens of Lomaria, Blechnum, Dicksonia, and Alsophilla, many of them very singular,

rare, and beautiful. Prominent among them I noticed a very fine specimen of Todæ superba. The fronds of this plant resemble an ostrich feather dyed green; and so delicate are i's pinnules that the smallest ray of sun is sufficient to damage them. On account of this peculiarity the plant should be grown in a separate frame or case. I also noticed a fine specimen of Platycerium grande growing on a flat board. This Fern, although an old variety, seems to be extremely scarce, and yet it is one of the most singular of the whole family. My attention was called to another variety called Platycerium alcicorne majus, which far surpassed the old variety alcicorne, both in the beauty of its foliage, and general habit of its growth. This variety is of recent introduction. If my memory serves me correctly it is a native of Australia. I also noticed a very fine collection of Selaginellas, embracing some thirty kinds, many of them growing in large pans. There was a large collection of Azaleas, upwards of one hundred varieties, all of which looked very healthy.

But perhaps the Palm house was the gem of the whole establishment; here was not only a splendid collection of miscellaneous but many noble specimens of the Palm family. Prominent among them I noticed several varieties of Pandanus, Zamia, Latania, Cycas, Chamærops, Chamædorea, Areca, besides numerous kinds of Musa. Some of the specimens were worth several hundred dollars each. I noticed a fine plant of Musa coccinea with scarlet stem and leaf stalks, whose fruit was also scarlet, the whole forming a very prominent object; also a specimen of Chamærops arborea, whose stem looked as if it had been wrapped like an Egyptian mummey, which gave it a very quaint appearance. There was a specimen of Ceroxylon niveum, probably 12 feet high; the foliage of this plant is exquisite. The upper surface is a bright green, while the under portion of the leaf resembles frosted silver. On the roof was a fine plant of Passiflora Buchananii, whose bright red flowers surrounded with its thick foliage, looked like stars set in emerald green. I noticed some 30 varieties of Marantas, 20 kinds of Dracæna, and about the same number of Crotons; but so varied were their leaves and style of growth, that any attempt to convey a correct idea of their beauties would be a fruitless task. They must be seen to be appreciated, and a journey to the Greenhouses of George Such at South Amboy will amply repay any lover of plants.

LARGE LEMONS.

BY J. W. KITCHEN, MORRISTOWN, N. J.

Talking of large lemons, I have just picked one weighing 18 ounces, smallest circumference 11¼ inches, circumference lengthwise 14 inches. This was borne on a graft set two years and four months ago. The variety is a very strong grower. It has been in the greenhouse and shaded with my "Blue Shading," which probably influenced a more vigorous growth than would have been natural to the plant.

HOTHOUSES.

BY W. F.

In some gardens a little hot-house may be seen, but it is found to be a more difficult task to grow plants in them than it is out-of-doors. For wintering fine and tender plants they are good enough, but for growing them in during the summer they are not well fitted. They must be thickly shaded, kept airy without admitting winds and damp, a matter of some difficulty considering the great scarcity of water at the time when it is most needed. Pelargoniums, Fuschias, Callas, Azaleas, Heliotropes, some basket plants and a few of the common kinds of ornamental leaved plants include the bulk of the inmates. Dr. Hammer, a florist here, tells me that he cannot preserve a stock of Fuschias in Texas throughout the year, but has to buy afresh every fall. Capt. Scudder has a large greenhouse where he used to carry on business as a florist, but according to his own statement, he could never find a man to suit him to manage it, (and if he treats them as he told me, I hope he never will), so he has now planted out in the "natural style" as a pleasure garden only.

HOYA.

BY RODERICK CAMPBELL.

In this genus are several handsome species, and a few remarks upon their culture may be read with interest by those who cultivate stove plants. First on the list I shall commence with our oldest acquaintance, Hoya carnosa, the genus Hoya named in honor of Mr. Hoy, who was at one time gardener, and excellent cultivator of tropical plants to the Duke of Northumberland, at Syon House, Surrey, England. Carnosa means fleshy, which is the character of the leaves, a native of Asia, with light pink flowers. This handsome inhabitant of our stoves has been known for nearly three-quarters of a century. It

was introduced 1802. Has leaves thick and fleshy The flowers are produced in umbels on short stems sometimes as many as a dozen on a stem; in the centre of each flower there is, as it were, a drop of thick liquid distilled, which if tasted has the luscious flavor of honey; hence the plant in England and Scotland goes under the name of Honey Plant; but quite the reverse in this country, where it it called Wax Plant. Either name is appropriate. Care must be taken when the flowers drop off the stems, they should not be cut away as they have the surprising and unique propensity of producing from the same stem a second or more crops of flowers, often more numerous and finer than the first crop. To cultivate the Hoya to perfection, as it is a plant of somewhat succulent habit, and consequently requires a soil of a very open texture, a compost of fibrous peat, turfy loam, and some lime rubbish with broken potsherds amongst it suits it well. It is a climber and therefore may be trained in various ways to suit the fancies of all; either a circular or balloon trellis suits it well, and in either case is, when well grown, an ornamental object; it is also a very good pillar plant. The finest I recollect ever seeing was used to cover the back wall of one of the pine stoves at Stack Pole Court, South Wales, the seat of the Earl of Cawdor. It was planted there by my predecessor, Mr. Davidson, and covered the entire back wall and was half the year in bloom; it was without a doubt one of the finest coverings for a blank wall I have ever seen. The Hoyas may also be cultivated with success in baskets and hung up in either the Orchid house or stove, and in either of the above situations with their long slender branches hanging gracefully down and producing their flowers in abundance can be more seen to perfection than any other way I know of. So useful and ornamental can this plant be in its various modes of culture and training that I wonder it is not more extensively grown. It has the advantage in a great measure of being easily propagated; cuttings of almost any size will root if dried for a short time, say 2 or 3 days before planting.

Hoya Imperalis; this indeed is a noble plant worthy of the utmost care and skill of the cultivator. The soil I have found best suited for it was composed of peat, loam, and leaf mould, mainly sandy and well drained. It will thrive best if there is the convenience of any bottom heat or bark bed to plunge the pot in when the plant is growing; in such a situation it will grow rapidly and flower soon. Any one without the convenience of a bark bed ought to grow this noble plant; it roots easy and can be trained the same as Hoya carnosa; it requires a moderate supply of water during its period of growth, but in winter very little will be sufficient.

Hoya bella, as well as the *H. imperialis*, is one of the most noble of noble plants, so this is the prettiest of all the pretty ones. It has been called an amethyst set in frosted silver, and that is just a true description of it. It is a dwarf species with small leaves and an umbel of flowers no larger than a single bloom of the preceding species. Yet though so tiny it is a gem of the first water both on account of its flowers and taking up so little room, and its exquisite beauty ought to grace every plant stove however small it may be. The corolla is nearly of the same color as the old Hoya carnosa, but the nectaries are of a pleasing violet color. I can with pleasure and confidence recommend this beautiful little plant to all, as worthy of the most extensive cultivation. It requires a rather particular mode of culture to grow and flower it well. It is a native of Java, and coming from so warm a climate it requires the warmest part of the stove. It will grow and flower in a pot in the ordinary way of culture, but thrives best in a basket hung up near the glass. The best flowering specimens I have yet seen were grown in baskets. The basket was filled with rough peat and half rotted leaves with broken potsherds in very small pieces mixed throughout; managed in this way the branches droop gracefully over the edges of the basket, and if hung up so as to be near the eye the flowers are brought nearer to the sight than if grown in a pot, because in the latter situation the eye only sees the back parts of the flower, and it has to be lifted up before its beauties can be seen. This is the only species of Hoya that I know of that is not a climber and so requires no trellis to support it or train it to; it has also the advantage of having a delightful perfume, especially in the early morning, and so possesses at least two of the grand properties desirable in all plants, beauty of flower and sweet odor. Like all the tribe it is easily propagated by cuttings, and after the roots are produced they should be potted off in small pots, and as soon as the pots are filled with roots shift to a larger size and so on till they are fit for their place in the basket. Hoya carnosa Picta, Hoya carnosa variegata; these two distinct

variegated varieties of the old Hoya carnosa, are very pleasing with their beautifully colored leaves. The former has in the centre of the leaf a large blotch of creamy white, whilst the edges of the leaf are of the usual color; the latter on the contrary has the variegation on the edges of the leaf, while the centre is of the green color. Both are beautiful and equally worth growing. The coolest part of the stove with full exposure to light is the right position for them. Soil, loam and peat, with a free admixture of old lime rubbish; this will assist in keeping up the distinct and vivid variegation; they may be increased by cuttings of the stem by a leaf with a bud at its base, or even by a leaf alone without the bud; the first makes plants the quickest. Put the cutting in sand and give no water till a callosity is formed at the bottom of each cutting or leaf, then give a little to encourage the roots to push forth and the shoots to start to grow, then pot them into small pots, and always keep them under potted. In too large pots, or with too much heat and moisture they are apt to lose their beautiful variegation.

EDITORIAL NOTES.

Leaves for Cut Flower Work.—There is nothing more beautiful than the fern in all its variations, but they are generally too evanescent. The Myrisphyllum came in admirably as a substitute. Now Lomaria propinqua is to be added. The leaves are cut equal to the most beautiful fern, while the texture is so solid that it will keep several days without withering.

Liquid Manure for Pot Plants.—Continuous waterings, especially when the pots are small, and the plants comparatively large, have a tendency to make the earth poor. An occasional watering with liquid manure is a benefit in such cases. Decayed cow manure is excellent for the purpose, but the kind is of no great moment. Do not make it strong. Use enough manure to make the water the color of weak tea. This is the best rule for making it that we can give. Only growing plants are benefitted by its use.

Forcing the Laburnum.—The pendant spikes of the Laburnum would come into excellent play in many forms of floral decoration. The London *Gardener's Chronicle* says of an attempt to force it:

"Among forced flowering plants the Laburnum takes a prominent position, though it is not so generally seen grown in this fashion. Geo. Buck, the gardener at Castle Ashby, finds it invaluable in early spring, and his forced plants yield him splendid wreaths of yellow flowers, which are much prized for house decoration. Late in autumn the plants are lifted from the open ground, and the roots thrust into suitable sized pots *sans ceremonie;* but the plants flower well when introduced into heat, notwithstanding the summary character of the potting process. After they have done flowering they are planted out in the open ground for the summer, and in the autumn again potted and placed in warmth as stated above."

Growing Cyclamens.—In a recent number an advertisement appeared of Cyclamen seed. This is what the Massachusetts Horticultural Society says in its report of the Cyclamens of that advertiser:

"The feature of the exhibition to-day was the magnificent Cyclamen, from James O'Brien. These were undoubtedly the finest plants that have ever been exhibited, and were the admiration of all. The elegant form and varied colors, and markings of the Cyclamen, and the freedom with which the flowers are produced, with the length of time which they continue in great beauty and freshness, are all valuable qualities. The foliage, too, is very ornamental; especially so were some of these plants; the centre of the leaves being beautifully marbled, with the edges green; the marking being uniform. The flower spikes with their pretty pink flowers raised well above the foliage, and the abundant bloom—some of the plants having each at least one hundred and fifty buds and blossoms—made them objects of great beauty. Great credit is due to this gentleman for bringing this useful plant to so high a degree of perfection, and there is no doubt that the fine plant shown to-day will inspire a new interest in its cultivation, so that instead of seeing, as we do now, only a few in greenhouses, it will be a general favorite with all, it being equally well adapted for window gardening or greenhouse culture."

Vitis (Cissus) Chontalensis.—This elegant climber was introduced by the late Dr. B. Seeman, from the wooded mountains of Chontales, in the Republic of Nicaragua, Central America, where it covers rocks and trees, and by its graceful habit, lovely green foliage, and bright scarlet flowers (which appear about Christmas), forms a conspicuous object of the scenery of that region.—*Wm. Bull.*

Fruit and Vegetable Gardening.

SEASONABLE HINTS.

We have repeatedly called attention in these pages to the great advantages of assisting the tree to throw off its outer bark. This is done by scraping, washing, or slitting up and down with a knife in many instances. We have had to stand a great deal of ridicule from men whose horticultural knowledge is confined to the books of the college library,—but we have recommended it from actual observation of the good resulting,—and moreover the practice is not inconsistent with our understanding of the processes of plant life. To be sure it is not pleasant to have a professor in a college, as one did a few years ago, gravely tell his class that when "the editor of the *Gardener's Monthly* recommended the slitting of the bark of fruit trees, the advice was on a par with the belief of planting in the moon signs, and as likely to be of service to the tree as the slitting of a man's leg would be to cure the rheumatism,"—and then we have a learned society in Massachusetts teaching that "the rough bark of fruit trees, is designed by nature for the protection of the stem from cold winds, and the *Gardener's Monthly* might as well contend that taking off the scales from a small pox patient would prevent the small pox, as that clearing of bark scales would make a tree healthy." It is singular how prone people are to argue in this smart way. It makes little difference to us, however; of the two we should prefer to be a professor than a believer in the "moon's signs,"—but if the penalty for believing in the efficacy of bark washing, scraping, and slitting be to be remanded among the "ignorant Pennsylvania Dutch," as we have been told, we gladly accept the company we are placed in. We know of nothing more seasonable just now than this attention to the bark, and which may be continued as opportunity offers, till spring time.

We know the risk we run of turning the bile of our intelligent friends,—but we are quite sure that those who follow our advice will thank us for it; and this will be a sufficient return for our forced contribution to the "small pox" and "rheumatic" entertainment.

COMMUNICATIONS.

FRUIT NOTES FROM KENTUCKY.

BY JAMES TRUITT, QUINCY, KENTUCKY.

I have just returned from a ride in my orchard, of which I have over eighty acres, mostly apple, have several small orchards mixed with quince, pear and apple, but will never plant another mixed in this manner. This plan will do where one has but little land and wants to make the most of it, but where one has an abundance of land he should plant all kinds of standard fruit separately. It is more trouble to cultivate a mixed orchard; and the peach on strong ground often smothers out the apple and one has to sacrifice one or the other. I have about ten acres in young pear trees just beginning to bear; will have but little fruit this year on account of the severe weather in April. I have a variety of pear on trial that is said to be free from blight. In due time in autumn I will invite fruit men to examine it. Have quite a variety of pears now on trial. The late cold snap has taught us one thing, the varieties that will stand the most cold wheather, the Summer Rose and Early Golden Sweet are bearing good crops, where other noted early apples are a total failure. I have a very small tree of the Tetofski that is a fine specimen. Last year I fruited this apple from a graft on a young tree and I consider it one of the very finest early apples having all the qualities for a fine shipping apple, handsome shape and color, very solid and fine flavor for market. I consider this one of the best in the list. The St. Lawrence is the fullest fall apple we have; have a few of the Sweet Russet, Fall Pippin, Gloria Mundi. The Maiden's Blush, the great stand-by is almost a total failure. The White Pippin, Newtown Pippin, Belmont and Smith's Cider are our fullest winter varieties. Have a few Ben Davis, Fallawater, Broadwell, Baldwin, Golden Russet, etc. The Rome Beauty and Rawles' Janet, late bloomers, are a failure. On the hill in the Ohio river bottom I have a tree of Rawles' Janet full, also the Boston Russet, Roxbury Russet. Winter Pearmains are full. Three pear trees moderately full. One Early Harvest apple tree moderately full. On side hill orchard will have a few specimens of Kentucky Red Crab; the specimens are large and handsome, and have the appearance of being fully up to its recommendation. I have two dwarf pears of the Tyson variety for my own use. This is my favorite of all the pears. The tree is very productive, setting some seasons three distinct settings of fruit; these two trees are now moderately full, having two distinct settings on them. I have a variety of pear on trial that frequently has two crops the same season. The most of the first bloom was killed and after the weather got warm they commenced blooming and continued until about the middle of the present month, some very small, some larger, some half grown.

FORCING PEACHES IN POTS.

BY MANSFIELD MILTON, NORTH EASTON, MASSACHUSETTS.

The following mode of culture in this particular branch of gardening has been practised by W. Winter, Mansfield, Massachusetts, whose success has been for a number of years ahead of anything I am aware of in this country. First procure good healthy trees one year from the bud; pot in eight or nine inch pots, using good turfy loam and river sand; head them down to about two feet above the pot, plunge the pots in some sunny position, giving plenty of water when necessary; rub off the lower buds allowing the trees about one foot of clear stem, also, trim out any superfluous buds from the top, allowing only sufficient wood to grow as necessary for forming a good proportioned plant. When the shoots have grown about one foot in length pinch the points, which causes them to branch, which should also be pinched at every fourth leaf. Continuing pinching until they cease growing in fall.

When they have shed their leaves, take the plants out of their pots, laying them in the ground, and slightly protecting with a covering of hay from frost. In the spring pot in 11 or 12 inch pots, using soil the same as used the previous year. Before potting cut off any strong root, which helps to encourage more fibrous roots; plunge as in the previous year. Attend to pinching as formerly the young shoots, and be particular in watering.

Those trees which have grown well the previous year will produce a few fruit this season, which may be allowed to mature, watering the trees, however, after the fruit is stoned, with a little liquid manure. After the fruit is ripened and the trees at rest, pot in 13 or 14 inch pots, reducing the ball a little before doing so, and cutting off any strong roots. They may then be placed in a cellar or cold house until required for forcing, giving just sufficient water to keep the roots healthy. The trees should now be in a good bearing condition and may be placed in heat about the first of February, giving during night a temperature about 50°, with a rise of 15° or 20° during day. If convenient plunge the pots, as it assists in keeping a more even moisture to the roots, and keep the atmosphere in a moist condition by occasional syringing. As the buds begin to swell raise the temperature a few degrees. When the blossom expands discontinue syringing, but keep a moist atmosphere by throwing water on the pathways, &c. After the fruit is set syringe thoroughly two or three times a week to prevent red spider. When the fruit attains the size of walnuts, or just before stoning, cut off all unnecessary young wood and any old wood that may be over crowding, keeping it rather thin than otherwise. Summer pruning of peaches in pots which are forced early is preferable to doing it just before starting them, for the reason that the strong heat and drought in summer is apt to destroy the buds, and therefore by allowing all the wood to remain until the fruit is set, a failure but rarely happens. After the fruit has stoned and commenced growing give liquid manure as in the previous year, and continue syringing until the fruit begins to ripen, when it should be discontinued and a plentiful supply of air given to assist in giving a better flavor to the fruit.

About the middle of June set out of doors and heat as formerly. Repot early in fall, using the same sized pot or one size larger, reducing the ball about one inch all round. The trees will now be in condition for forcing during winter. They will not endure to be put into heat earlier than the last of November, but at this time they may, and with perfect success. Mr. Winter says he has started them from first of November every week during winter, but finds it unsafe to do so sooner than the end of November. He has started them the first of November, and picked fruit the 16th of April, but crop deficient. Never thin the fruit until after they are stoned, when but little danger of those left on falling off may be feared.

The first year of fruiting, five or six peaches may be taken off a plant; the second about double that quantity; the third fruiting year they should

produce a full crop, about three dozen peaches. Mr. Winter has picked as many as this off one tree, the fruit averaging ten inches in circumference. He has tried the following varieties to force, early and late Crawford, George the Fourth, Cooledge favorite, Troth's early, Stump the World, early York, Hale's early, and Mountain Rose, but has discarded all except Hale's early, E. Crawford and Mountain Rose. The first, Hale's early, is the best, but is sometimes apt to have its foliage drop prematurely; and consequently the fruit buds are destroyed. It is the best however for growing in pots under glass, either for home consumption or market.

VALUE OF MUSCOVITE.

BY PROF. ALBERT R. LEEDS, STEVENS INSTITUTE OF TECHNOLOGY, HOBOKEN, N. J.

I have frequently received samples of Muscovite, composed of minute spangles often less than a quarter of an inch in diameter. It is a variety of mica, and is usually accompanied by grains of quartz or feldspar, with which two minerals it is generally associated. By decomposition, the gneisses and granites which are made up of quartz, mica and feldspar, lose their rocky nature and crumble into beds of these minerals in a separate condition. Sometimes a bed is found composed mostly of Muscovite, with a little sand. In these cases, with large deposits at the surface or so few feet below it, that they are easily accessible, it would be advantageous to put them to practical use. The employment of the Muscovite when in transparent plates of some size is so well known, that it is scarcely necessary to allude to it—as for stove glass, lanterns, lamp-shades, compass dials, etc., or when in small pieces, as a filling for fire-proof safes, or alone or dyed with coloring matters, for a glistening paint on houses, or for letters on fancy signs. When pure and fine it has been used as a lubricant for certain purposes, and when coarsely pulverized, it has been employed as a roofing material. But in all these cases, no attention is paid to the various substances of which it is composed. Muscovite consists of about forty-five per cent. of silex and thirty-five of alumina, with small amounts of oxide of iron, magnesia, lime, soda and in some varieties of as much as ten per cent. of potash. On exposure to the atmosphere and rain it decomposes, forming clay, sand, oxide of iron and carbonates of lime, soda and potash. This being the case, a hundred pounds of the Muscovite containing ten pound of potash which is set free by atmospheric agencies in a soluble form and capable of assimilation by the rootlets of the plants, its fertilizing properties ought not to be neglected. It could be spread upon the ground, and its effect upon the fertility of soil determined. It is more than probable that such experiments have been tried, but the works on mineralogy and agriculture which are at hand, do not mention them; and a record of the experience of those who have given such a mineral fertilizer an experimental truth, would be of value to many who have Muscovite beds upon their lands and do not know what employment to make of them.

WHERE DO OUR VEGETABLES COME FROM?

BY A. M.

On this revolving planet of ours, things organic and inorganic, seem to revolve likewise. The Gotle from the ice bound shores of the North is found in sunny Spain; the sallow Chinese, Eastward wends his way in our days; the African lives in America; the white folks of Europe have in the space of two centuries pressed the red native Indian into a small corner of his native country. Not men alone, though, migrate. The sand of the western shores of Europe gets carried over to our shores, and forms the bars of New Jersey and the Carolinas. Large rocks are found, particularly on the plains of Europe, which evidently have traveled miles and miles to strand there finally. Above all, animals and plants migrate. From Arab's hot desert, the horse, that blessing for, that true companion of man, has followed him everywhere; to the Yellow river of China, and the Isles of Scotland as well as to the Pampas of South America, and the plains of Mexico. From Asia came our chickens and geese. From Africa and Europe a vast array of animals and insects that we daily see about us. I leave it to a competent hand to tell us the particulars and shall be happy if this article calls him up. My task is the comparatively circumscribed one—where do our vegetables come from?

This is a highly favored country of ours inasmuch as it adopts easily everything from foreign countries, men animals and plants, acclimates them, and develops them highly. A few unpleasant weeds, such as the white daisy, rag-money, klu-klux, national bank notes, the borer, Tweeds and grasshoppers, although they sometimes threaten to destroy us and bring us to desperation, yet by the aid of Providence and our own exertions we fight them down and out. So this does not prevent us from considering our country a highly favored one. But it was not so originally. The men and beasts found here, to human eye, were and are no good, and they die out before the march of us foreigners. *Vae victis!* They are the conquered ones, we are the conquerors. Nor were the original plants, as far as eatables go, of any good. The only exception may be our "Indian corn," but I am not sure if "Turkish maize" did not exist before Indian corn. In fact I wish to know, did Turkey wander to America, or did America travel to Turkey? The wild fruit of this country such as persimmons the scuppernong grape, etc., are certainly not as the Gospel hath it delightful for the eye and delicious to the taste. What cereal, what vegetable did our red native brethren acquaint us with? The potato, it is of the West Indies, not of our country. The tobacco, like the Indian corn, it may be indigenous, and, if the point is conceded, what else is it but a nasty thing, doing much more harm than good? Besides I speak of eatables.

Suppose then that we owe all the "goodies" to foreign countries, let us find out where these adopted citizens came from. Let us trace them and locate them.

Paradise, so everybody says if he does not know it, was situated in Asia, in the fortieth degree of innocence and the forty-second degree of bliss. Now most of these vegetable benefactors of ours come from Asia. They have traveled across Europe and made themselves at home here, from the East Indies, from Persia; from Asia Minor have come the squashes, the melons, the pumpkins, and the legion of Cucurbitaceae,—spinach, the shallot, the onion, sweet marjoram—radishes and rhubarb, and a host of other things now flourishing amongst our garden stuff as though they had never been abroad. From Southern Europe we have wheat, and parsley from Sicily. Peppermint, coriander, garlic from Italy; rice, fennel, basil, sage, from Germany. We have carrots, carroway seed, anniseed, oats, and buckwheat from England, cabbage and its multiform kinds, from brocoli to cauliflower, the mainstay of winter food for our immense country population, from the high North of Europe, horse-radish, celery, leek and rye.

I wish the editor and readers of the *Gardener's Monthly* would correct and add to the foregoing, and, would furnish similar articles in regard to the immigration of animals; or if unsuitable to this periodical, at least of the immigration of flowers, plants, herbs, seeds and insects relative thereto.

EDITORIAL NOTES.

LORD PALMERSTON PEACH.—An English paper says, this is the largest variety known in that country.

WATERCRESS CULTURE IN PRUSSIA.—In one of your last numbers B. C. W., asked for information on the culture of Watercress; I therefore take the liberty of sending you an account of the culture carried on here, where Watercress is grown in a very large way. To cultivate Watercress in a profitable manner you must have running water, which will not freeze in winter. Make rows from six to eight feet apart, two feet deep, and as long as you please, and give a fall of from two to three inches in ten feet. This done, let the water run in the rows until the earth has become perfectly muddy. You must then take cuttings from roots or branches four to six inches long, and plant them six inches apart each way in the rows; or, if you cannot procure them for the first time, plant seedlings. These should be sown in August in the same sort of soil, and they will be strong enough to plant in four weeks.

If the plants are rooted well, cut them down to an inch and manure them well with rotten cowdung, which must be beaten down between the roots. Now if the plants grow again, let the water run over the rows to a depth of a foot. The Cress having reached eight to ten inches, you begin to cut it. As much as you can take in the hand is bound with a small branch of Willow, as the Cress is cut. During winter take care that the cress does not grow above the water and for that purpose it must be beaten down. Every year in the summer the rows must be cleaned out well, so that no water weeds may come amongst them. They must also be planted fresh as well as manured.—*Gardener's Chronicle.*

THE CHASSELAS GRAPES.—According to the *Moniteur Horticole Belge* the famous trellis of Fontainebleau, whence all the Chasselas Grapes of that neighborhood originated, was formed in 1531 by Francis I., with plants obtained from the town of Cahors. A gardener of the same town superintended the plantation.

KEEPING GRAPES IN WATER.—As the practice of keeping grapes in the fruit room with the

stalks inserted in bottles filled with water, and suspended from the roof, has now become general, it is very important to direct attention to the fact that the stem must be inserted in the water immediately after it is severed from the vine, and also that the end of the shoot must not be shortened. When the branches are not at once inserted in the water the stalks will soon become brown and the berries shrivel. Also, if the end of the branch is shortened for the purpose of giving a neater appearance to the bunches when suspended in the fruit room, the grapes will soon begin to shrivel, and if not used within a short space of time will be of little service. Last winter I saw in the garden of an amateur a very splendid lot of grapes which were very nearly spoiled through that portion of the wood above the bunch being removed.—*Gardener's Magazine.*

THREE AUTUMN PEARS.—There are three varieties of the pear, that ripen about mid-autumn, mostly of recent introduction, which will be likely to receive considerable attention as market fruits, on account of their good size, and the fine, vigorous growth of the trees. These are the Howell, Goodale, and Souvenir du Congres. The former is well known; the two others are new. On a thorough comparison of the of the fruits, the Howell proves best in quality.

The Goodale is rather deficient in flavor; but when the fine handsome growth of the tree is taken into consideration, and the large size and smooth and regular form of the fruit, it may probably be adopted as a profitable market variety—especially when such showy sorts as Onondaga and Clairgeau sell for higher prices than the Seckel. Souvenir du Congres is a fine grower, and the fruit is large, but its appearance is injured by its frequent knobby and furrowed surface, while its flavor is not so agreeable as the other two.—*Country Gentleman.*

LARGE STRAWBERRY PLANTATION.—An English paper expresses surprise at a statement in an American magazine, that some one in New Jersey has a plantation of fifteen acres "all strawberries." We fancy there are plenty who can boast of much more than this. Our English friends would perhaps be more surprised to learn that they can be bought in immense quantities in season, at ten cents a quart, and that the poorest eat them as regularly and as freely as potatoes are eaten in their country.

QUERIES.

NORTHERN OHIO FRUITS.—*Mr. Van Deman* kindly furnishes the following note: I see that you have published my criticism of your apple list for Northern Ohio; I did not so intend it, but the corrections are just as Warder or any authority will say. I have never lived in northwestern Ohio, but as you have requested me to give a list that will be *profitable* there, I do so in accordance with such light as I can obtain. For winter market—Hubbartston, Smith's, Ben Davis, Rome Beauty, Winesap, Red Canada, Domine, Limbertwig, Bentley Sweet, and Willow. The last three will keep till July, as "J. C." wishes.

For early summer market—Red Astrachan, Summer Rose, Early Harvest. For home use, these last three with Benoni, M. Blush, Jeffries, Western Beauty, Belmont, Jonathan, Grimes' Golden, and those mentioned for profit. But I am now a Kansas apple grower, and would rather hear from apple growers in Northwestern Ohio on the subject.

THE EARLY PEACHES.—*Mr. Phœnix, Bloomington, Ill.*, says: "I beg a favor not only to myself but to the horticultural world at large. Please ask those who have fruited Beatrice, Alexander, Amsden, and other new peaches, to report for the press. Also other new reputed worthy sorts of fruit."

VALUE OF NEW VARIETIES.—*F., Babylon, L. I.*, writes: "While reading an article in the *Horticulturist*, by A. S. Fuller, on the introduction of new plants, the thought struck me how much injury nurserymen are doing their customers and the public, by continuing to sell whatever may be called for, without warning the purchaser of its want of reliability, either in quality of fruits, or hardiness of plant. I have been victimized by the whole circle, with few exceptions, until experience has drawn the line. I am resolved in future to deviate from the common practice, by neither selling a poor fruit, nor tender evergreen or deciduous plant, without giving information, when such I have. I think our National Horticultural Society remiss in their duty, when they do not make known the sectional standing of ornamental stock, as they do that of fruit."

[This is a nice question,—and we judge one which every one must decide for himself, irrespective of what any horticultural society may do for him. The great public is a very suspicious personage. If a nurseryman tells it that the thing ordered is of no value, and he will not sell or keep such things, ten chances to one but "the public" regards it as an excuse for not having it, or "a trick of the trade," and the honest fellow is voted as a "one horse concern" and "behind the times." Again the nurseryman himself may be mistaken. We know a Philadelphia nurseryman, now no more, who was in this respect, one of the most honest fellows who ever lived. He would not procure or sell the Concord grape, because he believed it no better than a Fox, and he told his customers so freely; a few years after he saw his error, but in the mean time the injury to his business was incalculable. It is a matter we think wholly for individual discretion. —ED. G. M.]

WASH FOR INSECT DESTRUCTION.—*Dr. W. Paine, Philadelphia*, writes: 'I have been experimenting with divers substances, so as to endeavor to destroy the Colorado beetle without injuring the potato vines. I send you a sample of a decoction made by boiling one-half pound each of caustic lime and powdered sulphur, in one-half gallon of water for thirty minutes. It drives the beetles away from the vines and if freely sprinkled—a fine spray from a small rose with small holes, it will kill all the fluid falls on. At the second application at my place, the 'Ferns,' Roxboro', all were killed. Since commencing to write, my attention has been called to an article in the *Scientific American*, June 19th, 'discovery of the Phylloxera Remedy,' by Mr. Dumas, the eminent chemist, who used sulphocarbonate of potassa, etc. I shall be happy to be of service to the community if the liquid I send you acts as in my hand, when used by yourself. It seems to be 'death' to parasites literally."

[The article referred to, did not come to hand. —ED. G. M.]

Natural History and Science.

COMMUNICATIONS.

AMONG THE WILD FLOWERS OF SAN DIEGO, CALIFORNIA.

BY JAMES S. LIPPINCOTT.

(*Concluded from page* 211.)

Clumps of *Lithraea laurina*, allied to the sumac of the eastern states, but quite unlike in aspect, appear on the middle levels, their feet tangled by masses of delicate blue *Phacelia tanacetifolia*, and *Mirabilis Californica*, or California four-o'clock, or adorned by canopies of the trailing stems or broad palmate leaves of the mandrake, which has been already noticed as among the earliest blossoms. *Claytonia perfoliata* bearing a striking resemblance to our eastern *Hydrocotyle* of marshy places, occurs within the clumps of *Lithraea*, and is so succulent and luxurious of growth as to be employed as a salad by the natives and their civilized successors. Another very common but low-growing shrub, bearing small dull yellow inconspicious flowers and ovate leaves, much resembling those of the olive, is the *Simmondsia Californica*, belonging to the order *Euphorbiaceæ*. The Alfilerilla, *Erodium moschatum*, a "clover" of this region, now occurs more frequently and in the absence of grasses, forming a thick mat, gemmed with its small pink flowers blooming through the Californian winter far into the spring, and however dwarf they may have remained through poverty of sustenance, invariably, if not too closely cropped, puts on at length its obliquely-arranged tufts of crane-billed seed vessels. The long slender divisions of this crane-bill are wound spirally upon the carpophores, and when ripe, they are still more violently twisted, perhaps by hygrometric absorption, and drawing the seed from its seat, lift it aloft radiantly from the centre of support, offering it a prey to the winnowing winds, which scatter it far and wide. Here also occur a papaveraceous plant, *Platystemon Californicum*, which lifts its white and yellow stars above the dense green around, while *Brodiæa congesta*, with handsome bright blue clustered heads of tiny lily shaped flowers, *Gilia multicaulis*, with its inconspicuous bloom, occur at intervals, and the lovely *Gilia dianthiflora* spreads its carnation

colored fringed petals to our admiring gaze, covering the ground in many places with its delicate tints and fairy beauty. A small dark purple *Fritillaria*, a malvaceous plant the *Sidalcea Malviflora*, a *Stachys*. the *Salvia Columbarium* with steel-blue flowers, *Linaria canadensis* well known at home, and *Monardella undulata*, occur on the slopes and drier elevations; while *Calandrina menziesii* with its brilliant red petal stars and dense greenery of its surroundings, sometimes usurps the place of the abounding alfillerilla.

The Caper shrub, *Isomeris*, already noticed. soon appears, and clumps if a finely-cut leaved *Artemisia* become more abundant. The Spanish dagger, *Yucca*, the flat leaved cactus or prickly pear *Opuntia*, the club cactus, growing from three to eight feet high, and *Eriodictyon tomentosum* become more abundant as we leave the bay or descend into sheltered arroyas or dry-water-courses. The first named cactus rises in these protected localities to the height of six feet and forms large clumps of impenetrable chapparal. Among the more remarkable of the sheltered depressions, is the Cholla Valley, where the cactus, from which it derives its name, gives place to abundant growths of shrubs, among which we observed a *Ceanothus*, with blue and white thyrses of delicate flowers, known as the Californian lilac, and which we afterwards saw on the mountain of Bernardina, where it justly claimed its loftier name of the Pride of the Sierras. In the interesting Cholla Valley occurs also the *Eriodictyon tomentosum*, or Hydrophyllaceous bush, with remarkably white mullen-like leaves, whose congener, the *E. glutinosum*, it but little resembles in appearance or qualities. The leaves of the latter are grateful to the taste, much resembling in sweet demulcent properties, the root of the liquorice plant. This is the Yerba Santa (holy herb) of the Mexicans. *Styphonia integrifolia*, a *Berberis* or *Mahonia*, perhaps *pinnata*, and *Photinia arbutifolia*, are among the more conspicuous showy shrubs in this bushy valley, and over these frequently trail the long leafy vine of the *Lathyrus vestita*, which hangs out its grand racemes of large crimson blossoms. *Mimulus glutinosus* is very showy with its bright yellow and red petals. A brilliant purple lupine occurs on the banks at the foot of stony cliffs, and merits its specific name of *hirsutissimus* from the abundant, pungent, slender spines which cover leaf and stem. A pale *Astragalus Menziesii*, with conspicuous bladder-like legumes and sundry other lupines which need not be characterized, also occur. The late Professor John Torrey, writing to Prof. Bolander, of San Francisco, shortly before his death, remarks, "how strange that no one has found the Photinia near San Diego, since the days of Nuttall;" to which we add, strange indeed since it could not be overlooked in the Cholla Valley in spring time, where its broad leaves, its corymbs of white flowers and large red berries, combine to render it attractive, and where some excellent specimens were observed by the writer. Among the most conspicuous flowers of the Cholla Valley is the *Amsinckia lycopsoides*, a borraginaceous plant, which often lines the roadway with its bright yellow bloom, and frequently encroaches upon the wheat-fields of this fertile vale. Such is the scene in March.

In April new flowers appear, among which the more beautiful, though not abundant, and sheltered among the bushes, are the lovely *Collinsia bicolor*, which we did not fail to remember was named in honor of Zaccheus Collins, a Philadelphia botanist, and *Mimulus luteus*, long cultivated in the east. More beautiful however is the fuschia-like *Ribes speciosum*, or red pendulous flowered gooseberry, which occurs in a deep ravine alongside of which lies the road to the Ancient Catholic Mission, three miles from San Diego, where the descending way is known as the Mission-grade. The Cacti do not present us with many flowers, but the Yucca, in favored situations, displays a magnificent mass of rich purple buds and creamy lilies, bursting into beauty from amid its forbidding clusters of dagger pointed leaves. Near San Bernardino, we afterwards saw Yuccas rising eight and ten feet in height, adorned by masses of flowers in a compact head four feet long and eighteen inches across, and mostly in full bloom, forming an unrivalled natural bouquet. On the middle heights above the bay the ground is often yellow with a bright Œnothera and the yellow violets *V. pedunculata*, among which appear the pale tints of wild onion *Allium*, and the blue heads of *Brodeaea*, and minor liliaceous plants. But greater brilliance is added by the advent of many composite flowers, among which most conspicuous are *Burriellia gracilis* and *B. chrysostema*, or the golden mouthed, and *Layia platiglossa*, the former two species often covering many hundred acres in dense growth, varied only by the appearance of oval beds of blue *Phacelia tanacetifolia*, trimmed seemingly by the hand of a gardener.

Many inconspicuous plants are occasionally found with which the botanist is somewhat acquainted in the east. Were there no other traces of human occupation throughout this land, the skilled observer would learn from the plants around him, that the European had here lived and cultivated the land, sowing the seeds of weeds with his wheat and barley and his garden vegetables. Southern California has not escaped the introduction of many plants adventitious from Europe, man bearing with him the seeds of good and evil in all his migrations. Plants that started with the hordes of Gath and vandals from the steppes of Tartary have now reached the western borders of this western world. The presence of motherwort, *Leonurus*, Hoarhound, *Marrhubium*, which in San Bernardino even invades the streets, growing in extensive plots that have become a perennial nuisance; Yarrow, *Achillea millefolium*, white weed or daisy *Leucanthemum vulgare*, Bur-clover *Medicago denticulata* which grows every where on good soil forming extensive pasture for sheep, *Silene gallica*, and many others which occur in California, attest that man has brought with him the useful and the vile.

The introduced plants are generally a very small minority in these almost boundless fields, and the botanist can scarcely take a step without treading upon a plant unknown to him in his eastern fields. Now he stops to gaze with admiration upon the spread of *Dodecatheons*, or to throw up his hands with delight as he pauses beside a half acre of Californian poppies, *Eschscholtzia California*, which at mid-day resembles beaten gold, the most brilliant and most fascinating of Californian flowers. Nature here is in her loveliest mood, and robed in her brightest colors. She had spread her tapestries of the Magenta colored, *Castilleia*-like *Orthocarpus*, until they rival the gorgeous carpets of Persian looms, and has hung the hillsides in draperies that outshine Bluff King Harry's "Field of the Cloth of Gold."

EDITORIAL NOTES.

THE PEACH CURL.—Whether the fungus which seems connected with the curl (Ascomyces deformans) is the cause or effect of the disease, is still the subject of doubt among the best mycologists of England.

HEAT OF THE SOIL.—M. Becquerel, the celebrated French chemist, has been repeating some experiments made by the editor of this magazine some years ago, in regard to the absorption of heat by the soil. He finds, as we did, that cleared land absorbs considerably more heat than when covered by sod,—and parts with it very rapidly, and therefore sudden changes of temperature follow. Under sod the soil was much cooler in summer, and warmer in winter. In the spring the frost is longer in coming out under sod. So that where it is an advantage not to have the flowers of fruit trees open too early in spring, the sod covered ground is an advantage.

SPECIES OF CONIFERS.—We in America, accustomed to travel rapidly from point to point over vast extents of country, have excellent opportunities of judging as to how the same species vary; and it is only when we reflect on these advantages that we cease to wonder that our European friends split up and divide, so that every little shade is given a specific value. We find however that they are themselves becoming bewildered over their task at length. The following from the advertisement of one of their leading firms shows just how far they have got towards what we feel almost inclined to call the American platform:

"According to investigations by botanists, the Californian Conifers are to a certain extent synonymous in specific character, occasioned partly in being found in widely apart localities or approached by different quarters within comparatively a short time successively by the different explorers, or have been found to be so different in aspect as described by previous discoverers that they have been considered to be different species. We offer them under the names given by our various collectors, and they may prove as different as varieties in aspect like day and night, as is the case with our own indigenous Conifers, although without admitted difference by scientific rule."

AMPHICERUS BICAUDATUS,—a grape vine enemy. We received from Mr. G. Scotten, of St. Paul, Minnesota, some bored stems of a grape vine, with a small beetle unknown to us. We handed them to Dr. Le Conte, the President of the American Association, whose knowledge of Coleoptera is particularly well known,—and have been favored by him with the following reply. We also append a note from Mr. Scotten, with some further details of the habit of the insect which promises to be a very destructive little fellow:

"The specimens of a Coleopterous insect infesting grape vines in Minnesota, which you sent me, have been safely received. They belong to *Amphicerus bicaudatus*, first described by Say, in 1824, as *Apate bicaudatus*. The locality given by him is 'above the mouth of the Ohio,' he quotes a synonym from Melsheimer's catalogue, from which I infer that it has also been found in Pennsylvania. I have specimens from Georgia and Kansas. The female, which is destitute of the long spine near the tip of the elytra, was described by Germar, later in the same year, 1824, as Apate aspericollis, from Kentucky.

"The first observations showing that this insect attacks grape vines, by boring into the stems, just above the buds, were made by Dr. Henry Shimer, Mt. Carroll, Illinois, in 1868, and are published in the Transactions of the American Entomological Society, vol. 2, page 8. Dr. Shimer found associated with them, but eating only dead wood, a much smaller Coleopter, *Lyctus opaculus*, and also *Callidium amœum*.

"The *Lyctus* were so numerous in many vines as to eat up the wood entirely, the bark alone sustaining the vine. I am convinced that they only feed on wood recently dead, more especially because they are so often huddled together so closely; it is quite apparent that they do not interfere with living sappy wood. I am inclined to believe the same regarding all these three species of grape vine borers. If this is a correct conclusion they will not damage the vines.

"This is the only notice in print of the habits of this insect, but now that I have given you its name, persons more familiar with the literature of economic entomology may perhaps be able to refer you to the records of other observers."

"ST. PAUL, MIN., *July 8th*, 1875.

"THOS. MEEHAN, ESQ.,

DEAR SIR:—

"I received your postal card of June 25th, asking for more light on the bugs I sent you. The vines were four years old last summer, were strong and thrifty, and fruited. They were pruned and covered in the fall as usual. When uncovered this spring, showed signs of life by leafing out, but stopped growth and withered. The idea at first was they were winter-killed, but after a time it was discovered that they had been bored at a bud, and inside the vine were found the bugs, generally in *pairs*. On digging down to the roots, at about four inches below the surface, they had been working at the upper tier of roots, being three eyed cuttings, but the wood appears too hard for them to enter. After the first rain, they ascended and entered the vines, as above stated. Also around where the vines were gnawed, and in the ground were found lots of worms white like thread, from one inch to three inches long. They have been working somewhat among older vines, perhaps two or three, in the trellis, the vines on each side looking as usual, and fruiting. Those affected, are sickly and stunted, with no fruiting canes. As to their working only in dead wood, they probably killed the vines and were working to get out. The ground was manured a year ago, with fresh stable manure, but not this spring. We find much the same kind of bugs in the dead portion of Black cap raspberry canes, many of which being killed this unusual cold winter, or rather bud-killed, as the canes are full of sap to this day, but never leafed out. Tell us the remedy, if any, for the grape bugs. Yours respectfully,

GEO. SCOTTEN."

PINUS CONTORTA.—In the lecture of Dr. Engelmann, published in our last, he is in doubt as to the origin of Douglass' name *contorta*, suggests that it may have been on account of the cones being sometimes twisted. This had been a subject of discussion between the writer of this paragraph, and the author of the "*Book of Evergreens*," when together in the Rocky Mountains. In about a day's journey from the heights of Caribou, we came on a large tract of this pine, all of which had a remarkably gnarled and twisted condition of its branches. Mr. Hoopes called the writer's attention to it, and remarked, "now we see why the pine may have been named *Pinus contorta*." The twisting had evidently originated from a slight tendency to fasciation, and yet it was remarkable that it should have prevailed to such an extent as to give an apparently normal character to the forest. On the same day we passed a specimen of *Pinus flexilis*, which had evidently stood alone all its life. Never having been crowded, it had taken on the round headed form, and huge dimensions of a majestic oak; and it was not without evident disgust with the exigencies of our situation, which led us to hurry by it, that our good friend passed it without taking a measure, or other details for some future edition of his valuable "Book."

BOUGAINVILLEA.—In our note on "Spiritual flowers" we used the above orthography. This is the universal style among gardeners, and is on the authority of George Don. Our friend of the Boston *Cultivator* has been hunting up history, and suggests that it should be *Buginvillea*. The *Cultivator* is right. This is the prior form, and under botanical rules should be adopted.

PEAR BLIGHT.—We have had very few opportunities of examining what is known as the Fire Blight in the pear, when it is in its fresh condition, as in this part of the world, north eastern Philadelphia, it does not exist to our knowledge. As soon as we get a few miles east we hear of it occasionally; and as we get west it is quite common, until after crossing the Alleghanies, it is one of the worst foes the pear grower has to contend with. So far as we could examine from mature specimens, there could be no doubt that the disease was the work of an extremely active parasitic fungus, and this view was presented by the writer of this so far as the facts would warrant, to the meeting of the American Pomological Society in St. Louis, in 1867. In 1870 President Hoopes, in his annual address to the fruit growers of Pennsylvania, took up the subject of the fungoid diseases of plants, and showed from microscopical examinations that fire blight was undoubtedly of fungoid origin.

We have never been able to understand why these patient and minute researches have not been acceptable to the great body of intelligent American pomologists, as by the number of speeches at the several pomological meetings, in which the fire blight is regarded as "a great mystery," they do not appear to be. It so happens that we received this spring a few fresh specimens of the disease from a correspondent at Vincentown, New Jersey, and which were submitted to the chairman of the microscopical section of the Philadelphia Academy of Natural Sciences, Dr. J. Gibbons Hunt, who besides being an accomplished Microscopist, is eminent in Morphological and Physiological Botany.

Lest it may be said that Dr. H. is afflicted with "fungophobia," as we have heard it said of those who urge that minute fungi cause many diseases, we may be pardoned for saying, that if he had any leaning, we believe it would be on the contrary side. The following is Dr. Hunt's letter:

PHILADELPHIA, *June 21st*, 1875.

THOMAS MEEHAN,

DEAR SIR:

I have examined those pear branches, and find that the black color is *caused* by a fungus. It attacks the bark and *outside* of leaves and young fruit first, causing changes in the cells, in these locations resembling much those pigmentary cell-changes which differentiate the negro from the, so-called, white man. The cell contents, normally transparent, are changed into extremely minute pigment granules which fill the cells and give that characteristic color and smell which mark the disease. Moreover, minute drops of viscid offensive liquid come out on the surface. These changes are not confined to the epidermal cells, but pigment granules crowd the cambium cells in the young and forming stage, giving the appearance in cross sections of the stem, of a black ring encircling the stem.

From the cambium layer the fungus travels towards the interior of the stem, *through the medullary rays* chiefly, and here I find those round bodies, which, in our hasty ignorance, we often call spores.

The ducts which ascend the stem are often obstructed with similar bodies and aggregated pigment granules. This is all I know about the subject. I cannot venture to name the fungus. Repeated observations only, can determine that question.

Ordinary microscopic observation will fail to show the points of which I have written. I have made thin sections of stems, bark, fruit and leaves, and removed excess of black color until I could *send day-light* into every cell, and then under 500°, the parasite reveals its presence.

Is this fungus the primary cause of fire blight? It is not often that the cold of winter injures vegetation in this latitude, but a few warm days in early spring, may cause great vital activity in the young growing cells; the protoplasm of these parts is in a rapidly dividing condition; then if a cold term suddenly succeed, all these delicate vital changes are suspended, and for all we know the cell contents die, turn black and decay. It is just in locations in the pear where such early cell-activity takes place, namely, in the cambium layer, tender growing extremities of buds and fruits and epidermal coverings that this black disease is found. Were it not for the detection of evident organized and apparently reproductive vegetable units totally unlike any result of degenerative action in ordinary cell-process, which we often call spores, I would not have said a fungus was associated with the disease. Had I found analogous appearances in animal tissues I would have called it "melanotic cancer."

NIGHT GROWTH OF PLANTS.—Mr. Tem-

plin's experiments with Indian corn has attracted attention in intelligent quarters, as generally does anything from his pen. One however calls on us to note that Mr. Templin has not correctly taken in the views of the best vegetable physiologists in regard to this matter, and our correspondent is right. Physiologists believe not that there is no growth in the dark—a visit to the nearest potato cellar would settle that question,—but that only in the light is there any growth of a character to make substantial structure. Carbonic acid gas, from which the plant obtains its carbon, can only be decomposed by the aid of light. It is not that there is no growth in the night,—but that the growth is of no benefit to the plant, until light has had its effect on it.

THE MERMIS.—The long hair like worm found in an apple by Dr. Kerr at York, given to us at the York meeting of the Pennsylvania Fruit Growers, and which we handed to Dr. J. Leidy of the Philadelphia Academy of Natural Sciences, has caused considerable attention to be turned to the subject. We give the following from the *Utica Herald*:

"Our readers will remember the description of a new parasite, communicated to these columns, by our Albany correspondent, a few weeks ago, as given him by the discoverer, Hon. . D. Friend, of Orange. Mr. Friend has submitted a specimen to the gentlemen of the State Museum of Natural History, and a long opinion concerning it by Dr. J. A. Lintner, addressed to Mr. Friend, is published in the Albany *Times*. Dr. Lintner says the worm 'bore so strong a resemblance to the Gordius, or 'hair-worm,' as it is ordinarily called, that on its presentation by you I unhesitatingly (but erroneously) referred it to that genus.' He gives a detailed history of the Gordius, whose place is generally in water. But this new parasite is different. Before deciding as to its character, Dr. Lintner consulted with Dr. Leidy, of Philadelphia, who has made a special study of Entozoa. Having examined it, he returns the following very interesting information: 'The worm is a species of Mermis, a parasite of the *Carpocapsa pomonella*, or larva of the codling moth or apple-worm, which accounts for its presence in the apple itself. A similar specimen was referred to me a short time since, for an account of which see the next or forthcoming number of the Proceedings of the Academy of Natural Sciences, Philadelphia, [see *Gardener's Monthly*, page 96, March, 1875.]

"Mermis is a genus closely allied to Gordius. Leidy states that he has frequently seen specimens of it, which he calls 'the white hair worm,' within insects, in one instance crawling out of a Caroline grasshopper which was struggling in a ditch. Siebold describes *Mermis albicans* of Europe (two to five inches long of a whitish color) as parasitic on the drones of the honey bee.

"This new phase of parasitism of the Mermis upon a caterpillar living within the apple, at its core, and often in its younger stage within the seeds, is so remarkable and interesting an announcement, that we shall anxiously await the publication of the promised paper, for the explanation of much that seems mysterious to us. In what manner, and at what time, does the Mermis effect its entrance in the body of the Carpocapsa apple worm? The eggs of the apple-moth are deposited on the blossom end of the apple, where the skin is the thinnest at various periods during the summer months. Hatching within a week, the young caterpillar passes directly into the apple, eating its channel as it proceeds toward the core. Here it remains until it has completed its growth, when it emerges from the apple and crawls down the branches or lowers itself to the ground by its thread, to seek some safe place of shelter in which to construct its cocoon. At this time, and even during its subsequent hybernation in its larval form within its cocoon, it is exposed to parasitic attack, but this can not be the period of the entrance of the Mermis, for its presence within the apple indicates its previous existence in the worm. It could not have taken possession of the worm while the apple was attached to the tree, for its structure would not admit of its ascending the trunk and branches of the tree. Should a wonderful instinct lead it to seek its prey through the closely packed excremental matter filling the wormholes of the 'windfalls' lying on the ground, then the worm in its exit from the fruit, usually very soon after the apple falls, would carry its guest away with it, instead of leaving it behind, to excite our wonder and, perhaps, alarm several months thereafter. Damp cellars would seem an appropriate habitat for the Mermis, but its abode within the stored apples would naturally be more brief in this case than in the preceding, the latest worms at this time having attained or being near their maturity. Without the labor of penetrating the apple, its prey could much more conveniently be found in

the unchanged larvæ hidden often in immense numbers between the boards of the apple bins, or beneath the barrel hoops, within a cocoon too slight to offer any material resistance to the entrance of so thread-like an organism.

"As an aid to the development of the history of the interesting animal, it will be of service, if as full statements as possible be obtained of the conditions under which it had occurred in each instance in Orange county the present season—the first knowledge we have of its presence in the apple or any other fruit. Was it found invariably in worm-eaten apples; and if so, had the fruit been much or little eaten? Were any remains of the carpocapsa worm noticed as associated with it? Were any living apple-worms seen in the apples eaten during the winter? Where and in what manner were the apples stored in which the Mermis was present? Can it be ascertained if the infested apples were hand-picked or 'windfalls?'

"The detection of the Mermis in the apple, in a few instances, recently, need not, we think, occasion alarm. It is possible that in eating an uncooked apple without the proper mastication, a living Mermis might be introduced in the stomach, for of the Gordius (a closely allied genus as above stated) Leidy says: 'It is perhaps the hardest or most resistant to the feel of any of the order, and it is tough and elastic. It is very tenacious of life, and when cut into several pieces will continue to live and move for some time afterwards.' But should it escape the ordeal of the teeth and pass uninjured into the stomach, there is reason to believe that the action of the gastric juice and other conditions to which it would be there subjected would deprive it of life before it could be passed into the intestines or penetrate the integuments of the body."

QUERIES.

BROUSSONETIA PAPYRIFERA.—This is the plant referred to by *J. H. B., New York*, in the following: "I enclose leaves from a shrub found growing in Jersey City, to ascertain if you can give its name. Its peculiarity is that any two leaves on the plant cannot be found that are alike in form, some being deeply marked, but all different and others with scarcely any indentures. Please reply through columns of *Monthly*."

FUNGUS IN THE CRAB.—*S. H. F., Dayton.* We are examining your pretty fungus, and will report further. It is not familiar to us.

PYRUS (CYDONIA) JAPONICA is the name of the plant sent by J. G. Hockley, Harris County, Texas.

Literature, Travels & Personal Notes.

COMMUNICATIONS.

A SKETCH OF MAURITIUS,
And a Glimpse at the "Lattice," or "Window" Plant of Madagascar.

BY W. T. HARDING, AGRICULTURAL COLLEGE, COLUMBUS, OHIO.

A correspondent of *The Independent*, of September 3d, 1874, says: "The most curious plant in the vegetable kingdom is probably the 'Lattice or Window' plant, (Ouvirandra fenestralis,) which grows in the streams of Madagascar, as our Potamogetans do here. The leaf in size and form resembles our Potamogeton natans; but, and here is the remarkable part, it has no parenchymatous matter, and is wholly made up of a network of veins. It is indeed a living skeleton leaf, and from this is derived its common name, 'Lattice' plant—by which among travelers it is known. It is also known as the 'Lace Leaf.' Plants are in cultivation in English hothouse aquariums, it having been successfully introduced there some twenty years ago, by the celebrated missionary, the Rev. Mr. Ellis."

No mention is made of its having been grown, in this country. Probably, *The Independent's* correspondent is not aware that such is the fact. Some ten years ago, the writer of this had a plant growing in a minature lakelet, in a fern and orchidaceus house. Said house he designed and had constructed in the *natural style*—or rather, in a manner intended to represent a forest scene in the tropics A structure so formed, bears but little resemblance to the ordinary

greenhouse, built from stereotyped plans of the "Horticultural Architect," whose chief aim seems to be, to render it as unfit for the purpose required as possible. Such houses, unfortunately, are mostly intended to exhibit the builder's conceptions of *taste*, (so called) and show off his skill as a carpenter. The practical cultivator, who knows better, is seldom consulted about such matters, and the result is, a splendid looking *pest house*, instead of a good and useful plant house. Such such incongruities are generally as unfit for plant life to exist in, as was "The Black Hole" in Calcutta for human beings.

The "Lace" plant, I have reference to, was received from R. Buist, of Philadelphia, from whose establishment numbers were distributed to many first class places in the United States, and Canada. Thousands of Philadelphians, must have seen specimens of them, either in the late Mr. Dundas's Victoria regia house, in that city, or at the veteran nurseryman's aquarium, above named.

The fleshy roots are edible, and are used by the natives of Madagascar as an article of food. They are said to be wholesome, and as nutritious as the yam. Its native name, *ouvirandrano*, signifies yam of the water. In the Malagasy and Polynesian languages—*ouvi* signifying *yam*, and *rano* water.

Sir W. J. Hooker says, "it is one of the most curious of nature's vegetable productions." The plant is figured in the *Botanical Magazine*, and scientifically described by that eminent botanist. A word or two about its management, will, I trust, prove acceptable to whom it may concern. The size of the aquarium for its successful culture, will be ample, if it does not exceed three feet across—with a depth of about twenty inches. A soil, composed of turfy loam, chopped fine, well mixed with coarse river sand and charcoal, will make a good compost to grow it in. Use a pan, such as is generally used to grow orchids in, (in lieu of the ordinary flower pot,) and when rather firmly potted, place in the bottom of the aquarium so as to immerse or cover both pot and plant beneath the surface of the water. Its manner of growth differs somewhat from that of Nymphæas, &c., inasmuch as this, the whole plant is completely submerged—with the exception of the flower stems, which rise above the water. Its forked pink colored flowers are as singular as pretty—the stalks of which curiously rise from the centre of the leaf—so wonderfully formed, by the "great geometrician." If the water can by any simple contrivance be kept in motion, and maintained at a temperature of 75°, it will closely approximate to its native habitat. It will also be well to occasionally wipe with a soft sponge, its beautiful foliage, as a confervoid growth often attaches to, and fills up their slender mesh-like structure.

I had the satisfaction of seeing three of the original plants which the Rev. Wm. Ellis brought from Madagascar. The one he left with Mr. Duncan, director of the Royal Botanic Gardens, Pamplemouses, Isle of Mauritius. Another I saw at the Botanic Gardens, Cape of Good Hope, and subsequently the specimen he presented to the Royal Gardens, Kew, London.

I still retain a happy recollection of the sunniest of sunny lands, Mauritius. "The scent of roses will hang round it still," and the genial, and generous Mr. Duncan—than whom, a more hospitable or warmer hearted man, it would be difficult to find. What a paradise it seemed. How lavishly nature had scattered her gifts on every side. I was amazed with the rich profusion of flowers. They were absolutely dazzling. Like living gems, or vegetal jewels, freshly dropped from a casket of Flora, both forest and field, glade and glen, were resplendent with beauty.

However indifferent the casual observer may seem to be, to the ordinary aspect of nature he is daily accustomed to see—he generally exhibits a sense of surprise, and expresses his admiration therefor, when first his wandering mind visually gazes at the florid pictures of tropical life. Even to one whose life has been spent in the cultivation of fruit and flowers, in the companionship of nature, and whose long and happy associations therewith have ever tended to increase his attachment, feels their potent interest too.

There is an inexpressible feeling words fail to describe, when the heart's pulsation quickens with excitement, and throbs with emotion, whenever deeply and fully impressed with the cosmical grandeur and glory which surrounds us. A humble wayfarer, as was the writer, who had journeyed far o'er many lands, and whose peregrinations had somewhat familiarized him with many a pleasant page in the Book of Nature, whose Author, "The Ancient of Days," had laid open for perusal, still found each chapter more intensely interesting and captivating, as eagerly he turned over its leaves in flowery Mauritius.

Meandering along the mountain roads of the forest, beyond Port Louis, which lead on to the Royal Gardens of Pamplemouses—looking inland, was a scene, "where every prospect pleases." Looking seaward, the broad expanse of the billowy deep glistened in the sunny sheen of a summer's morning. Byron's poetical sentiment reads as if written to describe it; so applicable:

"There is a pleasure in the pathless woods,
There is a rapture on the lonely shore,
There is society, where none intrudes
By the deep sea, and music in its roar;
I love not man the less, but nature more,
From these our interviews, in which I steal
From all I may be, or have been before,
To mingle with the Universe, and feel
What I ne'er express, yet cannot all conceal."

Marvelous indeed is the blaze of rich coloring. Brilliantly glowing scarlet and crimson banners, oriflammes, pennons, bannerets, and gonfalons seem to wave and flutter among the luxuriant branches, and rich green leaves, peculiar to tropical vegetation.

The gay "Flamboyant," or Poinciana regia, as regal as any ligneous potentate could possibly be—even the pomp-loving monarch, when revelling in all his glory, "was not arrayed like one of these." Numbers of Pandanus and Palms, both stately and grand, were exceedingly attractive. Euterpe globosa, Areca rubra, and Dombeya ferruginea cast their shadows over the handsome Phœnix pygmea, a neat and useful greenhouse palm, rarely exceeding six feet in height.

One would naturally infer that the Mauritians were an æsthetic people. All classes alike seemed to vie with each other in the cultivation of luscious fruits, and beautiful flowers. I could scarcely imagine anything more cosy than the neat white-washed dwellings, half concealed beneath masses of climbing plants, which interlaced through the verandas and lattice work, not only surrounding them on all sides, but covered the roofs also. The romantic little snuggeries were literally buried in flowers. Mingling with Roses and Jasmines were Hoyas, Passifloras, Euphorbias, Allamandas, Kennedyas, Dalbergias, Stephanotis, Ipomæas, Tacsonias, Russellias, Heliotropiums, and Bignonias of various kinds. Cocculus crispa, Batatus venosa, Phyllarthron Bogeriana, Cissus discolor, Ceropegia elegans. Gourvania mauritanicus, Cryptostegia grandiflora, and the richly scented Vanilla aromatica These are but a few of the many charming vines which embower the homes of the happy looking people, who seem to live in floral mounds, or huge bouquets.

I saw several specimens of the singular Urania speciosa, or "Traveler's Tree," a native of Madagascar. Artocarpus integrifolia, or "Jack tree," perhaps better known as the bread fruit tree; the large fruit of which exceeds in size a man's head. They were common to most gardens. A brief description of a few more remarkable things, will suffice to give the reader an idea of the wonderful vegetation of Mauritius, viz: Elæodendon orientale, twelve to eighteen feet high; Syzygium inophyllum, ten feet; Kirganella elegans, eight feet; Musa rosacea, twenty feet; Dracæna umbraculifera, D. terminalis, D. cernua, ten to twenty feet; Edwardsia nitida, nine feet; Turvæa rigida, thirty feet; Erythroxylon laurifolia, sixty feet; Anona amplexicaulis, fifteen feet; Blackwellia paniculata, eight feet; Terminalia mauritanicus, (very curious), twenty-five feet; Ficus terebratiæa, Clerodendrum coromandelianum, Crinum speciosa, C. bracteatum, Astyria rosea, Norantia indica. Of Orchidaceæ, so remarkable, yet so beautiful withal, they literally grew everywhere, wherever there was a stick or stem to cling to. As space in the *Monthly* is valuable, will name but a few, to wit: Bolophyllum cylindricum, B. clavicum, Angreœcum piscaternianum, A. herbaceum, A. gladifolium, and A. glabrifolium. Two terrestrial kinds—Calanthe versicolor, and Ætheria occulata.

Lastly, presuming the reader is not tired with the subject, nor weary with the wandering beneath a tropical sun, among arboreal grandeur or herbaceous beauty, where magnificent foliage and gorgeous flowers in luxuriant profusion, entangle and obstruct his progress in the forest jungles, we will make a detour to a spot where Tree Fern fronds are waving. But a few steps further, through an arcade of Bamboos, and we enter a deep and sombre glen. There, Cyathea excelsa spreads its gray-green fronds, some forty feet high. Watch them coquetting with the woodland zephyrs, soft and sweet, with the breath of a million flowers. Somewhat less in stature, though not less in frondiferous beauty, Diplazium arborescens, from fifteen to thirty feet high, stately and palm-like in port, a veritable Fern magnate—of noble presence—stands in bold relief on the summit of a projecting rock. From a fissure beneath, poured in limpid measure, the tinkling music of a water lute. No Dryad's melody, Wood or Water Nymph's song could be sweeter than the sound of the tiny cascade.

Again, still less in size, though not less in interest, grace or beauty, were the little ones, the minor members of the Fern family, Eriochasma lanuginosa, and Pteris lanuginosa, and P. nemoralis; the two former are singularly enveloped in a thick pubescent or wool-like covering; generally found in dryest situations, and the latter mostly in shady groves. Asplenium resectum in allusion to the cropped or cut-off like appearance of the fronds. A. viviparum producing living plants on the pinnules. A. parasitica, a rather doubtful parasite, but very pretty. A. macrophyllum, a strong growing species. Clinging to the tall Cyathea and Diplazium trunks were masses of the climbing fern, Lygodium circinatum, which freely wound its slender Myrsiphyllum like stems to the apex. Nephrodium crinitum, a hairy fern and N. lucens, a shining one. Dyctryopteris lanceolata and Grammites lanceolata, two very distinct and handsome ferns with lance shaped fronds. Polypodium lycopodioides, a lovely little creeping fern, which closely resembles a Lycopod. It is one of the indispensables in a collection. The foregoing are a few of the many species of ferns —all exquisitely beautiful—any of which would delight the heart of the most enthusiastic of *Fern fanciers*, as they did the writer's.

EDITORIAL NOTES.

BOOKS.

THE PINETUM. BY GEORGE GORDON.—In the last generation, botany was not as it is now. Morphology was new, and very few had any idea of the insight it would give us of the laws which regulate the modification of organs. In the absence of this knowledge an unnecessary multiplication of species was pardonable. A lobe or two more or less in a leaf, or perhaps a peculiar twist upwards or downwards,—or some other trifle which gave a marked appearance sufficient for any educated eye to distinguish it was sufficient to warrant a specific name,—and people had to wait till actual experience in each case showed the characters valueless, before the plant was regarded as identical with something else. Hence arose a multitude of synonyms. These are among the great drawbacks to scientific progress, but they could not well be helped. Since the development of morphological law however much of this is altered. We know at once what parts of the structure are likely to be permanent, and what are liable to vary with continually recurring circumstances. It has come to be regarded as a principle that no one is fit to be a describer of species unless he has advanced thus far in the scientific knowledge of the day. In this field of learning it is well understood, England is remarkably deficient; and hence in the horticultural literature of a half botanical class, are endless discussions as to what is or is not a true species,—endless because they have not come to any understanding as to what a species really is.

This being the condition of things it is not to be expected that Mr. Gordon's book on Coniferæ would be very satisfactory from a botanical point of view,—and this is unfortunate, as it is on this ground that it is chiefly presented to us. There is little of a practical character attempted,—though now and then are some references as to the economic uses of some species, and the geographical range within which they are found. So little however is told even of these things, that it is painful to one who would like to speak well of a book of this kind, to note its glaring deficiencies. There are innumerable sources of knowledge open to Mr. Gordon, had he chosen to avail himself of them, that would have given great value to his work. Why he has held himself independent of them, it is difficult to understand, especially as he was kindly shown his shortcomings by many reviewers on the appearance of the first edition of his work. Most of his facts are just as Loudon and Michaux left them, and indeed chiefly taken from their works without acknowledgment, and often with an exaggeration which makes even their limited knowledge worse. For instance, under the head of Chamœcyparis thuyoides, our Eastern White Cedar, Mr. Gordon tells us it is "a tall tree 70 or 80 feet high and three feet in diameter." But Michaux says "a tall tree 70 or 80 feet high, *rarely exceeding* three feet in diameter." This country has been opened up considerably since the nearly hundred years ago that Michaux went through it, and surely something has been learned that he could not know. If this thought had occurred to Mr. Gordon, he could have found out that "70 or 80" feet high is only when the tree is growing in exceptionally favorable conditions, —and he would have further found that it was quite unnecessary to leave out Michaux's expression "*rarely exceeding.*" The way in which Mr. Gordon puts it, gives one no idea of the White Cedar as it is generally seen. Almost all his statements of American species are of this inaccurate character because taken from books written a long time ago, and when there were no railroads or steamboats to enable one to judge except to a very limited extent.

It is for instance not true now that the "timber of the hemlock spruce is of less value than that of any other resinous tree of North America." There are numbers hardly worth cutting for firewood, while the trade in hemlock lumber is enormous; on the other hand it is not true, that the timber of the American Larch "is much esteemed in America." As a general rule the owner of a Tamarac swamp, does not regard himself as very rich. Michaux of course had no opportunity of exploring the interior of this great continent, and Nuttall, who made his great journeys chiefly on foot, could know comparatively little, though what he did find out was one of the most wonderful things in the world for one man to do. But Mr. Gordon writes as if the whole American world had stood still since that time,—and it is really laughable to find a modern author talking about this or that being "confined to the region between Lake St. John and Wilkesbarre," "The Grand Father and Table mountain," "along the sea coast," "from Virginia to the Carolinas," "grows on the northwest coast,"—and so forth. To read Mr. Gordon's book, one would suppose that in only a few remarkable cases, were coniferous trees found in the thousands of miles of the interior of the great American continent. If Mr. Gordon had taken the trouble to read even the *Gardener's Chronicle*, so close to his hand, to say nothing of regular books, he would have known that Pinus contorta grew somewhere else than on the "northwest coast," and that it did much better than make "a tree not more than fifteen or twenty feet!"

Unfortunately Mr. Gordon is not very particular about facts, and this is especially apparent in his quotations of author's names. Thus he gives Abies concolor to Lindley, Pinus Balfouriana to Jeffrey, Abies commutata to Parletore, Retinospora Elwangeriana to Barry, and the two varieties of Thuja, T. O. Argentea, and T. O. Aurea to Maxwell. None of these individuals have any thing to do with the origination of these names. Even when he makes a correction he can not do it accurately. He tells us that the Thuja gigantea of the English gardens is the same as Libocedrus decurrens, "as pointed out by Parletore." Parletore has done nothing in his monograph but give "Thuja gigantea, Carriere in Flore des Serres" under the head of synonyms. The real parties who pointed out the blunder have had full credit by Mr. Bentham in the *Gardener's Chronicle*, which it would almost seem sometimes that Mr. Gordon does not read. This deference to the opinion of Prof. Parletore, is commendable, and it is to be regretted that Mr. Gordon did not take him for a further guide. It would have saved us a number of useless synonyms. For instance, "as pointed out by Prof. Parletore," Mr. Gordon's Pinus Parryana is nothing but P. ponderosa,—and it is more than probable if the Prof. had a chance he would make Mr. Gordon's P. Pinceana, P. Teocote. Pinus Benthamiana, "as pointed out by Prof. Parletore," is also P. ponderosa,—P. radiata is P. insignis, and many others, according to Prof. Parletore, as well as other authors who have had better opportunities of judging than Mr. Gordon. Some of these insisted on separate names and characters for identical things, are amusing. We have, for instance, separate and long chapters on Pinus Balfouriana and Pinus aristata, when surely all good coniferous botanists "even in England" know that there is no pretense by any one but Mr. Gordon, that there is even a varietal difference, the same thing being described by two authors, and that Mr. Murray's P. Balfouriana, by the right of priority, is the name to stand.

The right of priority however is not much respected by Mr. Gordon. He would not give the great Cherokee chief his due, because Wellington seized his rights. Wellington has it, and as he has it, let him keep it. It is surprising that Mr. Gordon was brought to give Libocedrus its due under a ruling like this.

But it is perhaps in his morphological knowledge that Mr. Gordon exhibits his greatest deficiences, and we can see how to make allowances for his haphazard system of regarding species. Biota Meldensis, he thinks, may not be "a hybrid," but "a variety of the Red Cedar." The Red Ceder is a Juniperus, and this genus has a different structure from Biota, and the smallest particle is sufficient to guide any one who ought to know. There is nothing whatever of juniperus in this form. Beyond this evidence, there is the fact easily accessible to Mr. Gordon, if he had been so minded, of the plant producing exactly Biota cones. Equally reprehensible, under the circumstances of accessible knowledge, is his assertion that Biota pendula is a good species and must come from Japan. The *Gardener's Chronicle* has repeatedly furnished the

evidence that its parent is the Biota orientalis. To be sure "Siebold" may have "seen it in Japan." Why should he not? It is the home of Biota, and all sorts of seminal varieties. Then we have Juniperus ericoides placed in Retinospora. Why? He has no reason but fancy. Its structure is truly Juniperus, even to the trifid arrangement of its leaves, a character which Retinospora never has. As to placing Thuja ericoides, and Thuja "Tom Thumb" in Retinospora, and to assert that they *must be* from Japan in spite of the knowledge now everywhere disseminated, that forms similar to these can at any time be found in any large bed of seedling American arborvitæs, the statement would be remarkable were it an isolated specimen of the character of the book Any one interested enough in plant life to read the admirable treatise of Braun on *Rejuvenescence*, translated for and published by the Ray Society of London, would at once see that these plants were but Thujas which had retained through life their juvenescent forms, if they had ever seen a lot of Thujas of but one or two years from the seed; that they were in fact only feeble minded children—imbeciles as we would say of human beings. Many of these facts have been given by Mr. Hoopes in his *Book of Evergreens*,—and while it is remarkable that the latter author gives ample credit to his English compeer, for whatever he may have been indebted to him,—no reference whatever is made by Mr. Gordon in this new Edition, to the American author. The silence indeed seems almost contemptuous, in the face of the fact that Mr. Hoopes' *book* has been well received by English reviewers, and Mr. Gordon, if he reads at all, must surely be aware of its existence. Horticulture and science should have no local preferences or affections,—and yet as we want to feel some pleasure with the pain we feel at the manner of this book, it may be pardonable to say that we are glad that in literary courtesy the American author needs no example from the other side.

Another pleasure we feel is that in making these remarks neither Mr. Gordon nor his publisher will feel any pecuniary loss. There are some necessities in the world which become necessaries. We have no choice. And though we cannot in truth command either the personal knowledge or the individual investigations which ought to be necessary to get out a book like this, we can say that it is a book which every lover of coniferous plants cannot well be without.

A Century After, or Picturesque Glimpses of Philadelphia and Pennsylvania. Published by Allen, Lane & Scott, and J. W. Lauderbach, Philadelphia.

The events which made America a nation, are many of them so closely connected with Philadelphia, that Philadelphia names and Philadelphia places, are every where known. The events occurred a hundred years ago, and it was a good thought which suggested to sketch the surroundings as they appear a "century after." Nos. 1 and 2 are now before us,—the whole to be finished in fifteen. The beautiful engravings and handsome letter press have not probably been surpassed by anything of the kind ever issued from the press, and would interest any one though possibly caring nothing for the spirit which made the topics famous. One of these numbers is devoted chiefly to views about Fairmount Park, which will interest those of our own readers who study landscape gardening and landscape architecture.

PROCEEDINGS OF SOCIETIES.

Report of the Board of Commissioners 5th Cincinnatti Industrial exhibition, 1874.

In a former number we noted the liberal premiums to the Horticultural department offered by the Board, and supposed such action would induce liberal competition. Looking through this report of last year's doings we find that all the exhibitors are confined to the vicinity of Cincinnati, except one—James Vick, who has a premium for some cut flower work. The leading exhibitors are August Sunderbruch, B. P. Critchell, Chas. J. Jones, Daniel Ring, C. B. Wingate, S. S. Jackson & Co., Thos. Knott & Sons, J. S. Cook & Co., William Gardner, Fred. Walz, W. Autenreth, Mrs. R. B. Bowler, Thos. Underwood & Sons, S. G. Cobb, Geo. Magrie, J. L. Griffin, Miss Annie Hurnble, H. Mulertt, and R. J. Ellis. To the exhibitors who made the best and most attractive displays during the exhibition $100 was awarded to August Sunderbruch, and $50 to Mrs. R. B. Bowler, which with their other heavy premiums, ought to make a little fortune. It is strange that our good Horticulturists from a distance do not compete on grounds like these.

Hamilton, (Canada,) Horticultural Society.—25th Annual Report. The Society seems in a very prosperous condition, and the competition spirited. George H. Mills is President, and Thomas Weston, Secretary and Treasurer. An excellent idea is the publication with the premiums offered for the forthcoming season, the list of those who took the premium last. Due honor is thus done to successful exhibitors, and at one expense.

Ohio State Horticultural Society.—Annual Report from M. B. Bateham, Secretary.

The transactions of this Society are always interesting, and this one by no means less so than any of its predecessors. In a discussion on "Pear Blight," Mr. Bateham made a good point in saying: "much that is called Pear blight, is in reality winter killing; the wood is discolored inside, although the trees lived for some months, making a sickly growth for a while." No one can take up a report of any Horticultural Society that discusses "Pear blight," without being convinced that only on the theory that one does not understand what the other is talking about, can explain the curious "theories" continually advanced.

The membership seems more active in this than some others, $135 having been collected in this way. $500 is donated by the State.

Proceedings of Indiana Horticultural Society, 14th Annual Session. From W. H. Ragan, Clayton, Ind., Secretary.

The Society receives a thousand dollars from the State, which with fifty members, enables it to get up an interesting volume of Proceedings, besides paying various parties $50 each for essays, and others considerable sums to go as delegates to other societies. A petition was adopted asking for a State Entomologist. In a list of profitable apples for Indiana, we find named Ben Davis, Janet, Wine Sap, Baldwin, Hoops, Clayton, Yellow Bellefleur, (with some qualification), Maiden's Blush, "the most profitable of the season." The fire blight in the Pear, was very bad the previous year in the State.

Gardening at Newport, R. I.—We have a communication from Mr. Roderick Campbell, in regard to the letter of Mr. Smith on this subject in our May number. He contends that Mr. Smith is mistaken in some things, and in others that it is a mere difference of opinion, in which he may be allowed to hold his own. It may seem that in justice to Mr. Campbell we ought to let his article appear in full, but it occupies nine pages of foolscap, and we cannot spare the room for it.

Centennial Pictures.—Beautiful specimens of the chromo art are the five colored lithographs of the Centennial buildings, and scenery, issued by Thomas Hunter of Philadelphia. He has just added the sixth picture containing the five principal buildings on one sheet. These gems of art, printed on first-class paper and of large size, will be highly ornamental mementoes of an event which will be long remembered by the American people. The price is low, 50 cents each, or $30 per hundred, and they will no doubt continue to have a wide circulation, which they richly deserve. Mr. Hunter will issue his seventh picture, the "Bird's Eye View," in about two weeks. It is at present delayed only to secure the greatest accuracy of detail and to introduce all the minor buildings where plans and positions have been determined.

The Gardener's Monthly.—Our young associate, since the writer's return to the desk, has found time hang heavy on his hands, and for want of something better to do, has been counting the articles in our last number, and reports *ninety-seven*. One would hardly suppose there were so many topics in the whole of Horticulture to be written about, especially in one month, but the young man is singularly truthful and we accept his statement, and if it is any compliment to the magazine, we must we suppose take it as modestly as we can.

M. Roezl, whose name is familiar to all lovers of tropical flowers, and who has spent the best part of a good life in collecting in foreign lands, paid a short visit to the United States recently, previously to a return to his native home in Germany, where he proposes hereafter to remain and end his days.

Large Forest Trees.—The trees in the Indian Forest cannot, either in height or growth, be compared to the Sequoias or Wellingtonias of California, or to the Eucalyptus of Australia. The tallest tree, observes Dr. Brandis, which I have seen and measured in India was 250 feet high and 38 feet in girth. This was a species of Upas tree (Antiaris), in the Thoungyeen forest of British Burmah. Such dimensions, however, are never found in the deciduous forests. The tallest Teak tree measured by me was 102 feet to the first branch, with, perhaps, an additional 50 feet of crown above. Teak trees with clear stems, 60 to 80 feet to the first branch, are not rare in the moist regions of India. I have found them in Burmah, in the Dang forests, north of Bombay, and in those glorious but hot forests of North Canara, which are probably the most ex-

tensive and richest Teak forests remaining in British India. Teak of such size and length is only found in very favorable localities, where the young trees had grown up close together on rich dry soil, in dells or sheltered valleys, generally in company with tall Bamboos, and where they were thus compelled to draw each other up to that height. Luxuriant vegetation, under the influence of an abundant supply of moisture, has its drawbacks, however, as well as its advantages. Thick masses of tall grass and weeds spring up in the Teak plantations of Burmah, smother the young trees, and greatly increase the risk of fire. Worst of all are the climbing plants with which the Teak, Sal, and other forests in all moist tracts abound. Huge creepers, like gigantic ropes, often as thick as a man's thigh, and thicker, stretch from the ground to the top of the trees; they spread numberless branches, and their foliage completely covers and smothers the crown of the tree of which they have taken possession. When a young tree is occupied by one of these gigantic climbers, the stem remains short, gets crooked and deformed, and makes no progress in growth. In Burmah several kinds of epiphytic Ficus attack Teak and other trees; the seed germinates in a fork or in a hollow of the trunk, sends down its roots, which eventually enclose the stem as with a network. At last the tree dies, and the Ficus spreads its massive but useless limbs in all directions. In the Sal forest of Oudh the creepers were particularly heavy and numerous when these tracts came into our hands.—*Gardener's Chronicle.*

PRINCE ALBERT'S LOVE OF GARDENING.—*The Journal of Horticulture* says: "Among the late Prince Consort's many excellencies was a love and a superior taste for gardening. How highly appreciated is thus well told in one of his letters in the interesting 'Life' just published. 'As an art modelling is even more attractive than painting, because in it the thought is actually *incorporated;* it also derives a higher value and interest from the fact that in it we have to deal with the three dimensions, and not with surface merely, and are not called upon to resort to the illusion of perspective. As the artist combines material and thought without the intervention of any other medium, his creation would be perfect if life could also be breathed into his work; and I quite understand and feel with a sculptor in the fable, who implored the gods to let his work descend from its platform. We have an art, however, in which even this third element of creation—inward force and growth—is present, and which has, therefore, had extraordinary attractions for me of late years, indeed I may say from earliest childhood—namely, the art of gardening. In this the artist who lays out the work, and devises a garment for a piece of ground, has the delight of seeing his work live and grow hour by hour; and while it is growing he is able to polish, to cut and carve, to fill up here and there, to hope and to love.'"

Horticultural Societies.

AMERICAN POMOLOGICAL SOCIETY.—From indications in every quarter, we see that the forthcoming meeting in Chicago will be one of the most successful held for a long time. Arrangements are being made with the leading railroads for a reduction of fare to delegates. Application has been made to the Pennsylvania railroad, which connects with so many at all points. At the time we write this, it is without the limits of the period they fix for considering such applications, but it will be considered in due season, and we have no doubt a liberal reduction will be made.

TORONTO HORTICULTURAL SOCIETY.—Our Northern friends, like those of Philadelphia, found the Spring exhibition not well attended, through people having so much to do at that season. A friend sends us the following account which gives a tolerable idea of what our Canadian brethren in horticulture are doing:

The collection of exotic ferns exhibited in the Hall yesterday was the finest ever seen in Toronto, and the show of foliage, orchideous and other plants, were most valuable and beautiful. The principal exhibitors were Mr. Harris, gardener at the Government House; Mr. George Vair, gardener to the Hon. D. L. Macpherson; Mr. John Hallam, and Mr. James Forsyth.

Mr. Harris' collection was very fine, especially in flowering plants. The display of pelargoniums was remarkably good, the bushes being covered with one mass of blossoms. The display of calceolarias was also unusually fine. Among Mr. Harris' collection was a very fine lot of coleus, one of which, a flesh color, attracted much attention and was greatly admired. We

also noticed some rich specimens of Marantas, Dracænas, silver and gold tasselled Ferns, &c. Some stately Fuschias and double Petunias, Brompton stocks, and beautiful scarlet Geranium, were also included in the display from the Government House, the whole of which reflects great credit on Mr. Harris' abilities.

The display made by Mr. Vair, the Hon. D. L. Macpherson's gardener, vied in value and beauty with that from Government House. Some of the foliage plants and ferns were the most valuable to be found on the continent. Over one hundred ferns of various kinds were exhibited by Mr. Vair. Among the most noticeable were the silver and gold tasselled ferns; the Cyathea, a fern from New Zealand; the Seaforthia Elegans, a new species; the Platycerium Grande, or Stag's horn fern; the Bird's Nest fern; the Adiantum Farleyense, a very rare fern; and the Davalria Canariensis, a very beautiful and valuable species. There were also on exhibition some rare species of Anthurium Regale and Leuconeurum; Clivea nobilis; some very beautiful and stately Azalias; a fine Yucca; a rare Cactleya; a Cyanophyllum, a very beautiful foliage plant, a native of Borneo; some very fine roses; a Sedenii, a new species of Begonia; and a beautiful collection of cut flowers and greenhouse plants, the whole forming a collection than which it would be hard to procure a finer from the conservatories of any one gentleman.

Mr. Hallam's collection was also a very fine and choice one, including some valuable standard plants. It comprised some beautiful species of Australian and other ferns; a Cordylina (the only one in the exhibition); a valuable Dicksonia antarctica, Areca rubra, Euphorbia splendens, and other exotic plants of beautiful foliage and great rarity. Six specimens of Japanese cedars, a Rhyncospermum jesminoides in flower; a handsome Yucca, and two fine Ficus elastica or rubber plant, and other plants, the whole forming a valuable collection.

Mr. James Forsyth, of the Normal School, exhibited five varieties of the gum plant, a native of Australia and New Zealand, which he has succeeded, after three years perseverance and skill, in bringing to perfection from seed. One of these, the "Eucalyptus Globulus," has proved very valuable when planted in unhealthy or swampy districts, destroying the malaria and rendering the places healthy and inhabitable. Mr. Forsyth also exhibits a fine Agave Americana variegata, or century plant, an Acacia alata, or "Wing Acacia," and some fine Fuschias.

F. Richardson exhibits several new varieties of geraniums, ferns, and other plants; also a double Lobelia, a new and great acquisition to horticulture.

Mr. Latham, of York Township, exhibited some beautiful bouquets of cut flowers, and Mr. George Murray had a display of American and English Russets, and Spitzenberg apples, the only fruit on exhibition.

THE RELATION OF LIGHT TO STOMATO.—At a recent meeting at the Academy of Natural Sciences, Phila., Thomas Meehan exhibited a leaf taken from a small tree of *Acer pseudo platanus*, —the common Sycamore maple—which had assumed an inverted position. The tree was three years old from seed, and all the leaves were of that character. The young leaves first appeared in their normal condition, but as the petiole lengthened the leaf blade bent under, so that the under surface was exposed to the full sunlight, and under the petiole above. He also exhibited a young oak from an acorn sown in the Spring, and which he believed to be *Quercus Catesbœi*, and in which all the leaves were vertical, and not with their surfaces on a plane with the horizon, as is the case with all other seedling oaks, and American trees. He said it was possible this position of the leaves, was not continued with the increased age of the tree, or it would have been observed and placed on record. Of several hundred young plants all had the same character.

The facts were simple in themselves, but had great interest to the student in vegetable physiology. The stomato were usually on the under side of the leaf, and believed to be there of a necessity. Our leading botanical text book taught that stomato were breathing pores, and could not carry on their essential operations when exposed to direct sunlight,—and the same high authority had suggested that if leaves of this character could be inverted, and forced to remain in this condition, the plant would inevitably die. The maple did not die, but had been during all its existence, as healthy as others of the same species growing near it. A large number of the Proteaceous and Myrtaceous plants of South Africa and Australia, and of which the now famous *Eucalyptus globulus* is a familiar example, had their leaves vertical, as in this oak. This had been accounted for by the statement

that these leaves had stomata on both surfaces of the leaf, and the effect of these stomato to face the earth, had of course resulted in an even balance of power, in which neither side had any advantage. The stomato on each side of the leaf had to face the horizon. Supposing this might account for the position of these oak leaves, they, as well as the maple, had been examined microscopically by Dr. Hunt, of the Academy, and found to have stomato only on one —the normal side. He thought it safe to conclude from these facts, that the accepted theories of the relation of stomato to light, required some modification.

MASSACHUSETTS HORTICULTURAL SOCIETY. —The Rose and Strawberry Show was held on July 2d. It came bad for the roses, but struck the strawberries just right, and the display was unanimously agreed to be superior both in quantity and quality to any ever before made. The first prize for four quarts of any variety was taken by Hovey & Co., with that old favorite the Hovey's Seedling, originated by them forty years ago; second, by J. B. Moore with Jucunda; third, by Warren Heustis with Colonel Cheney. For the best two varieties, four quarts each, to John B. Moore; second, to Benjamin G. Smith; third, to Warren Heustis, For the best four varieties, two quarts each, to John B. Moore; second, to Charles Garfield; third, to B. G. Smith. For the best collection to B. M. Watson, for twenty-one varieties; second, to J. H. Fenno. For the best fifty berries of any variety, to Warren Heustis for Colonel Cheney; second, to W. C. Child for Jucunda.

For the best two quarts of Agriculturist to John B. Moore; Hovey's Seedling to Hovey & Co.; Jucunda, to John B. Moore; La Constante, to Hovey & Co.; President Wilder, to Hovey & Co.; Triomphe de Gand, to John B. Moore; Lady of the Lake, to Hovey & Co.; Wilson, to James Comley; Seth Boyden (No. 30), to James Comley; Charles Downing, to John B. Moore; Late Prolific, to Hovey & Co.; Champion, to Hovey & Co.; "any other kind," to John B. Moore, for Caroline.

For the best four varieties of cherries, to C E. Grant. Best two quarts of any variety, to F. R. Shattuck, for Black Tartarean; second, to I. P. Langworthy, for Knight's Early Black; third, to Benjamin B. Davis, for Elton.

The whole number of dishes of strawberries was 116, the largest number ever shown. Many of the specimens of Jucunda were remarkably fine, as also the Colonel Cheney and Hovey's Seedlings, besides the very fine dish of the last which took the highest prize. C. F. Stone showed a very fine dish of Brighton Pine. John B. Moore had a dish of his new seedling, No. 10, which he has named General Sherman, of very fine shape, size and color.

Prizes for flowers were awarded as follows: For the best ten named delphiniums to A. McLaren. Third prize for summer phloxes to James McTear. For the best display of cut flowers to A. McLaren. For the best basket of flowers to Mrs. A. D. Wood; second to Mrs. S. Joyce.

Gratuities to James Comley for roses and other cut flowers; Mrs. C. B. Chase for cut flowers; F. Bigelow for a fine stand of sweet williams; George N. Noyes, Mrs. E. M. Gill and Miss A. C. Wheeler, for dishes of flowers; W. H. Spooner for moss roses; A. McLaren for campanulas; Miss A. C. Kenrick for *Magnolia macrophylla;* Hovey & Co. for pelargonium; Asa Gray, seedling pæonies and *Œnothera macrocarpa;* Mrs. C. N. S. Horner for wild flowers, including *Azalea viscosa*, *Campanula rotundifolia* (harebell), *Calopogon pulchella*, *Houstonia longifolia*, etc.; E. H. Hitchings for *Tephrosia Virginiana*, *Pogonia ophioglossioides*, *Rudbeckia hirta*, and other wild flowers. Sarah W. Story exhibited a dish of Japan lilies, and B. M. Watson the new double white Deutzia.

The show of vegetables was excellent. Prizes for the best peck of peas to Joseph Tailby, for William I; second to Charles Garfield, for Early Kentish; third to M. W. Chadbourne, for Hill's Early. For the best Turnip-rooted beets to Josiah Crosby. For the best Egyptian beets to Charles Garfield; second to Josiah Crosby; third to George W. Pierce. For the best White Spine cucumbers to Josiah Crosby; second to George W. Pierce; third to C. W. Chamberlain. For the best four heads of lettuce to George W. Pierce, for Summer Cabbage; second to George W. Pierce, for Black Seeded Tennisball; third, G. F. Stone for Black Seeded Tennisball. For the best Short Scarlet carrots to Josiah Crosby. For the best onions to Josiah Crosby for White Portugal; second to C. W. Chamberlain.

Gratuities—To George W. Pierce, for Victoria rhubarb; Joseph Tailby, for very fine Carter's Extra Early Premium Gem peas, a new variety, which promises to become very valuable; C. W. Chamberlain, for Advancer peas, and to W. C. Child and George M. Mellen, for collections.

The Gardener's Monthly,

DEVOTED TO

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EDITED BY THOMAS MEEHAN.

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Flower Garden and Pleasure Ground

SEASONABLE HINTS.

As the planting season arrives, it is as well to repeat what we have often remarked, that the relative advantages of spring and fall planting are about evenly balanced. Failures follow all seasons. *How to plant* is of far more importance than *when* to plant, and the selection of stock to plant, of far more importance than the time when it is done. A tree that has been once or twice before transplanted, and again carefully and intelligently taken up, may be successfully removed at either planting season, with the odds of perhaps one hundred to five in its favor. But a tree never before transplanted—such, in fact, as a tree from the woods, or left standing in the nursery from the seed-bed, is very risky at any time, and depends rather on the weather following transplanting for the first few weeks for any probability of success. In selecting trees for planting, then, be very particular to ascertain that they have an abundance of fibrous roots, and are carefully removed. In this region, we would plant evergreens at once, after or in prospect of the first good rain. Deciduous trees we would plant just before the final fall of the leaf, shortening off the ends of those shoots that were not quite mature. After the 15th of October we would not plant evergreens, nor deciduous trees after the first of November. Early or not at all should be the motto.

Tree seeds should be either sown or prepared for sowing in the fall. Hard shell seeds require time to soften their coats, or they will lie over a year in the ground. It used to be popular to mix with boxes of sand; but unless there be very few seeds to a very large quantity of sand, the heat given out, though perhaps imperceptible to us, is sufficient to generate fungus which will destroy the seed. It is much better to soak the seeds in water, and then dry just enough to keep from moulding, and as cool as possible all winter. This is a much safer plan than sand. In States where the frosts are severe, seedlings of all kinds that have not attained a greater height than six inches, should be taken up, "laid in" in a sheltered place thickly, and covered with any thing that will keep frozen through the winter. If left out, they are liable to be drawn out and destroyed. Young seedling stock received from a distance, should also be so treated. In the more Southern States they may be set out at once,—and as much planting as possible be accomplished that will save spring work. Many cuttings will not do well unless taken off at this season and laid in the ground under protection, like seedlings,—the quince, syringas or lilacs, spiræa prunifolia, and some others. In the "mild winter States," evergreen cuttings should be made now, and set out thickly in rows. The leaves need not be taken off, but short, thick-set branches laid in under the soil. When rooted next fall they may be taken up and divided into separate plants. In more Northern States, evergreens may not be so struck at this season, unless protected by greenhouses and frames. Where these are at hand, evergreens may be put in, in boxes or pans all through the winter.

COMMUNICATIONS.

NOTES FROM GALVESTON, TEXAS.

BY W. FALCONER.

Climbing Vines.—These comprise the scarlet and yellow trumpet honeysuckles that depend in festoons over some arbor, cover poles or trellises or clothe the house wall. Solanum Jasminoides, here quite at home and very floriferous; Akebia quinata that in spring is grand; yellow and white star Jessamines and the sweet-scented J. grandiflorum, much prized for bouquets; also the famous yellow Buffalo Bayou Jessamine so common in the timber lands near Houston. Large quantities of this wild vine are annually brought by negroes and others living where it grows, to Galveston where they meet a ready sale. Bignonias are frequently met with, and the Wistaria sometimes. I saw two or three kinds of passion flowers growing luxuriantly, but none in bloom.

Palms, &c.—Some of the healthiest fan and date palms I ever saw are growing in a beautiful garden on avenue L. or M., I forget which. They are not remarkable for large size, but for symmetry, robustness, and vigor. In length of leaf I dare say they are seven or eight feet, well furnished, and models of perfection. Close up against a house on Winnie Street, is a fan palm with a bare trunk 12 feet high, a foot through and a fine head, and even on Market Street between 25th and 26th is a fine specimen of the Cocoanut palm, as big as the Winnie Street fan. Bananas if sheltered enough do well, but they could not be grown for profit to pay. Some big specimens of American Aloes may be seen here or there, but I did not notice any of the variegated or finer Mexican species. In many gardens are gigantic Spanish Daggers, supporting as it were with all their might, huge spikes of creamy flowers.

Roses.—Galveston may be termed horticulturally the island of Oleanders and Roses. Roses are the favorite flowers and are more extensively grown than all other flowers put together. The common sorts are not cherished, but the very finest, such as Marechal Neil, Gold of Ophir, Chromatella, Isabella Sprunt, Gloire de Dijon, Celine Forestier, Lamarque, Souvenir de la Malmaison, Solfaterre, Devoniensis, Safrano, Madam Falcot, Madam Bravy, Bon Seline, Homer, Hermosa, Madam Plantier, Madam Margottin, Archduke Charles, Agrippina, and several others, known as monthly roses. As the Teas, Chinas, and other monthly roses *do* bloom continuously throughout the whole year, our fine hybrid perpetuals find but a very secondary place in the people's hearts. The fact that a rose is a monthly is a strong recommendation, but no matter how fine the "annual" or H. P. rose may be, it is regarded suspiciously and as taking up more room than it is worth. Giant of Battles is the lion of H. P.'s, and next comes General Jacqueminot. A very few however, have partiality for the despised H. P.'s, conspiciuous amongst whom is Mr. W. H. Prowse, who has a fine collection of such sorts as Lord Clyde, Xavier Olibo, Vulcan, Marechal Vaillant, Beauty of Waltham, Cardinal de Patrizzi, Prince Camile de Rohan, Chas Lefebvre, Caroline de Sansal, Pierre Notting, Victor Verdier, Madam Chas. Wood, Camille Bernardin, and many others. I tried to impress on some that by pruning the H. P.'s a little after they have done blooming in the spring they will bloom again in the same year, so they are to give it a trial this season. By the way, I have seen several plants of H. P. Reynold's Hole; in fact, we have a good stock of it here at Brenham, but as regards fineness it can in no way be compared to the new rose of the same name sent out by Paul & Son, Cheshunt, England. I saw Messrs. Paul's Reynold's Hole, growing at Cheshunt, and exhibited at various flower shows throughout the country, and also the specimens by which it was awarded a first class certificate by the R. H. S., and in every instance it proved one of the finest and darkest velvety roses I ever saw. Its description in the *Gardener's Chronicle* and in garden advertisements is exactly as I know it, whereas the American Reynold's Hole is very different, being only a large double pinkish red rose.

Climbing roses are much appreciated at Galveston, and the Bourbons, Noisettes and Teas afford ample provision in this class. Moss roses are regarded most unfavorably on account of being annual bloomers. Mrs. Mills, of Winnie Street, and Mrs. Ogle of Avenue H. were their only advocates I met as Americans, but the Germans have a warm feeling towards them from pre-acquaintance in the old country. Both the above ladies have fine gardens, and some good specimens of white moss roses. Mr. Mason, of Market Street, has the only pink rose of this class that I saw. The white Lady Banks or Bridal rose is a favorite for the cemetery. When I was at Galveston there was a very fine plant of this rose in a lot in the cemetery and when in full bloom some young women pulled it up root and stem and appropriated it. Such conduct is far from creditable, but I am informed that notwithstanding the vigilance of the sexton and his assistants plants and slips are being continually stolen from the graveyard; indeed to such an extent that owners of lots hesitate to plant. Galveston cemetery could be made a very beautiful place, but with the exception of a few lots, it is a most neglected spot.

The ladies of the island are such good gardeners that they raise most of their own roses from cuttings, which they exchange and present in true neighborly fashion. Marechal Neil, Triumph of Luxemburg, and some others they find slow growers from cuttings, so they have now a "budding" mania. Some experts are teaching the others and they practice on the Cabbage rose, and I must say these finer Teas grow luxuriantly on it.

CLEMATIS AND WILD FLOWERS.

BY F. R. ELLIOTT.

The Clematis, as you say, is soon to become one of the gems for bedding out. The roots are mostly hardy like the Herbaceous Peonias, and once planted are there for years. I saw a bed of them recently that were planted without regard to color, upon what may be called a mound, and they were pegged down. The blooms were of colors here and there, but truly beautiful.

Our beautiful native plants. True, we pay too little attention to them, and also we neglect to cultivate perennials, as much as we should. It comes to me as a thought that if a dealer would make a specialty of perennial flowering plants, at prices corresponding with the growers of Roses, Geraniums, etc., the result would be one of profit. If I could be put back in life thirty years, I should go into it, as a profit and pleasure pursuit.

Lilacs—Suckers, from a correspondent, with editorial note. The Lilacs vary in color and in vigor of growth. Mass them, and hesitate not to prune back just as soon as the bloom is gone for the season. Plant about three feet, apart, the strongest growers in the centre or back ground as per your form or boundary, then mulch them a year and afterward leave the culture to themselves.

In the Editorial Notes, bedding Geraniums are spoken of as waning in popular favor because of the harsh glare of the eternal scarlet. This is a quotation of the Editor, from a foreign journal, and I think if the popular course that too many now pursue in this country is continued that we shall soon see a decline in Geranium bedding. To remedy this, however, we must try to inculcate the forming of the flower bed, as nature does her planting. Rare is it that she masses her trees or plants of one color of foliage, but she puts among her pines some one or more of deciduous trees. She puts among or near her Ferns more or less of creeping flowering plants. Recently I saw at Ellwanger & Barry's a grouping of more than a dozen shades of foliaged plants and of as many colors in flowers, and when I came to my room and took up the *Monthly*, the thought came to me of the style of line and rule which too many have in the planting of flower beds and the make up of bouquets. It is true that the definition of bouquet is "a nosegay of flowers," and at the same time it is "the aromatic flavor of wine." The student of nature, however, in Flora's line of beauty, never allows stiff or formal lines or masses of one color to rule. A beautiful arrangement of bedding plants, must of course be so arranged that the colors will harmonize, but at the same time there should be a freedom from all mechanical lines. The stiff round masses of flowers in lines of a color are only indicative of mechanical instruction, and they have no natural grace or beauty that should be with Flora's gems. Let us hope that a hint now and then will change this idea of rule and line, and come to a broken, varying one of nature's own production.

AMERICAN LAWNS.

BY RAMBLER.

Much have we learned from time to time through your valuable paper, in regard to lawns, and much has been said and written through other channels on the same subject, and the general conclusion is, so far as I can make out, that we in this country cannot have such lawns as the British nation, inasmuch as "England lies in the lap of the sea with a climate always more or less humid." This is true enough, to a certain extent, and I own from experience that it is hard to have a creditable lawn, under the meridian sun of an American summer.

But after my rambles the other day through the vicinity of Bryn Mawr, Montgomery County, Pa., and inspecting the lawns of "Pembroke, the country seat of Charles Wheeler, Esq.," I am

positively convinced, that we can have lawns as well as the English, and a credit to any English nobleman, and I have no hesitation in stating that it is the best kept and made lawn in the county, if not within the State, and very seldom have I seen in my rambles, as compact, close and beautiful a sward. And of course to accomplish this end, it requires skill and practical experience, and above all, the gardener must have a liberal "backer." Also on the same grounds are giant lilies; there is one auratum with 91 healthy and perfect blooms on one stem, and others of similar proportions, and I can assure you, Mr. Editor, it would pay an admirer of this plant to visit this beautiful place, as I know he, or they, would have as cordial a reception from Pembroke gardeners as the writer had.

NEW PLANTS.

CELOSIA HUTTONII.—This beautiful plant was introduced by Vietch & Sons, through their collector, the late Mr. Hutton, after whom they have named it.

It is of compact pyramidal form and bushy habit, profusely branched, each leading branch being tipped with a small spike of bright crimson flowers.

CELOSIA HUTTONII.

In color the plant resembles the well known Iresine Lindeni, the upper surface of the leaf being of a deep claret color while the under side is of a bright crimson shade. It grows to a height of 1½ to 2 feet, by about 1½ feet in diameter, the leaves measuring 3 to 4 inches long by ¾ to 1¼ inch wide at the broadest part.

As a bedding or sub-tropical plant it will take a high rank, from its fine habit and rich and effective coloring.

CLEMATIS FLAMMULA ROBUSTA.—Origin uncertain. Supposed either to have been sent from Japan to the House of Acclimatisation in the Bois de Boulogne, near Paris, or to have been found by accident in a case of plants received from somewhere. Very hardy, very woody, grows to a height of 18 to 28 feet, leaves glossy, cordiform, thin, flowers white, four petals, very odoriferous; flowers from September until frost, finer odor than that of C. flammule, but similar. Very pretty plant, suitable for decorations inasmuch as the numerous leaves last long. Does not object to any soil.—*Revue Horticole.*

THE RED BERRY PYRACANTHA, FOR WALLS.—The *Garden* says: "The house at Meecham Place, Newhaven, is now covered on all sides with Pyracantha, in full berry, to a height of two stories and more. So striking a picture is not afforded by any other shrub or wall-plant at this season. We have, by the way, long observed the Pyracantha to be a good sea-side tree.

EDITORIAL NOTES.

VARIETIES OF LILIES.—In their wild state, Lilium canadense, and L. superbum, have many shades of color. Some of these are selected and named for English gardens. The *Florist* and *Pomologist* has a beautiful colored plate of two varieties of the former, L. c. rubrum, and L. c. rubro flavum. Any of these forms are well worthy of garden culture.

CLIANTHUS DAMPIERI, a really beautiful thing, and from which so much was expected a few years ago, seems to have lost popularity. Is it fastidious in its culture? Mr. Such used to succeed well with it in his rich sandy soil.

HARDY ANEMONES FOR SPRING GARDENING.—The *Florist and Pomologist* regards the scarlet Poppy Anemone, as an excellent plant for spring flower gardening. If half the roots are set in October, and the rest between the others a month later, it will prolong the blossoming season.

PENTSTEMONS.—Our Western Pentstemons are in high favor in England, and should be with us, for most of them seem quite at home under our Eastern culture, which cannot be said of many western things.

COMFREYS FOR THE WILD GARDEN.—The Symphytums or Comfreys are most valuable for the shrubbery and wild garden. They grow freely—in fact, rampantly, under trees or elsewhere, and are good and showy plants. S. asperrimum is the tallest, growing to 6 feet, and has red flowers changing to blue. S. caucasicum (2 feet), white flowers, and S. tauricum (3 feet), also with white flowers, are all fitted for naturalization. S. bohemicum, with brilliant red flowers, only growing to 2 feet, is worthy of a place in the border, as is the variegated form of S. officinale (a handsome plant), and, perhaps, S. tuberosum, with yellow flowers, though I am not certain that the latter may not prove too rampant.

[We copy this from the London *Garden*, because we have noted how well these Comfreys are suited to our American climate.—ED. G. M.]

QUERIES.

PRUNING EVERGREENS AT TRANSPLANTING.—*J. M. W. K., Morristown, N. J.*, writes: "Can you give a few hints in the way of rules in *Gardener's Monthly*, for the treatment of tops of evergreens when transplanting. I always cut in the tops of evergreens, when transplanting, and never lose any, but it seems hard to have to cut off several years' growth. Is it considered safe among the best gardens to transplant without cutting back the tops? Is it considered best on transplanting a fruit tree, to cut back the top very severely or only moderately?"

[It is not essential to prune evergreens at transplanting, unless the roots are rather dry, or have been severely mutilated. Then a severe pruning of the branches, is often all that will save life. After an evergreen is pruned, it has to make buds below the parts cut away, from which to start growth the next year. If only the side branches are cut, and not the leading or top branches, the buds on the latter, having more time, become much stronger,—and these pushing the next year, have all the advantage of the strong growth, and thus weaken the lower ones. A tree soon becomes naked below under this treatment. Whenever therefore the side branches of an evergreen are pruned, the top must be done also, if we would preserve its beautiful proportions. It is more correct practice to prune the top and not the sides, than the sides and not the top. There is little necessity in any case to cut away "several years'

growth" in an evergreen. All pruning of evergreens, may be confined to the previous years growth. As our correspondent says it is an uncompensated loss to cut away more. It is only to check evaporation and this in an evergreen is chiefly through its leaves.—ED. G. M.]

GOLDEN HORSE CHESTNUT.—A correspondent from West Philadelphia sends a branch of a horse chestnut which for the "past few years has produced leaves of a beautiful golden color." The tree is diseased. The specimens show it. The lower part of the branch sent, made a growth of several inches a year,—but we see that the last three years, during which it exhibited its golden color, has not a growth of an inch altogether. Either the roots are rotton, the stem has been barked or bored, or there is some other interference with nutrition. [It is *not* a new variety.—ED. G. M.]

PLANTING LARGE TREES.—*P.* inquires: "I have a rather bleak house, new, and around which I wish to plant large trees. I am dissuaded from it by those I think ought to know, who say I shall have shade just as soon from small trees. What do you say?"

[Say that perhaps you may,—and then perhaps you may not. It depends on what sort of health the trees are in, how they are transplanted, and lots of other conditions. We may say that in practice the number of large trees which die in transplanting, are fearfully greater than the number of small ones,—but this generally arises from trees being selected for the attempt which a good judgment would have rejected. Large trees have been very successfully removed,—but it requires more knowledge and skill than to remove ordinary trees.—ED. G. M]

LILIUM AURATUM.—The disease which seems to have followed the Lilium auratum from Japan, yet defies treatment. The *Gardener's Chronicle* says that the importation is yet very considerable, though it believes 70 per cent. of the bulbs perish in customer's hands. We doubt whether 10 per cent. live in America.

COLCHICAN LILY.—"Subscriber," Newport, R. I. "A friend sent me the enclosed, as the Colchican Lily, and which I much admired. A gardener visiting me says it is not. Pray what is it?"

[The flower was much crushed,—but appears to be but one of our native lilies—probably a form of L. canadense. We give a sketch of the true L. colchicum. We are anxious to see Lily culture extend.—ED. G. M.]

House Gardening and Glass Structures.

SEASONABLE HINTS.

Before the summer flowers are gone make notes for the best things to be had for next year, and arrange now what are to go in the beds then. There will then be time to get all together.

The best way to propagate all the common kinds of bedding plants is to take a frame or hand-glass and set it on a bed of very sandy soil made in a shady place in the open air. The sand should be fine and sharp, and there is, perhaps, nothing better than river sand for this purpose. The glass may be whitewashed on the inside, so as to afford additional security against injury from the sun's rays. Into this bed of sand cuttings half ripened wood for the desirable plants may be set, and after putting in, slightly watered. Even very rare plants often do better this way than when under treatment in a regular propagating house. In making cuttings, it is best to cut the shoots just under a bud,—they root better, and are not so likely to rot off and decay. A cutting of about three eyes is long enough for most strong growing things, such as Geraniums, Fuchsias, &c

Small growing things, of course, will take more buds to the one cutting. From one to three inches is, however, long enough for most cuttings. They should be inserted about one-third of their way under the sand, which latter should be pressed firmly against the row of cuttings with a flat piece of board,—not, however, hard enough to force the particles of sand into the young and tender bark, which is often the first step to decay. For a few cuttings, they may be inserted with a dibble; but where many are to be put in, it saves time to mark a line on the sand with rule or straight edge, and then cut down a face into the sand, say one or two inches deep, when the cuttings can be set against the face like box edging. All amateurs should practice the art of propagating plants. There is nothing connected with gardening more interesting.

We have had many inquiries recently about cold pits for the protection of half-hardy plants through the winter, and in reply reprint the following from one of our back volumes:

Those who have no greenhouse, and yet are desirous of preserving many half-hardy plants through the winter, employ *cold pits*. We give the following directions for making them:

Choose the dryest situation in the garden, and sink about five feet in depth. It is important that no water can be retained at the bottom. The pit may be of any length required, and about five feet wide, so as to accommodate six feet sash. The inside of the pit may be built up of boards, or, if something more durable and substantial is required, brick or stone. The body of the frame may be built up a few feet above the level of the surrounding soil, and the earth which comes from the pit be employed in banking up to the upper level of the frame. Shelving should be made for the inside so as to extend from the base of the front nearly the top of the back, on which to place the plants in pots. In the space which will then be under the staging, hard wooded and deciduous plants, as lemon verbenas, fuchsias, &c., may be safely stored, while the more succulent kinds are shelved overhead. The plants to be preserved in such a pit should be potted early, and be well established and healthy before being pitted; much of success depends on this. The less water they can be made to live on without withering through the winter the better will they keep. Straw mats must be employed to cover the glass when freezing time commences, and when the thermometer is likely to fall below 20°, straw or litter should be thrown over. Board shutters are also excellent, as it keeps the snow out from the straw and litter, which makes the mats very awkward to uncover when we would like to give air. Very little light or air will be required through the winter when the plants are not growing. If a good fall of snow covers the pit, it may lie on undisturbed for two weeks or more without injury. When a warm dry day offers, the sashes may be raised if convenient, to dry up the damp. Many kinds of border plants can be kept over winter in this way with little trouble.

COMMUNICATIONS.

THE ERICA, OR CAPE HEATH.

BY W. MUNRO, GARDENER TO J. S. MITCHELL, TARRYTOWN, N. Y.

Being a lover of the above family of plants and having considerable experience in their propagation and cultivation in Scotland, I am willing to give through the columns of the *Gardener's Monthly* a few hints as to my success in their cultivation here. My late employer, John S. Mitchell, Esq., was a gentleman of very refined taste in horticulture. The Heaths he classed as his *pet* plants, which I consider are well worthy of the name. Three years ago Mr. Mitchell imported a collection of the choicest varieties that are now grown on the other side of the Atlantic.

Some people are much against the idea of importing Heaths to this country, thinking the confinement in the packing cases too long, and when here a matter of impossibility to grow them, should they come safe. If carefully packed, and the plants in good condition before being enclosed, I have no hesitation in saying they will come perfectly safe. I have known a consignment of Heaths to be twenty-two days in the packing boxes, and when unpacked were all in good order. Caution must be taken to not place

them in too much light for the first three or four days; by watering the potting bench, it makes a very suitable place to set them down upon. As soon as they begin to expand their foliage and their tops are getting erect, it is time to remove them to the greenhouse. While on the potting bench, should any of them be dry, plunge them into a pail of water over the pot so as to thoroughly saturate the ball of the plant, and give them a nice gentle syringe once or twice a day, if the air is dry. In placing them in the greenhouse select the most shady part; they must be protected entirely from the sun until they begin to make their young growth. Should Heaths be imported in spring, they ought to be protected all the following summer, by shading with white calico; I use nothing else, and find it answers admirably. If any of the plants are "leggie" or drawn, and should want to be cut down, it is not advisable to do this until after they have been shifted and well taken to the pots.

Any one interested in this lovely family of plants, by studying the following simple remarks, may have plants in a few years equal to any in the old country.

Very few of the original species of Cape Heath, that were introduced into Europe, are now in existence. *Masson*, a collector of plants, made two voyages to Africa, during the reign of George III; he introduced at that time about three hundred species, which are now nearly all lost. A great many garden hybrids have been raised within the last fifty years. We have to thank the well known firm of W. Rolleson & Sons, nurserymen, Tooting, England. That firm has done more for the advancement of the Erica, by hybridizing, than any other commercial establishment, at the present age. They have the credit of raising and sending out to the public, sixty distinct varieties, which are now the leading kinds in cultivation. We have also to thank that enthusiastic cultivator of the Heath, Mr. Turnbull, gardener, Bothwell Castle, Scotland, who has raised by careful crossing, those standard sorts, such as Marnockiana, Austiniana, Actonia Turnbullii, Shammonii Turnbullii, and many others of great merit. A prejudice against the Heath is spread all over this country, that the cultivation of the plant is difficult. That is just what a thoroughly good plants-man wants, something to handle that requires practical knowledge, so that he may excel in plant growing and elevate himself above the many who call themselves gardeners.

The Heath is one of the greatest ornaments of the greenhouse, and should be grown largely, both as an ornamental plant, and for cut flowers. Nothing looks better than the beautiful long sprays of Hyemalis, Wellmoriana, Gracilis rubra, Persoluta Alba, &c., when mixed amongst other flowers, giving a graceful appearance to the bouquet or flower vase. What can be prettier than a spray of Heath for lady's hair or a truss of any of the tricolor or ventricosa varieties for a gentleman's botton hole. Where an ordinary collection is kept, flowers may be had all the year round, many of them flowering in winter, when flowers are scarce.

The proper method of culture is as easy and nearly as certain as that of a geranium. For myself I find them much more easily managed here than in Scotland. In this part of the country we have nine months of the year of a better climate and more suitable to the plant. Here there is more light in winter, and a purer atmosphere; these are great points gained, being a preventive of mildew, which is without doubt the great draw back in the cultivation of the Heath. The other three months, June, July and August, being the hot season, I have as yet brought them through in triumph, never losing one plant. I have kept them in the heath house during the last two summers. This house being built specially for their cultivation, is well ventilated from the cupola, also back and front the air is admitted from below the side shelving, which gives a proper circulation before mixing among the plants during the warm months. This house I shade with Berlin muslin, calico being too thick, it makes the plants draw. What they want this season, is just enough to break the sun. This house is glazed with obscure glass, but I find it is not enough for Heaths. The next object to study is moisture; the plants should stand on a tight boarded table, covered with about one inch of gravel; it makes good drainage in winter, and the tables keep the moisture in summer when it is wanted. After watering is done in the afternoon, I give them a gentle syringe, then cool down the house by dashing plenty of water all round; should the following morning look as if it was going to be a *scorcher*, I give the passages an extra dose, and at twelve o'clock, should the heat still continue, keep the water going amongst them. By keeping up a regular moisture, in warm weather, with all the air that can be put on the house, they can be grown with every success so far as summer heat is concerned.

Watering is the most particular thing in their cultivation; the plants should be looked over once a day; this should be done in the evening in summer, and morning in winter. Any man who is familiar with and has the watering of a general collection of greenhouse and stove plants, can have no trouble in watering the Heath. In my experience I have known more plants killed by drought than by over watering. If the drainage of the plants is in good order, it takes a great deal of carelessness or inexperience to kill or over water the plants. Watering is the principal part of plant growing, but with many is too often neglected.

UNHEALTHY TASTE.

BY F. W. P.

A high interest and even a certain enthusiasm for Evergreens, in view of their indisputable beauty, general usefulness and particular fitting for certain purposes, both practical and ornamental, is very natural, but that rampant preference at present shown for plants with particolored leaves, over everything clad in nature's richest green, is assuming an unhealthy character. It is about going a little too far, and every one who has preserved some sound natural taste for what is really beautiful, must deplore that childish appetite, for the gratification of which, so much interest is bestowed on things, that have only a faint claim on our interest as mere curiosities and hardly that, since we have but few plants of which there is not one or more sports with a foliage anything but a healthy green. Influential members of horticultural societies and leading authors ought to warn against, and not to foster this sickly partiality for worthless nick-nacks, which in most cases either impair the beauty of flowers or look but indifferent themselves when in bloom, and are at best, except to curiosity-mongers, of very limited value. We have a valuable book by Josiah Hoopes,—*The Book of Evergreens*—which title, however, is only partially appropriate, since it treats only on resinous or coniferous evergreens, yet it is a most valuable contribution to our horticultural literature. As an offset to it, since mere contrast, regardless of good taste, seems to be the delight of some persons, we fear to hear one of these days of a *Book of Nevergreens*, in which the latest and greatest thing out, a Dianthus cariophyllus foliis variegatis, in plain English, a speckled pink, is likely conspicuously to figure. If there is a plant, that might be called ugly, at least unsightly, it certainly is the pink, which would, if it were not for the beautiful and sweet scented flower, be utterly worthless. Sports with variegated leaves, have many times been obtained by cultivators, all whom however appear to have had the good sense not to preserve them, and it does not seem to be the great desideratum of the age yet. Both professional and amateur gardeners ought to cultivate more *evergreens* for mixing in bouquets, for the decoration of the lawn and terrace, and discard about fifty per centum of those sickly looking *nevergreens*.

BOUGAINVILLEA SPECTABILIS.

BY C. M. HOVEY, BOSTON, MASS.

We are quite surprised at your remark in your last number (p. 203,) about this old and favorite plant, which you call *rare* and of which you say "it would be interesting to know who about Boston flowers it so easily as to have it to spare for spirits." Why, where are your Philadelphia cultivators? We have a plant covering about *one quarter* of the roof of one of our camellia houses, 84 feet long, which has produced thousands of its superb mauve-colored bracts, for four or five years. We send you fresh flowers to day, though the plant began to bloom in February, and we could send a bushel of the old discolored and faded bracts, which are still hanging to the branches, many of which were four feet long, and wreathed with blossoms.

[This letter must make it still more clear to our Springfield correspondent, that the flowers were not "spiritual," and it may be they were purchased for the occasion at Mr. Hovey's establishment. The plant must be very rare about Philadelphia, as only a few days before the receipt of this note, we had specimens sent us "for name," by one of our best botanists, who had never seen it before. It seems to be taking to flower freely lately.—ED. G. M.]

ZARSKOYE SELO.

BY EDWARD BARLOW, GARDENER TO HIS MAJESTY THE EMPEROR OF RUSSIA.

Translated from the Berliner Blatter, for the Gardener's Monthly, by S. M.

The several departments of gardening in this imperial country seat are held by my colleagues as follow: The park by Mr. Mueller, the nurseries by Mr. Freundlich, the propagating line by Mr. Sorth. Mr. Heydorn had the latter department, but was called to the Empress in the

Crimea, a climate more suitable to her health. Since then Mr. Sorth and I have been appointed. As heretofore the business of this department consists in providing the floral decorations of the three imperial palaces, which includes the the exterior floral work for two or three. I further have to furnish the bouquets for her Majesty's rooms and those of her attendants, also to maintain the planting of the flower bed in the garden of the "great" palace. The houses built for wintering the plants are 220 faden long, one faden being equal to seven English feet. There are moreover four houses for peach culture, two for pine apples, and six graperies, each 300 faden long. Altogether there are 3640 English feet of houses under my supervision. There is moreover under my directions the great "Orangerie." It contains one hundred and twenty laurel trees of all sizes, a great many Junipers, Cypress, Thujas, Prunus, Myrtles, Euonymus, Ilex, and gigantic Magnolias, all of them used for decorating the outside of the two palaces. Amongst the conifers there are such fine specimens as outside of England, none can be found like these. The splendid structure built to hold these in winter is 400 feet long by 35 wide, of sandstone, highly ornamented.

A beautiful pavillion serves as entrance to the Orangerie. In this pavillion are six colored laurel trees, each ten feet high, with its wide-spreading tops. It will be hard to find a match to these giants. From this pavillion a road of about 300 feet in length leads to the house of General Goquel, chief of the grounds of Zarskoye Selo. Of oranges, formerly over 100 trees, there are but eighteen extant, the rest having died off one by one.

EDITORIAL NOTES.

WHEELER'S AUTOMATIC LIQUID DISTRIBUTOR.—Of the great value of this invention we have ample testimonials from those who are well competent to judge,—and who ever has a head of water and a hose, either from a reservoir or force pump, will no doubt find it to his interest to possess one. Mr. Wheeler has sent us one for trial,—but in our country home the water flows in on us of its own weight from every direction, and we have no hose in use. From an examination of it, and from what our friends say of it, we feel however safe in recommending it to our readers.

SHAW'S TOBACCO FUMIGATOR.—There is nothing the gardener can less do without, than tobacco smoke. The houses and frames have to be fumigated every once in a while with it. But there is nothing more disagreeable to use. Generally it is done by having a pot or a skillet with live coals, to start the smoke, which after starting is left to burn; the operator going outside. In this way the coals often give out gas, or too much smoke is made, and injury results. Mr. Shaw, a gardener at Danville, has invented a neat implement, by which one can stand outside, turn a little wheel which drives the smoke into the house. In this way entire command is had of the whole affair. We have tried one and find it to be all that can be desired.

ERICAS.—We give in our present number an article on the Cape Heath, by one of the best growers. We like to see such plant growing encouraged. It is in just such things where skill is required, that we see the difference between good gardeners and poor ones, and then what is more beautiful than a well grown heath?

POROUS OR GLAZED FLOWER POTS.—Discussions once in a while appear in horticultural journals as to the relative merits of these. To a good gardener it makes little difference,—to the unpracticed, porous pots—that is ordinary pots, are the safest.

HOW TO FRUIT THE CORAL-BERRIED DUCKWEED (NERTERA DEPRESSA).—Few plants are more attractive than this, when in fruit, and it is, fortunately, hardy enough to ripen its berries well in a sunny window, or even in sheltered portions of the rock garden, after they are set; but, above all, it is as a pot plant that it is of most value. In order to induce it to fruit freely, it should be placed in a stove or warm plant-house, on a sunny shelf near the glass, as it does not set its fruit freely if too much shaded, or when planted out; as soon as the plant is set, however, it may be placed in a cooler temperature, in which the bright orange-scarlet berries will swell and acquire their characteristic coral-like color, and continue ornamental for a considerable time.—*B.*, in *Garden.*

[We recently saw a beautiful pan of this in the the houses of Mr. H. P. McKean, of Philadelphia, but not in fruit. The plant is however pretty in itself.—ED. G. M.]

BLETIA HYACINTHINA.—Mr. Max Leichtlin, writing to us from Baden Baden concerning Bletia hyacinthina, states that this pretty terrestrial Orchid must be hardy in England, although it is, for the most part, kept in a cool house. Last autumn he bought one plant of it and put it into a walled frame, in order to give it a little protection. The frost penetrated the frame at various times, and so much so that the soil was frozen from one to two inches in depth; but the root-stock of the Bletia, being below this, remained uninjured, and pushed up young shoots in April, which bloomed well about the latter part of June. The flowers are of a bright magenta color, and last for about a fortnight. The plant seems to be well worth growing.

[The above is from the *Garden.* In these parts it has been grown in a cool greenhouse just above freezing, and is one of the most desirable things to have.—ED. G. M.]

BEGONIA HYBRIDA "EXCELSIOR."—A cross between B. Chelsoni and B. cinnabarina. The plant is robust in habit, with medium-size green foliage; the leaves are more acuminate than those of B. "Model." A very free blooming variety, with large flowers of the form of B. Chelsoni, with the color of B. cinnabarina.

EPYPHYLLUM TRUNCATUM, often used now for decorative purposes; for instance as a creeper we have seen it in Knowsly, on the roof of a warm house, with the happiest effect. To this end it had been grafted at proper intervals on *Pereskia*, which had been trained as a climber.—*Gardener's Chronicle.*

NEW PLANTS.

PARMENTIERA CEREIFERA.—This is the celebrated "Candle Tree," discovered in the valley of the River Chagres, Isthmus of Panama, by Dr. Seemann. It has opposite trifoliate leaves, and large white blossoms, which, in its native habitat, are given throughout the year, but are produced in the greatest abundance during the rainy season. As in most of the Crescentiaceæ, the flowers grow out of the old wood; the fruit is fleshy, and the seeds very small, not larger than lentils.—*W. Bull.*

LASIANDRA MACRANTHA FLORIBUNDA.—This marvelous plant was first discovered by the late Dr. Seemann, who published a figure of it in his *Journal of Botany*, since which it has been introduced from St. Catharine's, Brazil. The abundant manner in which it produces its gigantic flowers in a small state, is remarkable; even plants in two to 3 inch pots, when only about 3 inches high, readily produce flower buds, when the flower may really be said to be as large as the plant. It requires to be treated in a similar manner to *Pleroma elegans*, which it somewhat resembles in general features, but altogether eclipses in the magnitude of its flowers, which are of a rich and brilliant violet blue color.—*W. Bull.*

PSYCHOTRIA CYANOCOCCA.—If one were to search the vegetable kingdom through, it would be difficult to find any other plant which displays, either in its flowers, fruit, or seeds, such a beautiful ultramarine color as is exhibited by the berries of this new species from Chontales, Nicaragua. The color and size of the flowers is disappointing to the lovers of gay tints and large blossoms, but as soon as the fruit begins to assume shape and substance, a tint is displayed which can be but imperfectly rendered by the Greek term *cyaneus.* In its native wood, the plant grows as underwood, and is loaded throughout the winter with large blue berries, as many as from thirty to thirty-five growing on one bunch.—*W. Bull.*

Fruit and Vegetable Gardening.

SEASONABLE HINTS.

Cabbage and Cauliflower are sown this month for spring use. The former requires some care, as if it grows too vigorous before winter, it will all run to seed in the spring. The best plan is to make two sowings—one early in the month, and the other at the end. The rule is to get them only just so strong that they may lie over the winter in safety. Many preserve them in frames; but they should have wooden sashes or shutters instead of glass, so as not to encourage them to grow too much.

Cauliflower, on the other hand, cannot well be too forward. Most persons provide a pit of stone, bricks or wood, sunk five or six feet below the surface of the ground, into which leaves, manure or any waste vegetable matter is filled. When quite full, it is suffered to heat a little, when it will sink somewhat and have more material added to it

about six inches of good rich loam is then placed on it, and early in November the Cauliflower planted out. The object in refilling the leaves so often is to insure the plants remaining as near the glass as possible, which is very essential in the growth of Cauliflower. Lettuce is treated in the same way, and seed should be sown now to prepare for the planting. The Cabbage Lettuce is the kind usually employed.

The main crop of Spinach should now be sown. Properly cooked, there are few vegetables more agreeable to the general taste, and few families who have gardens will wish to be without it. It is essential that it have a very enriched soil, as good large leaves constitute its perfection as a vegetable. As soon as the weather becomes severe, a light covering of straw should be thrown over it. A few Radishes may be sown with the Spinach for fall use.

Turnips also may still be sown; in fact, if the soil be rich, a better quality of root for table use will be obtained than if sown earlier.

Celery and Endive will still require the attention in blanching, described in former hints.

In regard to fruit growing the hints given last month may be applicable to the present also.

COMMUNICATIONS.

PRIORTY IN THE NAMES OF FRUITS.

BY F. R. ELLIOTT.

So far as we now stand there is no pomologist that can command authority. No sooner does an old apple come into the hands of an inexperienced, but energetic and enthusiastic (I had almost written egotistical) cultivator, than it is brought out with a new name, and because he never saw it before, and neighbor Jones asserts (don't swear) that it originated on such a man's farm. The American Pomological Society might to a certain extent correct this matter, but too many in it like Congressional members hesitate to differ with some others when they know of the errors promulgated. I have no hope of this ever being done, and except where there has been a desire to show off a state or locality, apparently there is but little of real—— well, I will not write the word.

THE COLLAR OF A TREE.

BY R. J. B.

The following facts may be useful in connection with Rev. J. H. Creighton's article on this subject, in the *Monthly* for last January, p. 19.

In the spring of 1874, we planted out several hundred peach trees. By an error, not new or rare, that one's two hands can do more than his two eyes, the work was not properly watched; and not a few of them were planted two or three inches shallower than they stood in the nursery. Although the summer was unusually dry, all but four or five lived, making a moderate growth. The succeeding winter (last winter) was one of great severity; and many of these trees with exposed collars are dead. Most of them put forth leaves in the beginning of April; but after the snowy and frosty week which followed (and which destroyed all our fruit) it was noticed that quite a number of them were not pushing again; and on examination with the knife it was found that the exposed collar was entirely dead—looked as if it had been so for months—while both top and roots were living. Judging by the ones which escaped, "earthing up about the stems" in the fall, would have saved these; and would doubtless have been good for all.

NAILS IN TREES.

BY J. H. L., HAMILTON, ONTARIO.

In a recent number of your valuable magazine (just received) there is a question from a correspondent concerning *nailing* trees to keep off insects and increase their health. Now I have had a little experience in that. Some years ago there was genius about here named S——, who was always *riding a hobby*, at last he mounted one named *Horticulture* (poor beast) —and that, here, includes pomology,—and among the wonders he was going to produce, including *blue roses, yellow geraniums, &c.*, he hit on the very thing your correspondent asks about. He stated with much parade and the air of a public benefactor, that to drive nails into fruit trees all around just above the ground would drive all insects including the *little Turk* from them; nay more that it would be death to them. Well I of course liked to see my fruit fine and healthy as well as he did, so drove every tree on the place full of nails as directed—and—I might just as well have kept them in the nail-box for the trees did *not* get healthier and the insects grew and multiplied with, it seemed to me, ten fold vigor, so that I was fain to confess that iron was not poison to insects *in this country*. It was tried with a like success on *Cabbages* to keep the maggot off; but they didn't "keep off" worth a cent.

EDITORIAL NOTES.

DEPTH OF ROOTS.—Extracts are going the rounds of the agricultural press, from a report of Prof. Beal of the Michigan Agricultural College in which are statements that require some qualification. Prof. Beal says, "The roots of a two year old peach tree in light soil were found seven feet four inches long," meaning that their ends were that distance from the surface. The statement should be "some of the roots." We venture to say that not a hundredth part of the roots were found at this distance; and only those which had given up the office of feeders, and had become the counterpart of branches, as feeding roots or fibres are the counterpart of leaves.

These statements of facts, in so far as they determine the depth to which *certain classes* of roots will descend, are very valuable. Prof. Beal is doing excellent service in making and recording them. But without the proper explanations they do immense injury with thoughtless people. Let any one plant his trees deep, —"seven feet deep"— as these "roots" were found, and he will find that the trees do not thank him.

To have plants in good health, the real *feeding* roots must be at the *surface*. Those which run deep are mere branches and are no use for nutritive purposes.

FOREIGN GRAPES AT AKRON, OHIO.—Our readers are familiar with Mr. Ottaway through his contributions to our pages. We find the following, in reference to his doings, in the *Ohio Farmer:*

"In the grapery of Frank Adams, Esq., at the noted sewer pipe manufactory near Akron (formerly Middleburg), is the finest display of foreign grapes that I have ever seen in Ohio. The rafters and sash bars are crowded with vines and foliage, and the large bunches of ripening grapes are so numerous as to seem almost to touch each other when viewed from the end of the house or through the open door. The vines are remarkably healthy, not a blighted leaf to be seen, nor a particle of mildew upon fruit or foliage—which reflects much credit on Mr. Ottaway, the gardener, who informed us that he was a mechanic by trade, and only took up this profession in an amateur way.

"Mr. Adams and myself estimated that there were not less than 500 pounds of handsome grapes in his house, which is of quite moderate dimensions; and when we consider that there is demand for such fruit in all the large cities at this season of the year, and also in autumn and early winter, at from $1 to $2 per pound, in limited quantities, it would seem that the growing of such grapes could be made quite profitable, by those who understand the business, in places where fuel is cheap and railroad facilities good."

[We hope however that Mr. Adams will not be seduced from his pipe business to that of growing hot house grapes for market. There is great pleasure in growing things as Mr. Adams grows them. As soon as the market idea comes in the pleasure goes out—and as we can say from extensive observation, the profits do not salve over the wound. We have known numberless attempts at growing hot house grapes for market, both where fuel was cheap and elsewhere. Here and there are one holding on, of which we believe we may class Friend Hettie Trimble, of West Chester,—but the larger part have given it up in disgust.—ED. G. M.]

BLACK DEFIANCE STRAWBERRY.—Mr. A. D. Webb, of Bowling Green, Kentucky, has, says the *Southern Agriculturist*, experimented with all the varieties of strawberries and thinks the new berry to this locality called the Black Defiance is superior to the Wilson. Mr. Webb pronounces the Black Defiance a better flavored berry than the Wilson, and thinks it is the coming berry. He also speaks very highly of the berry called the Champion, and says it was quite profitable to him this season.

HORTICULTURAL TRIUMPH.—The annual exhibition of strawberries by the Massachusetts Horticultural Society was held recently. The first prize for the finest basket of any variety was awarded to Hovey's Seedling, the well-known and famous berry named by C. M. Hovey, in 1833, more than forty years ago, and yet standing at the head of all strawberries! This is the twenty-fifth time in thirty-five years that Messrs. Hovey have been awarded the first prize for Hovey's Seedling.—*Boston Globe.*

A NEW POTATO DISEASE.—Under this head some excitement has been caused in England,—especially as it was said to affect only American varieties. It appears however from the researches of Mr. Berkely that it is not a new disease, or an American disease, but it does not yet seem to be quite decided what it is.

RECEIPT FOR MAKING A MIXTURE FOR PAINTING VINES, PEACHES, AND FIGS.—Mr.

Tillery, Welbeck, writing to the *Garden*, gives the following receipe for making a mixture for painting fruit trees: Take one pound of soft-soap or Gishurst Compound to every gallon of water, and let the water be boiling hot, so as to thoroughly dissolve the soap. Add one half pound of flowers of sulphur to every gallon of water, and as much quick lime as will bring the mixture to the consistence of thick paint. Mix all well together when the water is hot, and, when the mixture gets cold, add a gallon of strong tobacco-liquor to it. When painting this mixture on Peach trees, it is safest to reduce its strength by adding a little more water, and some clay as well, so as to take off the whiteness of the lime, which is an eyesore to some when looking at the trees. Before painting this mixture on Vines and Figs, remove all the rough bark, and, when the mixture is dry, it will be seen where any part or crevice in the wood has been missed. Where such occurs, apply the mixture again.

GRAFTING PEARS ON COTONEASTER.—We ("Illustration Horticole") have recently again seen a notice of the experiments of Dr. Bretonneau, the celebrated physician of Tours and a lover of gardening, on the grafting of distinct genera. He has successfully tried grafting Pears on Cotoneaster affinis and on Amelanchier. The results were very curious and interesting, and were crowned with success; but similar experiments on the evergreen species, C. buxifolia and microphylla failed.

NEW FRUITS & VEGETABLES.

ENGLE'S YELLOW GOOSEBERRY.—We have from Mr. Engle some fruit of this kind. It is of about the size and quality of Houghton, and a good addition to the limited list of American kinds.

WILD GOOSE PLUM.—We have some specimens of this, through the kindness of Mr. D. S. Meyer, of Bridgeville, Del. It is the Red American Plum *Prunus Americana*. We have found them wild of many varying shades of color. We do not see that this differs in any respect from the wild ones. But to our taste these wild plums are excellent, and we are very glad that they are being cultivated, whether under the name of "wild goose" or any other.

BEATRICE, LOUISE, AND RIVERS PEACHES.—Our good friend D. S. Meyer, sends us some beautiful specimens of these peaches, from which we can confirm what has been said of it by others. They are all earlier than the Hale's, but the Beatrice is hardly as good in quality. The Louise is however an excellent addition to our early fruits, and will we think become more popular than its earlier sister. The Rivers was rotten and could not be tested.

JOSEPHINE DE MALINE'S PEAR.—Fruits are variable with localities. This, a good enough Pear with us, is pronounced by a distinguished English pear grower in the *Florist and Pomologist* as "not fit to eat."

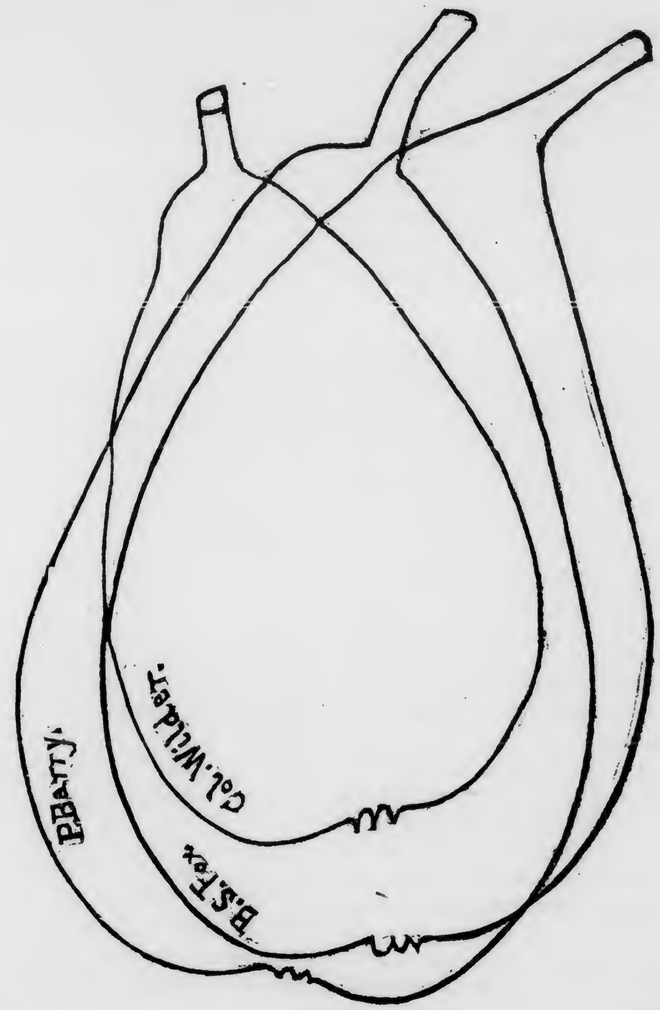
THE SULTAN PLUM.—Mr. T. Moore, in the *Florist and Pomologist*, illustrates and describes this new variety. It is a large round, purple kind, handsome and useful,—very prolific, and likely to be a popular market fruit.

ENGLE'S DOWNING PEACH.—*Peach from H. M. Engle.* On the 17th of July this came to hand, which for a Peach ripened in the open air in Pennsylvania, we believe to be as early as any—to say the least, and we doubt very much whether if tried fairly, side by side—not by the usual plan for "allowing for latitude," and then "calculating difference," by which so many things are reckoned up to be "twenty days earlier" than something else—this would not beat the Beatrice, Amsden or any of the candidates for the early prize. Like all early peaches this one of Mr. Engle's is not large—it is about equal to a large black walnut in this respect,—and, again, like all these extra early peaches, the eating qualities are not the very best of which a peach is capable. It is however superior to any of the early ones in being remarkably juicy, and this in the early and hot season of the year will be an advantage; on the other hand it is a cling stone, and will not cut up well. On the whole we regard it as a valuable addition.

WILDER PEACH.—From Mr. Engle we received a few days after the "Downing" another excellent early peach. We do not know whether the Hale is "playing possum" or what is the matter with it,—but there seems to be no doubt that there are several good kinds considerably ahead of it this year.

FOX'S SEEDLING PEARS.—As noticed several times in this magazine, Mr. B. S. Fox, of San

Jose, California, has raised a lot of capital pears. He has been in no hurry to decide on their merits, but year after year, for several years has sent them to persons high in pomological reputation for their opinions, which have been uniformly favorable. We have a horror of adding more names to an already long list of varieties,—it has not been one of our faults, however, to increase it. But these are so very superior that we believe we do Pear growers a service by naming and describing three of the best.



(No. 17.) P. Barry, large Pyriforme, somewhat oblique, form somewhat resembling Van Mons Leon le Clerc, color that of B. Rosc, rich golden russet, stalk about one inch long, curved, Calyx small, open, flesh melting, juice abundant, vinous; the best of Fox Pears yet tested.—Dec. 13th.

(No. 111.) Col. Wilder, size large oval pyriforme, resembling Marie Louise, yellow, nearly covered with russet, stalk one-half inch long, inserted without depression, calyx shallow, nearly open flesh melting, juicy, sweet, tastes like a fine Belle Lucrative, quite A No. 1, keeps till January.—Nov. 24th.

(124.) B. S. Fox, size large, form long pyriform, stalk short, stout, oblique, calyx small, closed, skin smooth golden yellow, beautifully

marbled with cinnamon russet, flesh melting, juicy, sweet, excellent, A No. 1.—Nov. 20.

THE ENNES PEAR.—*Our Home Journal* has the following, but we think the *Gardener's Monthly* has in the past shown that the Ennes is nothing but the old Windsor pear, and we notice the editor of *Our Home Journal* is of the same opinion.

"I send you this day by mail, a box containing two Ennes Pears of which I think very highly and am propagating them extensively. I obtained them three years ago, from W. M. Samuel, of Hickman Co., Ky. He claims it to be a seedling grown on his place; last year they ripened 20th of June, this year 25th. Please let me know what you and your pomological friends in New Orleans think of it. I regard it as being more profitable even than Bartlett, as it bears equally young."

THE CUMBERLAND TRIUMPH STRAWBERRY is said to be a cross between Green Prolific and Jucunda. Mr. Amos Miller says of it:

"In this berry there is a most beautiful blending of the fine form, high flavor, and large size of Jucunda, with the vigorous growth, hardihood, and productiveness of Green Prolific.

"The past season it has been fairly tested along side of a number of popular varieties, new and old, and combining very large size, perfect form, exceedingly fine flavor, vigor of growth, and productiveness, it stands unrivalled. Berries under ordinary field-culture, without stimulating manures, or pruning, or thinning out, measuring five inches in circumference, and maintaining a more uniformly large size throughout the season than any berry I have ever grown. Plant very vigorous and productive; fruit of the finest flavor; color light; perfect form; a few days earlier than Green Prolific, and continues bearing longer, thus prolonging the season."

RASPBERRIES.—A. M. Burns, Manhattan, Riley County, Kansas, says: "Two years ago last spring we received by mail from Mr. Burns one plant, from which we made a year ago twenty. Last year the one plant fruited, and this year the one and twenty. It is a very vigorous cane, and exceedingly productive, the two year old cane yielding over two quarts, and the yearlings very heavily loaded. The berries are larger, more pulp in proportion to the seeds and more bloom than the Doolittle, juicier and sweeter. As regards the flavor, we find quite a differance of opinion among those whose tastes we consulted, some preferring Doolittle on account of greater acidity, others giving preference to Burns'. From present indications we believe it will prove more profitable, as a market berry than Doolittle from its being earlier and more productive. In our experience the only Blackcap ahead of it for profit is the Mammoth Cluster, but as it ripens eight or ten days later than Burns', they can hardly be regarded as competitors,—the one supplementing the other in filling out the season.—*American Rural Home*, Rochester, N. Y.

SUTTONS' NEW PEAR-SHAPED CANTALEUPE.—This is a distinct and very unique melon, and will become a great favorite. The foliage is smaller than that of other melons; it sets freely, and produces fruit in great abundance. Four plants of it take up no more room than two of other sorts. The fruit *varies somewhat in form* but *generally* comes true Pear-shaped. As it ripens off it becomes of a bright yellow color striped with orange and an occasional streak of scarlet. It is highly ornamental, and forms a good companion dish to our Tom Thumb. It is of good flavor.

QUERIES.

INJURY TO PEAR LEAVES.—*M. B., Chester, Pa.* The injury you describe is from the pear slug, *Selandri cerasi*. If not numerous, crush them on the leaves. Those who have large numbers, say that any very dry material, such as dry earth, dry lime, dry ashes, and so on sifted over the trees, is destructive to them.

EARLY DIGGING OF FRUIT TREES.—A Geneva correspondent says: "Knowing that you entertain no hard feelings when any of us venture to differ from you, allow me to say that I agree with the correspondent who wrote to you from this place, that it is an injury to lift pear trees so long, before the leaves are mature. They may grow, but do not push so freely next season as those which have had time to mature properly before digging."

[We are pleased that our correspondent has given us his views. The *Gardener's Monthly* is as free to every one, or any one, as to the Editor. Moreover it is desirable to have the correct facts, quite irrespective of the opinion of the Editor or any body else,—and in the pursuit of facts, no one has a right to have any "hard feelings" even though he may be found wrong. We thank our correspondent for assuming that we have no such weakness as he has referred to. —ED. G. M.]

THE BEST STRAWBERRIES.—What have our readers to say to the following from "a reader" in Pittsburg, Pennsylvania:

"I am anxious to extend my Strawberry planting for market, and look east for light for the varieties that have stood the best the past season. We grow *Wilson's Albany, Downer's Kentucky, Charles Downing, Nicanor* (too small), and *Jucunda* not suitable for light soils. The extreme freeze in April hurt the crop greatly, especially the Wilson; yield very light, *Monarch* of the West, large but does not ripen up in the centre. Raspberries *Philadelphia* and *Miami* look well, Herstine badly cut with frost. Any information will greatly oblige."

Natural History and Science.

COMMUNICATIONS.

SPECIES OR VARIETIES OF PICEA GRANDIS.

BY E. MANNING, HARRISBURG, OHIO.

In looking over the last report of the Ohio Horticultural Society for 1874 and 1875. on page 89, I find the following: "Picea grandis from the valley of upper California and northward; foliage long and deep green, set in two rows. It resembles pectinata but is a superior tree,—well named the great Silver Fir. Mr. Hoopes says none of the Firs exceed this. Entirely unprotected, it has withstood both heat and cold for several years. Picea Parsonsiana is supposed to be a variety of the last. It is a very beautiful tree, and has proved hardy in Central Ohio, where Mr. Manning has a tree that has grown ten feet in seven years, and has made a leader twenty seven and a half inches long in one season." This description of the P Parsonsiana is entirely correct, as I stated last winter in my remarks at Akron on evergreens. But to suppose it to be a variety of P. grandis is certainly an error. I enclose cuttings of each. You will see that the grandis has many rows, while the Parsonsiana has two rows. The color is entirely distinct as you can see. The Parsonsiana is certainly the most valuable evergreen of large size well tested here. It has stood the most dreadful winters without the loss of a single eye or a discolored leaf. I have seen one account from England in which it was there counted the best variety. In growth it is stately, majestic and very symmetrical, none more so; just as bright in winter as in summer, always looks refreshing.

During our past dreadful winter here, even the far famed Norway Spruce and our native white, and black spruces, suffered fearfully on the north-west side, nor have they yet fully recovered. Even the hardy Picea Pichta and P. Nordmanniana standing hard by, were somewhat browned—Nordmanniana, more so than the Pichta.

Now, Mr. Editor, I have said all I can say of this splendid tree, hoping my feeble effort may stimulate others to plant it. My largest tree I received several years ago from the late firm of Parsons & Co, Flushing, N. Y. I also received since from the same firm, another tree which the firm advertised, having been received from England under the name P. lasiocarpa. I wrote to the firm immediately, that they had sent me another Parsonsi for lasiocarpa. They wrote me that that was the name under which they received it from England. The small specimen is equally as hardy as the large one. Now, Mr. Editor, whether this splendid tree should be called Parsonsiana or lasiocarpa, I don't know.

I wish you to examine these specimens and I think you will conclude the Parsonsiana is not a variety of the grandis. The grandis is hardy here but not as much so as the Parsonsiana.

[It is not surprising that our good friend Manning views a species in the light he does, when authors of English books, who should have more botanical knowledge, make the same mistake. *Species* are founded on differences of structure resulting in differences of arrangement, which are peculiar to the plant to be specifically described, and it differs from a mere variation or variety in this, that the peculiarities of structure are such that no sudden change in conditions is likely to affect them.

A *variety* comes suddenly into existence,—and may as suddenly return to its original, although, as we all know, the change has a certain degree of permanence, but not equal to that on which a botanist would found a *species*. To return to these Firs; if the leaves in one were *really* two ranked,—and in the other several ranked, it would be a good ground for specific distinction,—but *no* Picea or Abies is really two ranked. The leaves have a five-thirteenth arrangement,—that is, the spirals go around the stem five times, until the thirteenth leaf is directly over the first.

The *appearance* of being two ranked is due to no *specific* difference of structure, but to accidental circumstances. If our friend will examine the strong leading shoots, or any shoots which grow erect of P. Parsonsiana, or of any, Abies or spruce, he will find the leaves come regularly *all round the* stem. If there were any shoots at an acute angle on this form, (which generally there is not), there would be leaves only on three sides, *apparently*,—when entirely horizontal or somewhat pendulous, they *appear* two ranked. It is in *appearance* only, for an examination will show that the leaves are merely *twisted* in order to get a share of the light. There is no structural difference, only a *struggle for light*. Then there are some causes, connected with nutrition, which give a more or less degree of permanence to these appearances. These are set forth in a paper by Mr. Meehan in the proceedings of the Chicago meeting of the American Association. For our present purposes we may merely say that there is a tendency in this class of plants to an elongation and proportionate narrowing of leaf blade in exact proportion to the etiolation or weakening of the stem or axis. It is a matter of nutrition and not one of essentially organic structure. It is well illustrated in the specimens sent. A grandis has a stem four lines thick; and is in vigorous health. Its comparatively short leaves and short internodes are all included—that is the whole thirteen forming the cycle—into a space of half an inch in length of stem. Some have therefore of necessity to lap over the others, giving the appearance of many ranked. The stem of P. Parsonsiana is but two lines in length. Being weaker, the leaves are longer, and more scattered. By measurement the thirteen leaves occupy three-quarters of an inch. There is plenty of room for full exposure of each leaf to the light,—and hence the appearance of just one row on each side of the stem. All these forms of arrangement may be seen on single trees of Balsam Fir or Silver Fir, in any nursery. Sometimes in the course of ages trees will travel from their original centre to localities not so congenial to their powers of nutrition. Their vital powers are impaired. In this way the trees of whole districts will assume some of these varying characteristics. The experienced botanist knows what these are. Heredity gives a certain degree of permanence to these characters, and hence they are received as varieties.

Picea Parsonsiana is a well marked and excellent *variety*. As a variety it is entirely distinct from P. grandis,—but as a *species* it is the same thing.—Ed. G. M.]

THE POTATO ROT.

BY W. G. FARLOW,

Assistant Professor of Botany in Harvard University.

While it has been known to botanists for more than twenty-five years that the potato rot is caused by the growth of a minute fungus, called by Montagne, who first described it, *Botrytis*, by later writers *Peronospora infestans*, there are certain points in the life history of this fungus which have not yet been cleared up,—points which, if answered, might suggest to the farmer a means of avoiding, to some extent, the occurrence in its worst forms of this unfortunately too common epidemic. The object of the present paper is to give to the agriculturist a statement of the condition of our knowledge of the of the Peronospora infestans, its germination, growth, propagation, &c., to state the questions which science has still to answer, and the direction in which investigations will have to be made in the future, and, finally, as far as is possible, to apply the knowledge which a microscopic study of the Peronospora has given us to a consideration of the means of avoiding or diminishing the rot.

It might, perhaps, seem superfluous to recount the symptoms by which the disease, the rot, manifests itself, so familiar are they to the persons into whose hands this paper is likely to fall. It makes its appearance in midsummer in our latitude, usually about the first of August, sometimes earlier, oftener a little later. At times its advent is so sudden that, within a few hours, the potato fields change from green to brown and black, and the plants which, in the morning, gave promise of an abundant crop, before night present a mass of decaying vegetation, in

which is involved not only the leaves and stems, but, also, the tubers. The disease occurred in this violent form in 1842, and again in 1845, and spread over a good part of the United States and the British Provinces, and also destroyed the crop in Great Britain, Ireland, Belgium, and parts of Germany and France. The greatest injury was done in Nova Scotia, New Brunswick, and Ireland, owning to the fact that, in these countries, the potato was the principal crop. Since 1845, the disease has recurred, but never with such violence, although during the last year, 1874, the damage was considerable. Although public attention was first called to the rot in 1842, it is not at all likely that it then appeared for the first time, but we must suppose that some of the vaguely described epidemics of the last century were of the same nature.

It is with such sudden and violent outbreaks as those of 1842 and 1845, that in the public mind the potato rot is associated. As a rule, however, the disease is of a milder type. Instead of a sudden destruction of the crop, there appear on the leaves and stem brown spots, which gradually extend. After a while, certain plants are found to be rotting, and this process may keep on until a whole field is involved. This case, as far as the farmer is concerned, is very different from the other, inasmuch as, having seen that some plants are rotting, he can then, by harvesting the rest, save a portion of the crop.

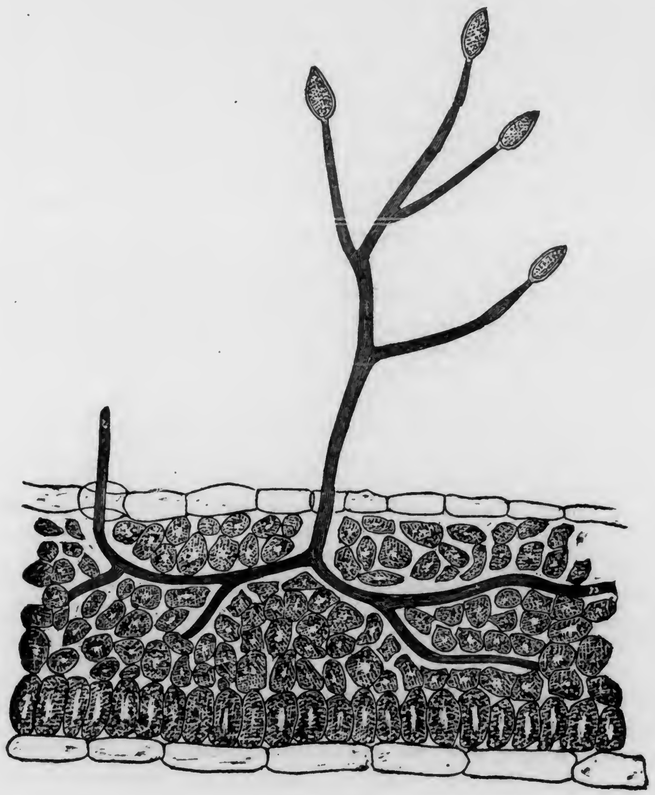


Fig. 1.

In whichever form the rot occurs, it makes its appearance always about the same time, as before mentioned, about the first of August, and always in damp weather. There is no case reported as occurring in a dry season, and a moist condition of the atmosphere is absolutely necessary to its production to any decided extent.

Damp, muggy weather is, however, quite as favorable to its development as heavy rains.

As was just remarked, the disease is first recognized by the brown spots appearing on the leaves. What is the structure of these brown spots? But, first, a word on the normal structure of the potato leaf. If we make a section through a healthy green leaf, and examine it with a moderately high power of the microscope, we find that it is composed of a number of cells or sacs packed together in an orderly sort of confusion, if one can say so. On the upper and lower surfaces, respectively, we find the cells arranged in a single layer, known as the *epidermis*. Here the cells are almost colorless, and shaped like flat tiles or the bricks of a sidewalk. On the upper surface they are nearly continuous; on the lower we find certain breaks, known as *breathing-pores*, where there is a communication between the internal part of the leaf and the external air. The internal cells are much more nearly spherical or ovoidal than the external, and are full of roundish green bodies which are called *chlorophyl-grains*. It is these bodies, seen in mass, which make the whole leaf look green to the naked eye, although the outside epidermis cells are colorless. The internal cells are packed tolerably closely together near the upper surface of the leaf, but below they are arranged loosely, so that there are a good many air spaces, some of which connect with the external air by means of the breathing-pores. There are also in certain parts of the leaf bundles of vessels or very long cells with thickened walls marked with rings, spirals, &c.; but, in the present article, we need not consider them.

Suppose, now, we make a section through one of the brown spots on the leaf of a plant affected by the rot. We notice that the cells are of about the same shape as in the healthy leaf, but the chlorophyl-grains have lost their bright green color and are, in some places, evidently becoming disintegrated. We notice, also, something which was not seen at all in the healthy leaf. A number of branching threads, represented in Fig. 1, are seen running bebetween the proper cells of the leaf previously described, and pressing against them. These threads are cylindrical in shape, branch in all directions, and are only rarely divided by cross partitions. They are of a brownish color, and filled with a granular mass in which we never find any chlorophyl-grains. If we apply iodine and sulphuric acid we shall find that the wall of the filament does not turn blue, or, at least, not very decidedly so, whereas the walls of the true leaf cells become a bright blue. This blue color is owing to the presence of *cellulose*, a substance allied to starch, and composed of oxygen, hydrogen, and carbon. The contents of the leaf cells, known as the *protoplasm*, the outer and thicker layer of which has been called the *primordial utricle*, contain, in addition, nitrogen. The contents of the mycelial threads, except that chlorophl-grains are wanting, are essentially similar to those of the leaf cells.

We need not limit our observations to the brown spots on the leaves. If we examine the adjacent green part, or even the stalk, we shall find the same filaments running between the cells, the only difference between the two cases being that, in the latter, the leaf-cells have a fresher look, and the chlorophyl-grains are still green. Sometimes little projections are given off by the filaments, which depress the walls of the adjacent cells, or even perforate them, making their way into the interior. Such projections, however, are not common, either in the leaf or stalk. These filaments are what is known to botanists as the *mycelium*, or vegetative threads of a fungus, the Peronospora infestans; and, if we examine any potato plant affected by the rot, even before any spots have appeared on the leaves, we shall always find these threads in the leaves, stem, and, in fact, nearly the whole plant.

It is a well known fact in vegetable physiology that the assimilation of food is done by cells containing chlorophyl; and, since the mycelium contains no chlorophyl, the Peronospora must steal its food from the already assimilated material in the potato cells. It does this by direct absorption. The leaf-cells are capable of doing a certain amount of extra work, and can support not only themselves, but a given amount of the Peronospora also. Accordingly, we see some leaves green and apparently healthy, which, on microscopic examination, are found to contain some of the mycelium of the Peronospora. But there is a limit to the capacity of the green cells for work, and, when the parasite has grown to such an extent as to demand too much of them, they die overworked, or, in other words, starved out. Such is the process which has taken place in the black spots on the leaf. Here the parasite has increased to such and extent as to destroy the proper tissue of the leaf,

while, in the adjacent green parts, although the mycelium is present, it is not in such quantity as to overcome the assimilating power of the leaf-cells. It is an important fact that the relative activity of the latter and of the mycelium varies with a temperature and a moisture of the surrounding atmosphere. The Peronospora is much more easily affected by moisture than the potato plant itself. So long as the air is dry, the mycelium grows but slowly, while, unless the dryness is excessive, the potato leaves can do their work very well. But suppose the temperature to keep equally warm, and the atmosphere to become very damp, then the absorbing power of the mycelium is very much increased, while the assimilating power of the leaf-cells is little altered. Thus it happens that a sudden change from dry weather to moist will cause the mycelium to increase very much beyond the power of the potato plant to support it, that, in the struggle for existence, the latter blackens and dies. Once in a given plant, then, we see how the Peronospora can destroy it; but the question arises, How does it get in?

So far, we have spoken only of the mycelium as found in the leaf; but, as the disease advances, it is found in any part of the plant, even the tubers, and the description given of it in the leaf will answer for it in any part of the plant, except that, in the tubers, it is generally a little larger and furnished with more numerous projections than elsewhere. When the disease has arrived at a certain point, viz., just about the time of the appearance of the spots on the leaves, these mycelial threads make their way into the air, and, taking the easiest course for this, they generally grow through the breathing-pores. As has already been observed, the breathing-pores are more numerous on the under surface of the leaves than anywhere else; and it is on this part of the plant that we most easily recognize the change. To the naked eye it appears like a slight frost on the leaf, and, after the spots have begun to appear, we generally find around them, on the under surface of the leaf, a ring of frost work, very delicate, however. Under the microscope we have the appearance presented in Fig. 1, where, for convenience in printing, the leaf has been inverted, and what appears to be the upper surface is, in reality, the lower. On the left hand we see a filament which is just making its way through a breathing-pore, and, in the centre, an older one, which will be described presently. Within the leaf the mycelium is seen branching amongst the cells. Once in the air, free from tissue of the leaf, the mycelium bears the reproductive bodies or *spores*,*—the term generally given to all bodies in the lower plants which take the place of seeds in the higher plants, by which the fungus, or, what is the same thing in this case, the disease is conveyed to other plants. The threads either grow straight forward or branch, and, at the tip or tips, swell until they attain the shape shown in Fig. 1. They are cut off from the rest of the mycelium by a cross partition, and, when ripe, easily fall from their attachments. It must be noticed that these spores are *asexual;* that is, produced directly from the mycelial threads without the intervention of any sexual organs, such as are known by the names of *antheridia* and *oogonia*, terms which imply a functional resemblance to the anthers and ovaries of higher plants. Generally, just before the spore has fallen from the tip, the mycelium immediately below grows out on one side upwards, and again bears a spore at its end. In this way, the first spore is pushed over, so that, if it has not already fallen off,—which it is very likely to have done,—it looks as though it had grown from the side instead of the tip; and spore number two, which is really lateral, appears terminal. The nodes on the mycelium, represented in Fig. 1, show where previously formed spores have dropped off, the first having been the lowest down.

(*To be continued in next number.*)

* The term *spore* applied to fungi is extremely vague, since it denotes all the reproductive bodies, without regard to their origin or structure. The most natura division of spores seems to be that of many continental mycologists into oospores, or those produced by some sexual action, and asexual spores. The term *sporidium* does not seem to me to be advisable, inasmuch as it denotes bodies of quite different origin; for example, in Mucor the so-called sporidia are asexual, while in the Perisporiaceæ the asci are products of a growth following a sexual action. The immense variety of asexual spores in fungi prevents us from using a single word which will apply equally well to all cases. The term *gonidia* is now quite generally adopted to express collectively the asexual spores. The body containing spores is known as a *sporangium*. In the case of Peronospora infestans, we are at a loss to know what term to apply to the aerial fruit shown in Fig. 1. If the germination always took place as in Fig. 2, *b*, we should have no hesitation in calling the body a spore. If it always germinated by zoospores, as in Fig. 2, *c*, (see next month) we should call it a *sporangium* or *zoosporangium*. The question is merely a verbal one, however. The facts in the case are easily understood.

EDITORIAL NOTES.

THE POTATO DISEASE.—We give one of the most interesting papers we have met with for some time, judging science from a practical stand point. It may be proper to say however that since the appearance of Prof. Farlow's essay, one of the points then open has been cleared up. He refers to the non-discovery of the oospores. A new form of the disease has appeared in England, and the fungus turns out to be the long looked for spores. They only germinate under very wet conditions and probably the wet English season has brought them out. We had written the following paragraph before this discovery was announced,—but leave it as written, as we should like to know if any such appearances have been noted on potatoes in this country.

THE NEW POTATO DISEASE.—A malady which seems very destructive has broken out among the potatoes of England, and said to be confined chiefly to American varieties. It has justly spread consternation among cultivators there. By the kindness of a friend we have a diseased leaf from that country. We have never seen any thing of the kind here, and doubt whether it went with American potatoes to that country. It is said by the authorities to be a species of Protomyces. We shall be much obliged if any of our readers see anything like it, that they send us specimens. To a common observer, the leaf seems covered with small black spots. Held up to the light, and examined with a pocket lens, there appears to be a black hazy mass, following chiefly the veins of the leaf often terminating a small vein in a circular black dot, as some ferns would appear when in fruit.

PHYLLOXERA AND PRUNING.—It is has been noted on several occasions in these pages, that the Concord and Clinton grape vines escape serious injury from Phylloxera on account of the superior rooting character of these varieties. Many kinds send out numerous thread like roots, which seem to diverge neither to the right nor left, and when these are destroyed, they make no effort to repair the loss,—but when these two get injured in this way they proceed at once to repair damages by sending out new fibres all along the surface of the old leading root.

This power to root freely and rapidly, as an antidote to the Phylloxera receives a new illustration at the hands of a correspondent of the *Annales de la Societe d'Horticulture de l' Herault*, M. Doumet, who finds that the less vines are pruned, the less injury they suffer from the insects. It is evident however that M. Doumet and his friends do not know why this should be so. They only report the fact. Our readers know that roots and leaves are retro-active. There can be no growth without roots,—there are no roots without leaves,—the more leaves the more roots,—the more roots the less the Phylloxera can injure the plant.

It is well to recognize the principle involved here,—but it is not likely to be of practical value. We all know, and long ago, that pruning has many attendant disadvantages,—but yet it is next to impossible to cultivate grapes or other fruits without a free resort to the pruning knife. We recognize the evil, but accept it as a necessity.

THE MOUND BUILDERS.—No cause that to the moderns seems adequate has been suggested for the disappearance of the Ancient Mound Builders and the succession of the Indian. The Hon. Alex. Delmar has found it all out. They were an agricultural people, and with their stone axes they followed the criminal courses of all agricultural peoples, and cut away the forests. Rain, which before fell in gentle showers, then came only occasionally, and but in deluges. The soil was first dried till the land was a desert, and then washed by the floods into the Mississippi River. Thus came the famed Mississippi delta below New Orleans. The washed soil would raise nothing, and *so* the starved "mound builders" had to leave.

Starting on this admirable theory, the *Germantown Telegraph* waggishly suggests that with the dry desert which followed the exodus of the mound builders came the grass-hoppers. Then the Digger Indians and others learned to eat them and keep them down. The advent of the white man caused the "Diggers" to disappear, and so we have the grasshoppers again. We shall in future look on the stone axes of our forefathers with more sadness than heretofore. The consequences have been awful.

SOUR AND SWEET APPLES.—It is now approaching a hundred years ago since Mr. Jay reported in the Proceedings of the New York Agricultural Society that in that State an apple existed half sweet and half sour,—and that this variety was produced by uniting halved buds of different kinds, making one bud, which was inoculated or grafted in that condition. The matter perhaps derived more importance from having been referred to as a fact in the Proceedings of the American Academy. In this way it came into scientific literature, and has been referred to all the world over. During this time there have been interminable discussions as to whether such an occurrence is possible,—no one so far as we know appealing to the only authority capable of deciding it,—actual experiment. The writer of this a few years ago, thought to apply this test. The Red Astrachan and Rhode Island Greening,—from their distinct characters—were chosen. Twelve spliced grafts, were put in. All died but three. So far as could be seen the halves grew together exactly,—but only one shoot came from each eye—just as in ordinary budding. To hasten their fruiting, scions from these three were grafted on three separate mature trees on the Doucain Stock. This season one of these on a Baldwin bore two apples,—but they were in every respect Red Astrachan only. There was not a trace of the Rhode Island Greening. The germ of this was no doubt destroyed in the splitting, while the Red Astracham was not; yet only the germ, as the rest united with the halved Astrachan. There are two more to bear in future years, and it will be interesting to note what they come to.

To analyse these facts what do we learn? There were 24 buds split in order to get 12 buds to graft. There are at least three chances in twenty-four then that a split bud will live. In this case only the germ of one half grew. If it should be that two uninjured germs should get together,—there would be more than three,—and in that case would they so unite as to form one hybrid structure? This is still to be settled. All that this shows is that a bud can be halved and still grow; and this is a gain to knowledge. But then why should another hundred years pass before some other editor of a gardener's monthly tries it? Hundreds can do it as well, and with more time to do it than he has. Perhaps, however, in the next generation people will be more ready to experiment, and have less time to waste in mere dispute than they have now.

QUERIES.

CHANGE OF A PEAR TO AN APPLE TREE.—A Natchez correspondent sends us the following: "We have recently heard of a vegetable curiosity, which is vouched for by as strong testimony as is usually brought for the proof of anything. Some years ago Mr. John Lambert, the father of one of the proprietors of the *Democrat and Courier*, had an apple stock which he grafted with a favorite variety of apple. After the graft had attained a good growth he put in one of the limbs a pear graft, which grew off finely and produced for two years a crop of rather inferior pears. Thus far there is nothing wonderful, but this year on the grafted pear limb of the tree there is, instead of pears, a crop of apples of an entirely different appearance from those on the other branches of the tree. Mr. Lambert, who is a very close observer, is confident of the identity of the graft, and of having gathered from it last year and the year previous a crop of pears. We have seen the apples from the original graft and those said to have been produced on the pear branch, and there is a very marked difference in their appearance; those on the apple stock are large and quite oblate in form, while those from the pear limb are small and pear-shaped and evidently inferior in quality to their step-brothers. If Mr. Lambert is correct in his recollection, (and there is no reason why he should not be), this is an instance of vegetable breeding-back of which we have never before heard an instance."

[To all of which we have to say that when any one meets with such curiosities they should remember that they will not be believed in by those who do not see, unless the evidence is overwhelming. The specimens should be submitted to those who have made plant life a study,—and if possible, to a dozen or more of them; for the most careful will sometimes get taken in.

So far as the present case is concerned, we should of course rather believe that Mr. Lambert is mistaken, than that the pear had changed to an apple,—and he is very likly to be mistaken, as the pear is usually short lived when grafted on the apple,—and a sprout from the apple is of all things most likely, in time to quietly take the pear's place. But we like to see specimens of these wonders before we offer reasons for them.]

THE RAINS IN THE WEST.—An Ohio correspondent sends us a long article to prove that the heavy rains in the West this season are the result of an enormous tree planting this spring. He says last year there were very few set out,

and consequently there was a great drouth. We do not print the article, because we suspect he is not in earnest.

DISEASE IN THE NATIVE CRAB.—*S. H. F., Dayton, Ohio*, writes: "My wild Crab Apple, which was the pride of our place, when in bloom, has for four or five years past, been covered with yellow blotches which destroy the beauty of the foliage, and the apples before ripening, are covered with punctures by a small fly which destroy them. I find many of the insects dead, with their heads imbedded in the fruit. Are the yellow blotches eggs which produce these insects? and, is there a remedy? I have several trees, in different parts of the ground; all are affected in the same way. I enclose some leaves. The spots appeared in May."

[This had much the appearance of the usual form of fungus which causes red blotches on the leaves of many Rosaceous plants,—but the color was much more brilliant than usual,—and under a lens the surface was covered with minute warty projections. We thought it best to submit it to a distinguished mycologist for his opinion, who believes it to be only the common Roestelia cancellata in its "*spermagonial* state;" that is forming its spore cases. Unfortunately we know of no remedy,—though an early picking off of the affected leaves one year might keep down the crop of the next.—ED. G. M.]

GROWTH IN THE DARK.—Our correspondent, at whose suggestion we offered the note in our last on Mr. Templin's paper, thinks we have not yet made the matter clear. Our intention was to show that growth, and the elaboration of material for growth, are two distinct processes. Growth takes place in the dark—our correspondent indeed suggests "often darkness is more favorable to growth than light," referring no doubt to growth in seeds and roots—but the *preparation of material to make growth*—this is the work of light.

Literature, Travels & Personal Notes.

COMMUNICATIONS.

LETTER FROM PARIS.

BY A. G.

At Nice, France, we noticed that the hand bouquets were made much larger than those we had seen in the United States. In separating many of them, in order to fill small vases, we observed particularly their arrangement, which appeared to be the same in all we saw.

The centre of the circular bouquet was generally composed of a large bunch of roses and ferns (the fern having a small compact leaf) or hyacinths and ferns (the hyacinths always single) the stem of that part being one and a-half inches in thickness. Around this centre bunch were placed double violets, or candy-tuft (white) made up into small separate bunches, three or four inches in diameter. These were stiffened with the stem of a grass or reed, of the thickness of a medium sized steel knitting needle. There were generally three rows of the small bouquets made, outside of the centre one, the last, when completed, having an extra circle of grass-stems, reaching from the lower part of the stem, up under the row of green leaves surrounding each small bouquet, giving to it a graceful outward curve. Outside of this was placed the ornamental paper. There were no wires used except for the detached flowers of the camellia. The green surrounding each minor bouquet, consisted mainly, of rose geranium leaves, which with the stiff-leaved ferns furnished the general greenery.

The large bouquets included a variety of flowers, such as rose buds (the buds were used instead of the open roses) yellow, and red, double violets, white perennial-candytuft, narcissus, single hyacinths, white lilacs, (the three last mentioned were used for the centre), acacia blossoms and orange buds. In some the centre would be ferns, colored camellias and white hyacinths, surrounded by a double row of violets. In others there would be orange buds alternating with violets, with white lilacs and camellias for a centre, or violets, and orange buds with ferns and rose-buds—the rose buds, when scarce, were used for the centre only.

Small bouquets were made of rose-buds and

ferns, or violets and rose geranium leaves, or pansies and ferns, &c.

In the market. (held in an open square), the flowers were generally sold in bunches, or quantities of one kind, the fern and other greenery the same. The saleswomen sat on low seats behind benches, containing their various stores, having on one side a basket of ferns. While waiting for customers they made up bouquets. Coarse sewing thread was used, in profusion, in tying and forming these, and others; all of them being made compact and tight, and generally having a very stiff appearance.

As the season advanced, white and colored stock-gillies were seen, also wall flowers, the pink, scarlet, and purple wild anemones, narcissus, tulips, and candytuft. Flower-venders haunted the promenades, carrying small bouquets of pansies, violets, rosebuds, &c., in long flat baskets. These were sold at all prices down to one and two sous (two cents). The lowest priced were generally violets framed in their own leaves. Little children, holding up bouquets of wild flowers, followed the carriages on all public roads. These were often purchased and thrown back to be resold.

In a Paris market house, one side of which was devoted to the sale of flowers, and occupied daily, I saw, to me, a novel arrangement. The space was divided into two regular portions, lengthwise, with a passage in the centre. The stands were arranged with a counter, above which rose a frame on which bouquets, were hung. Back of these were receding shelves on which were arranged the stock of cut flowers, also pot flowers, &c. The cut flowers were in great quantities. We saw one mass of forget-me-nots. one and a-half feet in diameter. Opposite each stand was a glass enclosed shop, or stall. A door in front opened to the passage way. These stalls contained shelves and hooks arranged for the convenience of the seller. The windows were open, and on the ledges and shelves small pots of plants, ornamental baskets, &c., were seen. Most of the small pots contained echeverias, cactii, and aloes. These pots were from two to three inches in diameter, and made brilliant with a shining scarlet glazing or paint Around the doors of the stalls stood larger pots of evergreens, fuschias, clumps of pansies, &c. Some of the latter were so large as to excite wonder.

I noticed here also the arrangement of bouquets which had not decreased in size. These did not contain as much green as the Nice bouquets, and seemed to be massed according to color. We give a few specimens.

Centre—camellias (colored), first white lilac, second forget-me-nots, third dark purple pansies, fourth green.

Centre—camellias, first white lilac, second red roses.

Colored camelias, intermingled with white lilac.

Centre, large yellow rose buds, one row white lilac, second row purple pansies, third dark red roses, alternately.

One bouquet contained the white clustered allium.

We saw hanging to the stalls, some rustic pot-holders, which might easily be imitated. The back and bottom were of wood, the latter being in the form of a half circle. Around this were tacked the small limbs of trees, cut in half, the upper part being strengthened and united by wires running through them. Some were also made of willow work, and were intended for holding vessels of cut flowers.

LETTER FROM SAN JOSE, CALIFORNIA.

BY E. L.

This a smart little city, of some fifteen thousand inhabitants. It is called the garden city of California, though horticulture here in its higher branches is considerably behind it, as found in the Eastern States, as much so as theirs is behind that of Europe. Yet the delightful climate here, and the unbounded fertility of the soil, will without doubt in time make this one of the finest garden spots in the State. One grand feature of this valley is the Artesian wells. Without these it would be hard for horticulturists and nurserymen to make much headway. Steam pumps are usually used to force the water to the highest points in the land. Little ditches are then made with a hoe along each row of trees or plants to be watered. It is not usual however to water only newly planted trees, as after they are established they thrive well enough without. It is in this valley where strawberries are picked from April 1st to December 1st. The largest lot shipped from here in any one day, was forty tons. They are raised by Chinamen; mostly on shares. The land owner furnishes the land, the plants, and does the ploughing; the Chinamen do all the rest.

Longworth's Prolific is the kind generally grown,

though Triomphe de Gand, and Jucunda can be found in small quantities. A fruit canning establishment here employs about one hundred girls and women. It uses about two tons of the Cherry currant each day. These are not however raised in this valley but are sent from Oakland here. The Red Dutch Currant finds its way mostly to the jelley jar. Apricots are not so abundant here as in some other parts of the State. Two thousand boxes—mostly Moorpark—came here early this week, from San Francisco. The fruit crop this year is less than common, owing to an unprecedented frost on the 7th of April. The soil is alluvial ten to fifteen feet deep, and of extraordinary richness. The trees during the wet season grow so gross that they are very susceptible to cold. Thus the young growth of the English Walnuts gets cut off for several years by the slightest frost. It is usually planted on warm belts or the foothills, where Heliotrope and oranges remain all the year uninjured. Oranges grow prodigiously. One of these trees fourteen years old, bore last year one thousand good fruit. Most of the nurseries here are on Twelfth St., and are outside of the city limits. A thriving and solid trade, seems to be done by them all. A great many of the tuberose flowers sent to San Francisco, are from these establishments. Fruit trees are also largely raised, the cherry receiving a large share of attention.

EDITORIAL NOTES.

BOUGAINVILLEA.—Mr. C. M. Hovey writes: "The *Monthly* for August has come to hand, and we notice that you adopt, or rather admit the name should be (horrible) Buginvillea, on the authority of the *Boston Cultivator*. What that authority is we don't know or care; but every botanist knows that the plant which you say is Buginvillea (?) was discovered by Commerson in Brazil at the time he accompanied "Bougainville" in his voyage around the world, and named it in honor of that most distinguished navigator, as well known as Captain Cook. In 1761 he published his *voyage atour du monde*, which was soon translated into English and German. Certainly you ought to know so great a navigator. See an account of his life in Appleton's Encyclopedia, vol. III, page 576. The plant first flowered in the Jardin des Plantes, and described and illustrated with a colored plate as long ago as 1842, in the "*Jardin de Plantes*," a splendid volume now before me. That you should be willing to aid in taking away the honor bestowed upon so renowned a man on the authority of anybody is as astonishing as it is absurd."

[The matter referred to by Mr. Hovey is already settled at page 286,—yet we publish this, in order to correct some misapprehensions. In the first place it would often save editors and readers much time, if correspondents would read carefully before criticising. For instance we did not say the name should be Buginvillea "on the authority of the *Boston Cultivator*." As to any supposed "willingness" on our part to take away the honor due to Bougainville or Commerson, the suggestion is, as our correspondent puts it, "absurd." It is another question,—that question being an important one in botanical nomenclature—the right to alter a name given by the author and describer. Mr. Hovey of course does not appreciate these rules, or he would not have got into trouble with European botanists by setting aside, in his magazine, Sequoia as the name of the great Californian tree, and attempting "Washingtonia" in the place of it. If *we* are to make an error, we hope it will always be in a strict interpretation of the *law of priority*. A large number of botanical authors never tell why or for what they give names. When we do know their reasons, many people would set aside the names wholly if they dared. It is indeed a matter of little more interest to botany, strictly speaking, than why any of us have come by our own names. All we have to do with here is that the distinguished botanist who named it, and who of course knew as much about Bougainville as Mr. Hovey, preferred to spell it Buginville,—and we find that so great an authority as Steudel, whom most of us take as our guide in matters of orthography, follows with *Buginvillea*. That it ought to *have been Bougainvillea* may be right,—and if our leading botanical authorities feel justified in making the correction under the rules, it is not our business to criticise, but to adopt their decision. Still it is well to remark that botanists often have their own ideas of euphony in changing names into Latin. Thus Dr. Lindley wished to honor Sir Rutherford Alcock,—but he writes, the name Abies Alcoquiana,—and so on of similar others. ED G. M.]

HORTICULTURAL EXHIBITION.—*Fruit Labels.* Mr. W. H. Goldsmith, of Newark, New Jersey, has invented a clasp label for exhibition fruits,—a want long felt by both exhibitors and spectators.

ANDRE LEROY.—As we go to press we learn of the death of this distinguished French Pomologist and Nurseryman, whose name is perhaps more widely known here in this connection than any of his countrymen. He must have been far advanced in life.

THE CHAMBERSBURG, PA., NURSERY.—The grounds of this Nursery, of which William B. Reed is proprietor and superintendent, are situated immediately east of the borough, and cover an area of about forty acres. The nursery is well supplied with greenhouses, hotbeds, and all the appliances for the propagation and successful culture of fruit trees, plants, vines, shade trees, flowers, and in fact, almost every article belonging to the vegetable kingdom. Visitors to Chambersburg could not spend an hour more pleasantly than by visiting this establishment. The grounds are exceedingly well adapted to the purpose for which they are used, the Falling Spring running through them—the water of which is utilized and conveyed through pipes to every part of the nursery.

An excellent plan for exhibiting the growth of plants and trees has been adopted. Walking through the grounds, one observes specimen beds of strawberries, currants, raspberries, gooseberries, grapes, apples, peaches and pears—one plant of each kind, and ever so many kinds. Six acres are devoted to the cultivation of deciduous ornamental trees. There are 3000 maples of one kind on hand.

The greenhouses are eighty feet in length and are in three apartments. Water has been introduced into them by an admirable arrangement. The proximity of the Falling Spring is of immense benefit to the nursery. A water-wheel has been placed in the stream and, by the means of a force-pump the water is distributed into wooden pipes which have been laid throughout the grounds. Thus, as much water as is needed, can be supplied at any spot it is desired. There is a tank at the greenhouse which holds seventy barrels of water and this is filled twice per day for the different uses to which it is applied.

AN OLD SACRED TREE.—The Cypress of Somma, in Lombardy, is said to be the oldest tree on record, dating from the year 42 B. C.; but at Anuradhapura, in Ceylon (noted for its ancient palaces), there is a Bo tree—a very famous object in connection with Buddhism—which, according to a writer in "Science Gossip," was planted 288 years B. C. It would have been blown down long ago but for a thick wall built round the trunk, and all its main branches are supported by pillars. The leaves that fall off are collected by the Buddhist priests every day, and are kept in a holy part of the temple. They are offered to their deity on festal occasions, also sold to the poor ignorant natives, who believe the money paid for these holy leaves will buy them righteousness of saints. This tree is held in such reverence that it is often visited by numbers of pilgrims.—*The Garden.*

GOOD WORK FOR A NATIONAL GARDEN.—A learned and practical savant, Mr. Dalbray, began in 1840 in the Garden of Plants, at Paris, a public course of lectures on arboriculture. These lectures were illustrated by experiments on the ground, and were largely attended by landowners and nurserymen from every part of France. In three years old routine systems of culture were done away with, and that of the Vine especially became so much improved that its products soon formed by far the largest item in the resources of that country.—*The Garden.*

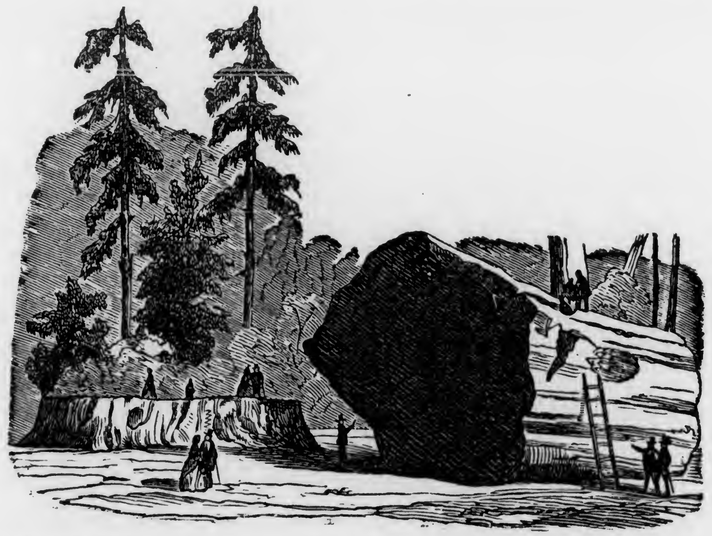
BIRTH DAY TREES.—They have a pleasant practice of planting birth day trees, in England. There is now on the grounds of Osborne house in the Isle of Wight, a Picea pinsapo, that is thirty-five feet high which was planted by Queen Victoria on May 24th, 1849, when she was thirty years old. Some of our young girls might hesitate to do this as it might lead to a discovery of their age,—but there can be no reason why the boys should not do it.

REPORT OF THE CONNECTICUT BOARD OF AGRICULTURE, for 1874, from T. S. Gold, Secretary. The largest part of this excellent report is devoted to essays on dairying and cattle interests generally,—there is one chapter on orcharding in Connecticut.

THE TREE AGENTS PRIVATE GUIDE, is a pocket book, in which are some excellent rules for the use and guidance of those who sell trees. The advice given is good,—but we do not know that many will profit thereby. The blockhead rarely knows how thick his scull is,—and the man who has sold on deceptive principles will not learn that honesty is the best policy. While the world has suffered some from unprincipled "agents,"—it yet owes immensely to the honorable ones,—and if this little effort would make but a dozen more than we have it will do good. It is owned by D. M. Dewey, Rochester, N. Y.

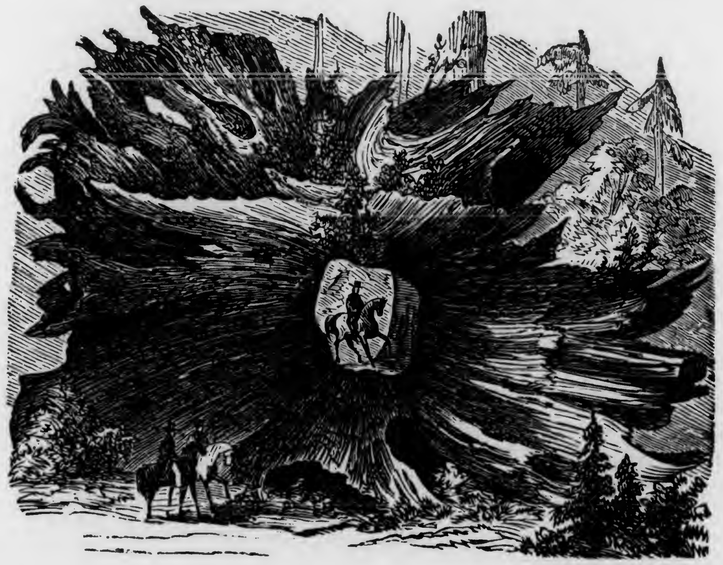
DISCOVERY OF THE MAMMOTH TREE, SEQUOIA GIGANTEA.—It is so easy going through California now that we can hardly appreciate the difficulty that such early botanists as Nuttall, Douglass, and others experienced in making known to us the botanical treasures of these regions. The following from the journal of David Douglass, in 1826 narrates his experience with the mammoth tree:

"Thursday, October the 25th. Weather dull, cold, and cloudy. When my friends in England are made acquainted with my travels I fear they will think that I have told them nothing but my miseries. This may be very true; but I now know, as they may do also if they choose to come here on such an expedition, that the objects of which I am



in quest cannot be obtained without labor, anxiety of mind, and no small risk of personal safety, of which latter statement my this day's adventures are an instance. I quitted my camp early in the morning to survey the neighboring country, leaving my guide to take charge of the horses until my return in the evening, when I found that he had done as I wished, and in the interval dried some wet paper which I had desired him to put in order. About an hour's walk from my camp I met an Indian, who on perceiving me instantly strung his bow, placed on his left arm a sleeve of raccoon skin, and stood on the defensive. Being quite satisfied that his conduct was prompted by fear and not by hostile intentions, the poor fellow having probably never seen such a being as myself before, I laid my gun at my feet, on the ground, and waved my hand for him to come to me, which he did slowly and with great caution. I then made him place his bow and quiver of arrows beside my gun, and, striking a light, gave him a smoke out of my own pipe and a present of a few beads. With my pencil I made a rough sketch of the cone and Pine tree which I wanted to obtain, and drew his attention to it, when he instantly pointed with his hand to the hills fifteen or twenty miles distant towards the south, and when I expressed my intention of going thither cheerfully set about accompanying me. At mid day I reached my long-wished-for Pines, and lost no time in examining them and endeavoring to collect specimens and seeds. New and strange things seldom fail to make strong impressions, and are therefore frequently overrated; so that lest I should never again see my friends in England to inform them verbally of this most beautiful and immensely grand tree, I shall here state the dimensions of the largest I could find among several that had been blown down by the wind. At three feet from the ground its circumference is 57 feet 9 inches; at 134 feet, 17 feet 5 inches; the extreme length 245 feet. The trunks are uncommonly straight, and the bark remarkably smooth for such large timber, of a whitish or light-brown color, and yielding a great quantity of bright amber gum. The tallest stems are generally unbranched for two-thirds of the height

of the tree; the branches rather pendulous, with cones hanging from their points like sugar-loaves in a grocer's shop. These cones, are, however, only seen on the loftiest trees, and the putting myself in possession of three of these (all I could obtain), nearly brought my life to a close. As it was impossible either to climb the tree or hew it down, I endeavored to knock off the cones by firing at them with ball, when the report of my gun brought eight Indians, all of them painted with red earth, armed with bows, arrows, bone-tipped spears, and flint-knives. They appeared anything but friendly. I endeavored to explain to them what I wanted, and they seemed satisfied, and sat down to smoke, but presently I perceived one of them string his bow, and another if they fetched me a quantity of cones. They went off immediately in search of them, and no sooner were they all out of sight than I picked up my three cones and some twigs of the trees, and made the quickest possible retreat, hurrying back to my camp, which I reached before dusk. The Indian who last undertook to be my guide to the trees I sent off before gaining my encampment lest he should betray me. How irksome is the darkness of the night to one under my present circumstances! I cannot speak a word to my guide, nor have I a book to divert my thoughts, which are continually occupied with the dread lest the hostile Indians should trace me hither and make an attack; I now write lying on the grass with my gun cocked beside



sharpen his flint-knife with a pair of wooden pincers, and suspend it on the wrist of the right hand. Further testimony of their intentions was unnecessary. To save myself by flight was impossible, so, without hesitation, I stepped back about five paces, cocked my gun, drew one of the pistols out of my belt, and holding it in my left hand and the gun in my right, showed myself determined to fight for my life. As much as possible I endeavored to preserve my coolness, and thus we stood looking at one another without making any movement or uttering a word for perhaps ten minutes, when one at last, who seemed the leader, gave a sign that they wished for some tobacco; this I signified that they should have me, and penning these lines by the light of my Columbian candle—namely, an ignited piece of rosiny wood."

PROF. PARRY.—This indefatigable botanist whose researches in the unexplored portions of Utah resulted in twenty new species,—has again returned to that capital field of labor.

HIBISCUS CORONALS.—A letter from the *Challenger* expedition to the *London Times* says that the inhabitants of New Guinea, do not employ tailors. They haven't any need to do so. They do not even sew fig leaves together, but they do make considerable use of leaves and flowers as ornaments to their bodies. A sort of coronal made of the large red flowers of our Chinese Rose

Hibiscus is commonly worn. They also bunch flowers into a sort of bouquet which they wear as our ladies do chignons, on the back of the head.

QUERIES.

MR. HARDING'S PAPERS.—Mr. John Falconer writes: "I would desire through the *Monthly* to thank W. T. Harding, of Columbus, Ohio, for his interesting article on the Lattice Plant, as also the latter part of it on the wonderful beauties of Mauritus. Surely he has the eye and the soul of the poet, and should he try might make the 'numbers clink,' and give to the world a most unique and much needed description of the lovely scenes, (minus the hard names he strings off like goodly pearls.)

Ah me! few can follow him through these Latin and Grecian derivatives. To the untutored many they utter sounds, yet convey little meaning. I thank him sincerely for his happy and cheery pen. Many a roaring laugh and loud guffaw during the winter evenings I have had.

His anecdotes are really inimitable, and relieves the professional march of his subject. Would we had a few more such pens as his, to enliven the columns of the *Monthly*. I have reason to know that many lie idle because they won't be bothered to lay their stores of experience before its readers."

[We sympathize with our friend in his difficulty with hard names,—and yet we see no way out of the trouble but to learn what the names mean. Hundreds do know their meaning, though there are hundreds more who do not. Wistaria, Paulownia, Gladiolus, Coleus, Artimesia, Portulaca, Verbena, Dahlia, Fuchsia, Chrysanthemum —hundreds of things are just as hard to others as these of Mr. Harding's to our correspondent,—yet we presume they are nothing to him. He has learnt what they mean. Suppose now we abolish these hard words, what will our correspondents suggest to replace them?—ED. G. M.]

TO INQUIRERS.—In order to have the *Monthly* in the hands of the reader on or soon after the 1st of the month, a good portion of the contents have to be prepared for the printer almost as soon as the past number appears,—hence a number often intervenes before correspondence can be attended to. A letter of inquiry from a lady at Cape May, received just as this page is closing, suggests to us to make this explanation.

BOUGAINVILLEA.—A correspondent says:—"Though Commerson wrote and Jussieu printed, yet as it was named in honor of the Captain under whom Commerson sailed, whose name was *Bougainville* ("*A. D. de Bougainville itineris, Commersoniani duce*"), it is justifiable to amend the orthography into *Bougainvillea*. Nuttall printed *Wisteria*, but we all write *Wistaria*."

WHERE OUR VEGETABLES COME FROM, "is one question—meaning, where they originate or are indigenous, says an intelligent correspondent. "But our horses did not come from 'the Arab's hot desert,' nor the potato (unless you mean sweet potato) from the West Indies; nor squashes and pumpkins from Asia Minor; nor wheat from Sicily; nor "anni-seed" (if by aniseed is meant); oats, and buckwheat from England; nor horse radish, &c., from the high north of Europe; nor the sand-bars of New Jersey and the Carolinas, from the sand of the western shores of Europe. No wonder A. M., wishes the Editor and readers of the *Gardener's Monthly* would correct his communication."

[Not feeling that an Editor is "responsible for the opinions or statements of his correspondents," we do not always express our dissent, when perhaps a word of caution would do no harm at least,—the present case seems one in which the rule might have been profitably departed from.—ED. G. M.]

WHERE TO GET CURRANTS.—An Evansville, Indiana, correspondent asks: "Can you name me any reliable gardner from whom I could get all the different varieties of currants, raspberries and gooseberries? Please answer in your next *Monthly*."

[We like to oblige correspondents,—but to name particular tradesmen in these columns, is one thing we never do. Ask almost any thing else, good friend. We may say however without breaking our rule, that there was once, and we suppose is still at least a couple of good nurseries at Evansville, and if they have not every thing desired, would doubtless get them. If not, any leading nursery that advertises in our pages would.—ED. G. M.]

LANDSCAPE GARDENING.—*R. W. G.*, is a young man anxious to improve himself in landscape gardening, and desires to know what works to study. Most of those he has seen are too theoretical. He desires something more practical. Scott's *Suburban Home Grounds* is one of the best works by an American, and should be on the shelves of every student of landscape gardening. The best work by a practical man—one actually engaged in the profession, is Kemp's *Landscape Gardening*, an English work.

Horticultural Societies.

EDITORIAL NOTES.

JASPAR COUNTY (MO.,) HORTICULTURAL SOCIETY PEACHES.—The July meeting seems taken up with the early peach question. However, there was quite a display of fruits on the tables, consisting of peaches, plums, apples, cherries, blackberries, currants, raspberrries, apricots, nectarines, tomatoes, &c.

Of peaches there was one new variety exhibited. It was grown on the farm of Mr. Eli Wick, near Avilla. He bought the trees for Hale's Early. The tree bore for the first time this year, and the fruit ripened about July 5th, two or three weeks earlier than Hale's. It is about the size of Hale's, but differs in other respects, and adheres more firmly to the pit. "Whether it is simply a freak of nature, or a new variety remains to be seen," says the newspaper report from which we copy, but it is probably neither, but a weakened tree. It is said of Amsden's June, "It excels all in earliness, hardiness, size, flavor, and color. Mr. Amsden exhibited two specimens which were very ripe. They measured about six inches in circumference. Mr. John C. Teas had a number, but they were not so large."

The following is the account given of its origin:

This variety originated on the farm of Mr. L. C. Amsden, near this city, and possesses a combination of valuable points, unequaled, we believe, in any other fruit.

It is large, beautiful, excellent; and ripening fully three weeks before Hale's early, it is, without doubt, the earliest peach ever introduced.

In 1872 the original tree, an accidental seedling. then quite small, bore its first fruit, nine peaches, ripening June 28th to July 7th. Many hundreds of our citizens saw the fruit and a very lively interest was awakened. Buds were set on thrifty young trees on Mr. Amsden's farm, with unequaled earliness.

The past season, 1874) was a backward one, everything being a week or more behind its usual time. The Amsden was ripe July 3d; and some were kept till the 25th. Mr. A. gathered the last of his July 13th. Early Beatrice was ripe July 11th, to 22d. It is of good quality, but rather small, being only about half the size of the Amsden. Early Rivers ripened July 18th to August 1st. It is large and superb.

Then comes Hale. Although there had been a few ripening on some trees in favored spots, for about a week, yet the general crop on the trees was not so nearly ripe on the 1st of August as the Amsden in same soil, situation and exposure, was three weeks before. At that date the Amsden, Beatrice and Rivers were all gone—their season was past—while the Hale's Early trees hung full of unripe fruit;—nicely coloring, but entirely unfit to pick.

Fruit medium size; rather larger than Hale's; roundish, a little flattened;—with a slight suture. Color red, beautifully shaded and mottled very dark red, nearly covering the greenish white ground. Flesh white, or greenish white, rather firm until fully ripe, becoming tender, juicy, melting, sweet and delicious. Free, but the flesh adheres somewhat to the small stone. Fruit remarkably fragrant. Flowers large. Leaves with globose glands. Tree vigorous, hardy, and very productive.

NEW JERSEY STATE HORTICULTURAL SOCIETY.—This is a recent organization, with Prof. Geo. Thurber, as president, B. B. Hance, for corresponding, and Ezra Williams as recording secretary. It is rather Pomological than Horticultural,—and will hold its annual meetings in the leading fruit districts of the State in turn.

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.—*Fruiting of Double Peaches.* At a recent meeting, Mr. Meehan exhibited some branches of peach, in which the young fruit were in twos and threes from one flower. They were from the Chinese double flowering kind.

He remarked that, as well known, plants with double flowers were rarely fertile. Either the stamens were wholly changed to petals, or the less vital conditions which always accompanied this floral state, were unequal to the task of producing perfect pistils. Vitality however was more or less affected by external conditions independently of the mere structure of organs, and this was well illustrated by the remarkable fertility of the peach this season. Usually large numbers of fruits fell without "setting," as it is technically called by orchardists,—not because there was any defect in the organs of reproduction, but from lack of vital force to accomplish so much. This season many more had continued than had been known for many years,—and the prospect was for an immense crop of fruit. This abounding vitality had evidently extended to the double peaches, and had influenced the development of the female organs to an unusual extent.

The facts had an interest in botanical classification. The late Prof. Lindley had removed the cherry, plum, peach, and allies, from Rosaceæ chiefly because they had but a single free carpel; and had grouped them as Drupaceæ. The production of two and three carpels in this case, showed the true relation, and might be of use to those interested in "Theories of Descent."

ALTON (ILLS.) HORTICULTURAL SOCIETY.—*Tomatoes.* At a meeting in July, reported in the *Prairie Farmer*, Dr. Hull passed some severe strictures on their method of, and said it was strange that they had never learned anything about growing tomatoes. They make a great round hill and plant their tomatoes upon that. The result is, they cannot plow their tomatoes properly. They allow the plants to fall over and lie upon the ground. Dry weather sets in, and sun-scald and rot take nine-tenths of the crop.

The true method is to cultivate level, and stake and pinch the vines A given amount of tomatoes can be grown cheaper by staking than by this slovenly method. The doctor went into the explanation of the habits of the tomato to show the advantage to be gained by pinching the vines. A plant with axillary buds, like the tomato, can be put under control, and you can train it as you will If you rub out the bud, the plant has no power to replace it, and you can have fruit buds just as many and no more than you wish. This is the true method of growing the tomato.

Dr. Long wished to know if by this treatment the fruit would be earlier.

Dr. Hull—I have not sufficiently tested that matter to answer positively, but I have every reason to believe that this treatment will produce the earliest fruit.

BELGIAN INTERNATIONAL HORTICULTURAL EXHIBITION.—There is to be a grand exhibition in Belgium, next spring. Horticultural articles from other nations will be transported *free, both going and returning*, over all Belgium railroads and steamboat lines. This is giving an advantage to the foreign product, in a highly generous manner.

CRYSTAL PALACE SHOW, LONDON.—*The Gardener's Chronicle* says of roses: "The open class for twelve blooms of any single variety was a remarkably good one, the following varieties being staged in splendid condition:—La France, Marie Baumann, Marguerite de St. Amand (very sweet), Francois Michelon, Charles Lefebvre, Mdlle Marie Cointet (a rich flesh pink, shaded with rose, and reflexed somewhat like a Camellia—a very showy and grand new rose), Souvenir d'Elise, Baroness Rothchild, Baroness Adolphe de Rothchild, Marquise de Castellane, Madame Charles Wood, Beauty of Waltham, Horace Vernet, Marechal Niel, and Comtesse d'Oxford. Mr. H. Bennett was first with his Mdlle. Marie Cointet. Mr. B. R. Cant had an extra 1st, Mr. James Mobsby, Colwood House, near Cuckfield, being 2d, and R G. Baker extra 2d; Mr. G. Prince, 3d, and Turner extra 3d. Messrs. Paul & Son contributed the best collection of yellow Roses, and Mr. H. Bennett the best twelve trusses of any new Rose of 1873, the variety staged being Mademoiselle Marie Cointet. The best collection of twenty-four new Roses of 1872 and 1873 came from Messrs. Paul & Son; Mr. John Durbin, Englishcomb Rosery, Bath, 2d; and Mr John Keynes, 3 l. The leading varieties in this class were Emily Dupuy, John Bright, Madame Nachuary, Duchess of Edinburg, Cheshunt Hybrid, Princess Beatrice, Emily Laxton, Empress of India, Madame Lacharme, S. Reynold's Hole, La Souveraine, Madame Marius Cote, Francois Courtin, Captain Christy, Peach Blossom, and Duke of Connaught.

Several very promising new Seedling roses were staged under numbers by R. B. Postans, Esq., Brentwood; and Messrs. Paul & Son had Floral Certificates for seedlng roses Duke of Connaught and John Bright. Mr. Turner had a similar award for his Oxonian, and Mr. Laxton for Mrs. Laxton and Lady Isabel Cecil, a charming flower in the style of Marechal Niel.

The Gardener's Monthly,

DEVOTED TO

HORTICULTURE, ARBORICULTURE & RURAL AFFAIRS

EDITED BY THOMAS MEEHAN.

Old Series—Vol. XVII. OCTOBER, 1875. New Series—Vol. VIII. No. 10

Flower Garden and Pleasure Ground.

SEASONABLE HINTS.

We are now at a season when that which is uppermost in all our minds is planting.

Planting suggests arrangement; and how much that is novel might be said on this point! We have "Principles of Landscape Gardening," published continually. Such works are in every well ordered library. But true taste we seldom see. The fact is, true taste is a native tact. A lady might read about art all her life, and yet never arrange a tasteful bonnet; while one who knows nothing of the whys and wherefores will turn out the elegant thing at any time. If people were to try more what they could do with their little door yards and gardens, we should soon see some pretty styles. If only people could be made to understand how cheaply gardens could be made pretty, we should have millions of beauties, where we have now but a few score. The trouble is that so many think art and taste means expense. True it can be made to cost, but this is by no means essential.

In planting, for instance, if we have not money to spare to buy good nursery trees or plants, get them from the woods. They will grow as well, if they are more severely pruned than nursery trees. That is the whole secret. The Kalmia and other trees supposed to be hard to move from their native places, grow beautifully if one-half or two-thirds be cut away. If taken from a shaded wood it may also be necessary to shade a little gradually from hot sun. Rare trees will always of course please more than common things. Idealists may preach as they may. They may tell us that beauty is beauty wherever seen, and rail against foreign rarities, when there are things at home as pretty as they. But somehow familiarity breeds contempt; and beauty which is seldom seen is admired the the most. Granted that it should not be so, but yet so it is, and facts are what we deal with.

One great want of American gardening is good roads in winter. It is next to impossible to have them of gravel or other material without great expense. In many suburban places it is now customary not to spend much on foot paths, filling up with sand or any light material which will make good walking for ordinary weather, and to depend on board walks, or permanent paved ways for wet times.

Tender flower roots should not be left out too long.

Dahlias, Gladiolus, Tuberoses, and other plants that require winter protection for their roots in cellars, should be taken up at once on their leaves getting injured by the first white frosts. The two latter should be pretty well dried before storing away, for they may rot. Dahlias may be put away at once.

Chrysanthemums now in flower should have their names and colors rectified, against the time when in spring they may have to be replanted, when they can be re-arranged with accuracy and satisfaction, according to the owner's taste.

Few things are more valued in winter than a bunch of Sweet Violets. A few may now be potted, and they will flower in the window toward spring; or a small bed of them may be made in a frame, which should be protected by a mat from severe frost. To have Pansies flower

early and profusely in spring, they may be planted out in a frame, as recommended for the Violet.

Many kinds of hardy annuals flower much better next spring, when sown at this season of the year. A warm, rich border should be chosen, and the seed put in at once. Early in spring they must be transplanted to the desired position in the flower-border.

COMMUNICATIONS.

NOTES FROM GALVESTON, TEXAS.

BY W. FALCONER.

Shelter.—There is no kind of natural shelter whatever on the island and as garden crops cannot be grown without shelter on account of the fierce south and east winds that prevail, artificial breakwinds are resorted to. "Sea-Cedar" or Tamarix grows anywhere and is used a good deal near the beach, but unless well trimmed from its youth it is not sufficiently dense to be effectual. In the city it is reckoned too common and is not much used. In some cases it is planted on the windward side of an Oleander hedge, so that its sprayey branches growing higher than the Oleander afford good additional shelter. The farmers use it more than anything else, introducing wooden bars or rails amongst the stems so as to make it a secure fence as well as a breakwind. The Oleander is at present the best hedge or shelter plant on the island, as it propagates readily from cuttings, grows luxuriantly, and blooms freely, it is a favorite and greatly used. The Chickasaw plums are used by many farmers in the west of the Island. They are first planted in rows and allowed to sucker at will, till after a few years they form a belt from one to four yards wide, and being annually clipped, they become very dense, though not high, besides they yield a few fruits. I did not see a hedge of the "Wild Peach" (Prunus Caroliniensis) in Galveston, although it grows thriftily and is a favorite evergreen there, is a native of Texas, and a fine hedge plant, as may be seen at Houston and elsewhere in the State. Neither did I observe a Pyracantha hedge on the Island, still I am convinced that it would make as good, if not a better wind screen, and I am sure a better fence than the Oleander. I saw many plants of the Pyracantha that had become big trees and some as shrubs clipped into fancy shapes, and in every case they were vigorous and healthy. The Cherokee rose abounds throughout the Island, particularly on the edge banks of fields, where they often form a sort of hedge, but they are not planted so much for that use in Galveston as I have seen them elsewhere in Texas.

Fruit Trees.—Owing to soil and other causes Galveston is not a favorable locality for fruit trees excepting for Orange or Mulberry trees. In some cases the Orange trees are flourishing indeed, and in others they look miserable. A great many are raised from seed on the Island, and there is annually a large importation from Louisiana and other Gulf States. Three years ago young Orange trees four to six feet high, sold readily for three dollars apiece, whereas one dollar is the usual price. In about five years after being planted out they begin to bear, and afterwards they bear regularly and heavily. Sometimes they suffer from frost, when by pruning them back to the living wood, they soon recruit themselves. They are favorite shade trees, and being evergreen and floriferous in March and fruitful in fall, all Galvestonians who have a garden have orange trees. Raising them from seed on the spot where they are to remain permanently, is often practiced and disappointment as often the result.

A good instance of this was shown to me by Mr. Thos. Cordrey, in the case of an Orange tree he had raised from a seed in his garden and never transplanted. It grew quite thriftily for a couple of years, when it began to look somewhat sickly; he trimmed it and coaxed it with fresh earth, but still it did not improve, and at the end of the fifth year he rooted it up and found that the taproot had reached down into the salt earth, and had twisted round and round just like a cork-screw, or a rope-coil, wishing, as it were, to go down, but being unable. This Mr. Cordrey says, is quite common, and unless the trees are transplanted or have their taproot cut there is little hope of their ever being of much account. Lemons in some seasons do well, but owing to their liability to be cut down with frost they are an uncertain crop. Mrs. Bentrick had as fine Lemon trees as I saw on the Island; and fruit from them in 1870 took the silver medal at the State Fair at Houston.

Perhaps nowhere in Texas are Figs finer than in Galveston. They have little sugar figs, big brown fig, and large and small green figs. There is a fig orchard on West Broadway, and fig trees in almost every garden. The salt soil does not seem to hurt them, but they sometimes suffer from the winds and drop their first crop; as a rule, however, they are very certain and profitable croppers. Mulberries are here, there, and everywhere, and are kept more for shade than for fruit. So fruitful are they that in April last I saw the ground underneath the trees covered an inch in thickness with fallen ripe fruit. Gathering and marketing them might pay, but I don't think it is much done. In a German's garden on West Avenue K., I saw a mulberry tree with fruit as large and as black as Kittatinny blackberries; indeed I never saw finer. There are some poor enough varieties amongst them however. There is a prejudice against peach trees in Galveston; in fact, most of the people I spoke to about them, tell me that they have often planted the seed and they would come up and grow beautifully for a year or two and then die off. This is quite true, but Mr. Smith, a jobbing and market gardener, tells me that the peach is so impatient of salt earth and water that immediately the taproot gets down to the same, decay begins, and death soon follows. Properly transplanted trees the roots of which are kept near the surface by annual sprinklings of fresh compost or summer mulchings of manure, he says will give good satisfaction and the early peaches will be the most profitable fruit grown. Some of the farmers in the west of the Island have a few fine peach trees five to ten years old, but they complain of not having the fruit early enough to compete with imported peaches, and the remedy is simple enough, let them plant good early named sorts, in preference to seedlings when they will gain a year in time and have earliness and good quality to a certainty. I did not see a good fruiting pear tree from one end of Galveston to the other, but I saw several small ones, some newly planted, and others that had fruited a few times; but against pears and apples, there is a greater prejudice than in the case of peaches, and when it comes to apricots or cherries, nobody tries them. People from all the States in the Union and from many foreign countries besides, have located in Galveston within the past few years and many of them entertain the idea that there is a good future for peaches, pears and plums on the Island. Plums in some cases do admirably, particularly native sorts, and some have a variety of plums which they described to me as being, some yellow, others purple, others reddish, some greenish, and so on, but as I did not see them in ripe fruit, I cannot name them. The people, as a rule, however regard plums rather favorably.

Strawberries.—These are grown in many gardens more or less, and are regarded by some as a satisfactory crop and by others as a failure, and the results as regards culture are in direct confirmation of this opinion. The finest patch I saw was in Mr. Crawford's garden on Avenue L, where was a small patch of Chas. Downing, from which Mrs. C. gathered whilst I was there (April 21st) quite a large dish of ripe fruit that would have done credit to a New Jersey garden. Mr. C. tells me that out of many sorts he has tried, he finds none to do so well as Chas. Downing. He accounts for the failures of his neighbors in starving their plants, and allowing them to be burned out in summer. In a sheltered, and if practicable, a partially shaded corner of the garden where the soil is rich and level, and there is good means of giving a soaking of water now and again during a very dry summer, Mr. C. says the strawberry can be grown as well at Galveston as any where else. Two more points he considers of vital importance, viz., a mulching in summer, and to renew the plantation every second year. Galveston Strawberries ripen early in April, and continue till May, and a fair example of the young fruit now grown may be seen in the fruiterers stores, but that is no criterion of what *may* be grown.

LAWN GRASS.

BY DR. W. F. CHANNING, PROVIDENCE, R. I.

In a recent number of the *Gardener's Monthly*, you raised the question of what was the best lawn grass. We, many of us here, think the Rhode Island Bent grass, pure and simple, superior to any other. It is a very fine grass, and forces its root-stalks under ground like the "Couch Grass," (Triticum repens). From the net work of underground stalks the Bent sends up a multitude of spikes and forms a dense sod in a short time. I have a single curious experience, in connection with Bent grass, which may go for what it is worth. I had a sodded bank on which the *Triticum repens* had intruded, killing out the other grass. I planted Bent grass seed for two seasons among the "Couch grass" with the apparent effect of replacing and killing out the latter. Any fine grass which will hold its own against the *Triticum repens* deserves encouragement. The Bent grass is very beautiful in all its stages and was perfectly hardy here last winter.

The Army worm in Southern Rhode Island,

in the latter part of July, passed over the grass fields, leaving them seared as if by fire. Where they struck upon the short grass of the pastures or lawns it was curious to see how carefully they left the clover and weeds, while they devoured every spear of grass.

EDITORIAL NOTES.

WESTERN MAPLES.—Dr. Vasey, in Department of Agriculture report says: "The Rocky-Mountain or currant maple, *Acer glabrum*, Torr., *Acer tripartium*, Nutt. This is a small bushy maple, growing from four to ten feet high, first occurring in the mountains of Colorado, thence extending southward to New Mexico and Arizona, and westward to Nevada and California. It has small, smooth, roundish, three-lobed or three-parted leaves, somewhat resembling those of a currant. It generally produces an abundance of fruit, which is about the size of that of the red maple. It would make quite an ornamental shrub, and is deserving of cultivation.

The large-toothed maple, *Acer grandidentatum*. This species is found in the mountains of Nevada, thence extending northward to Oregon. It is a small tree, of slim growth, commonly twenty feet high, but sometimes attaining a height of thirty or forty feet, and one foot diameter of trunk. The leaves are similar in shape to those of the hard maple, but smaller and usually somewhat downy even when old. The fruit is of medium size, with broad and somewhat spreading wings.

The round-leaved maple, *Acer circinatum*. This tree is common in the forests of Oregon and Northern California. It does not have the upright growth of other maples, but grows in clumps, several trunks springing from one root, and spreading out in a broad curve, the long, slender branches often arching to the ground, where they take root, and form tangled clumps which offer serious impediment to travel in the woods in which they occur. It seldom attains a greater diameter of trunk than five or six inches, and a height of from fifteen to forty feet. The wood is hard, heavy, and fine-grained. The leaves have about seven principal ribs, spreading out fan-like from the base to the circumference, united together more than half way, and terminating in about seven narrow lobes.

The great-leaved maple, *Acer macrophyllum*. This is a native of California and Oregon. In the latter State it appears to attain its greatest magnitude, reaching, according to Nuttall, a height of fifty to ninety feet and a circumference of trunk of eight to sixteen feet. Like the sugar-maple, it abounds in the sugary sap, which, however, has not been utilized. Its wood is close-grained, hard, and shows freely those peculiar undulations of the grain which are called curled and bird's-eye maple. The leaves are large, not unfrequently a foot long, and deeply palmately five-lobed. The flowers are rather conspicuous, of a yellowish color, in drooping racemes, and somewhat fragrant. When in bloom it presents a very attractive appearance. The fruit or seed-carpels are larger than those of any other American maple, and are covered even when ripe with strong, stiff hairs, and hang late upon the tree in conspicuous drooping racemes. This species has been introduced into England, and there makes a fine ornamental tree. It is a pity that it is so little known in this portion of the United States."

[We suspect that it is better known than Dr. V. thinks; we know one nursery at least, that has sold hundreds of them every year for some years past.—ED. G. M.]

THE SILVER THORN.—The Silver Thorn, known to botanists as Eleagnus parvifolius has been tested at the North as a hedge-plant, and great hopes are entertained of its future usefulness for this purpose. We understand that it has been planted quite extensively at various places in the South with equally gratifying success, especially in portions of Louisiana. It is not furnished with thorns as in the Osage Orange, but the terminal point of each shoot is sharp, and at maturity becomes as hard as a bone; the trimming process tends materially to increase the number of small twigs, each one of which is usually armed so that no animal appears willing to come into close quarters with an old hedge.

The plant has many good qualities to recommend it, such as hardiness, beauty of foliage, immunity from blight and other forms of disease, as well as freedom from injurious insects, so far. Persons desiring to grow it themselves should put out a few young trees for fruiting purposes, as it seeds freely, and the berries, by the way, are exceedingly ornamental as well as the foliage.—J. HOOPES, in *Horticulturist*.

NEW PLANTS.

WEEPING DOGWOOD.—We have seen a plant of the Weeping Dogwood, Cornus Florida, referred to by one of our advertisers, and can say that it is one of the most charming things we ever beheld. The branchlets are completely pendulous, and yet the leader manages to go straight up, so that it can be made very handsome as a specimen, even when worked low. In flower and fruit it must be a striking object,—and then its dark leaves in fall would be as beautiful as the purple Beech in spring. It is unusual for a discoverer to offer the plant in this way. We suppose some amateur lover of rare trees will secure it; but perhaps good offers will come from some in the trade, who will be proud to be among the first to introduce so good a thing.

ROSA RUGOSA (REGELIANA).—This attractive plant has been introduced from Japan. It is of neat compact bushy growth; the foliage is of a bright green above, and whitish and slightly tomentose underneath. The flowers, which are freely produced in large terminal clusters, are about three inches in diameter, and are composed of five petals, which are of a most beautiful bright rosy crimson color. The flowers are succeeded by berries, which are of a large size and of a rich rosy red color, and are a great addition to the ornamental character of the plant, rendering it exceedingly effective.—*W. Bull.*

SILENE BOLANDERI.—*Silene Bolanderi* is one of the prettiest wild flowers the tourist will meet in his travels. The flowers are of the most delicate pink color imaginable. When we first saw them in bloom while driving along rapidly in the stage, our first impression was that we had found a new Lychnis, after the style of the best cultivated sorts, like Haageana; then we thought it must be a Japan Pink, somewhat after the style of D. laciniatus. To settle this question, we stopped the stage with a good cigar, until we had time to select specimens. Dr. Kellogg informs us that it was only recently discovered, and first described in a monthly journal of San Francisco, called "*The Living Way*." As the Doctor observes, it is a match for the finest Japanese Pinks that have had ages of labor bestowed on them.—*James Vick.*

GLADIOLUS CRUENTUS.—A very beautiful species, introduced from Natal. It produces a tall scape, terminating in a distichous spike of large broadly-companulate subringent flowers of a bright blood red color, the upper segments uniformly colored, and the lower smaller ones crimson at the base and scarlet at the apex. The two lateral segments of the lower lip are marbled about half way down with a white zone dotted with crimson, which on the exterior edge runs out into a long point, like the flame of the florists' Tulip. This distinct species has been figured both in the *Botanical Magazine* and in the *Florist and Pomologist*.

MACKAYA BELLA.—This most beautiful Acanthaceous plant is a native of the bed of the Tongat river, Natal. It is a tall, slender, nearly glabrous shrub, with virgate branches. The flowers have a pale lilac corolla, nearly two inches long, the throat ornamented with most delicately penciled reticulated purple veins, tubular below, campanulate upwards, with a deeply five-lobed spreading limb. The plant is very floriferous, and when in full bloom, appears a mass of most delicate, pendant, campanulate flowers. This charming plant has been figured in the *Botanical Magazine*, tab. 5797.—*W. Bull.*

QUERIES.

ELM SLUG.—*A Delaware County correspondent* asks:—"Several of my English Elms, very fine trees and over 25 years planted, have this summer and last, been ruined in appearance by having their foliage destroyed by some pernicious insect—the leaves are perforated, turn brown, and fall in large quantities, leaving but unsightly skeletons of branches. Is there any remedy for this affliction or must the axe be applied to the root?"

[We do not know of any *practical* remedy for the Elm Slug,—and shall be very glad if any of our readers have met with anything effectual in their experience. The Elm is too beautiful a tree to give up without an effort. The ravages of the slug render the tree very unsightly. They do not seem however to injure the tree materially; though we suppose the injury will tell in the long run.—ED. G. M.]

HARDINESS OF PRIMULA JAPONICA.—*Mr. Meston, Andover, Massachusetts*, writes: "Would you kindly inform me through the *Gardener's Monthly* or other ways, whether Primula Japonica has proved hardy throughout the Northern

States? My reason for asking is, I have four plants that stood out all last winter with no other protection than an old apple tree they grew under the previous summer. I would feel greatly obliged if you would let me know if it has proved so elsewhere."

[It has been understood that Primula Japonica is hardy in this climate,—but Mr. Meston's experience is direct to the point.—Ed. G. M.]

The Blooming Widow.—Will some of our readers who are opposed to the use of Latin names for flowers, please interpret the following for us. A Florida correspondent tells us about it, and this is all she knows:

"*The Blooming Widow.* This is the most gorgeous plant in early spring that we have. It is a Willow with crape leaves, covered with golden balls in spring."

Cure for Poisoning from Rhus radicans.—A large number of our readers have suffered from the virulent Poison Ivy. A correspondent tells us that an infusion of the common Jewel weed (Impatiens fulva) is a speady cure. So many of these "cures" are imaginary that we should hesitate to offer this,—only that our friend is one of our leading lawyers, and understands as well as any one the "value of evidence."

Cissus indivisa.—*C. P., Beaver Dam, Wis.*, writes: "I send you by this mail specimen of a vine for name. It is growing in a ten inch pot trained up the pillars of the portico on the south front of my house and has grown ten feet or more since June first. It is a strong grower, and the foliage forms a pleasing contrast with the dark colored foliage of the Ivy trained to the opposite pillar. Please give name of plant in the *Gardener's Monthly* and oblige."

Trees for the Sea-Shore.—An "old subscriber" writes:—"I have a small place at Cape May, about two acres, situated about one mile from the ocean. I want to convert this into a country seat at the Sea-side. I want to plant shade trees and a hedge and every thing that will beautify the place, and as I am very green about such matters, and especially about what will do well in that exposed and salty place, I have made up my mind to ask you to tell me in the *Monthly*, if it will not take too much valuable time and space. My place is 300 by 200 feet and I would like to plant a hedge that would grow as speadily as possible and be strong enough in a few years to answer every purpose of a fence. I want to plant good shade trees all round the place. I want to divide the house yard from the truck patch by a hedge of rose bushes and some other flowering plants and to plant vines and runners all around the house and out buildings and to make beds of flowering plants. Now what I want to know is what kind to plant, how far apart to plant them, and any thing else you will be kind enough to tell me, when to plant, &c."

[There was a time when we supposed it would be necessary to be very select in making a list of trees for the Sea-side,—but an examination of both Atlantic City and Cape May the past year or two shows us that any thing that grows inland, will do in these places, provided a few hardy things first breaks the heaviest of the wintry wind, --or if even the force is broken by buildings,—or if the trees are set thick enough to help one another a little in a stiff storm. At Atlantic City the past season especially, it was a surprise to note the large list of trees that were thriving in the greatest luxuriance, and large enough to shade the dwelling houses. Indeed Atlantic City is better off in this respect than many an inland town. Most of these it is true were of numerous species of willows and poplars; but here and there were maples and other trees among them, doing equally as well, and showing that one's list of varieties is to be limited by little but one's desires. We have no doubt it will be found the same at Cape May, though we remember nothing but Silver Poplar and Ailanthuses in the town itself,—but in the country about the town, oaks of various kinds grow freely, and a large number of other kinds of trees.

It is the same of ornamental vines as of trees. At Atlantic City the past year we noted the Bignonia grandiflora of considerable age, covered with flowers, and if *this* will do so well, there is no reason why any other of the ordinary vines of nursery catalogues will not do also, and at Cape May.

We suppose cattle do not run at large in Cape May, and if so the Siberian Arborvitæ will make an admirable hedge. The common American is the next best,—but is not so hardy or so beautiful.—Ed. G. M.]

Budding the Lilac.—*E. S., San Jose, Cal.*, writes: "It may interest your correspondent M., New York, to know that if the Lilac is budded on the common Privet (Ligustrum vulgare) it makes a much more compact growth, and is also less liable to sucker, than when grown on its own roots.

If budded in September, and treated in the following spring the same as any other budded tree or shrub, there will be very little farther trouble. I have seen several varieties tried in this way, which were growing side by side with those on their own roots, and the difference was very marked, decidedly in favor of the budded ones."

Greenhouse and House Gardening.

SEASONABLE HINTS.

Bulbs for flowering in pots should be placed at once. Four or five inch pots are suitable. One Hyacinth and about three Tulips are sufficient for each. After potting, plunge the pots over their rims in sand under the greenhouse stage, letting them remain there until they have become well filled with roots, before bringing them on to the shelves to force.

For room culture they are more commonly grown in glasses with water. After being set in the glasses, place in a closet or other dark place until the roots push well into the water before bringing them to the light to bloom. Towards spring many annuals come into good use. For windows they have already been sown,—but in greenhouses they can be put in now. Of the best of these are many old fashioned things. We cannot do without the Mignonette and sweet

Alyssium. Many of the Californian annuals are capital things for this purpose, and none more so than the pretty blue Nemophila, and the Collinsia bicolor. This last is one of our favorites for spring blooming, and we are surprised how few know of it, though now so old. The annexed cut will give some idea of it.

The Drummond Phlox should also be sown for this purpose.

EDITORIAL NOTES.

Hybrid Gloriosa.—Mr. Wilder has succeeded in crossing the Gloriosa with the Japan Lily. It is now in bloom, and is creating great interest. It is so rare that genera supposed to be so distinct, have been brought together this way, that the event will be quite an interesting one to science as well as to cultivators.

Cut Flowers in San Francisco.—*The California Horticulturist* says: "During the holidays, our florists had their hands full, the demand for flowers having been in excess of the supply. Probably $15,000 were paid for cut-flowers, bouquets, and floral decorations, which is a large amount for a city with less than 200,000 inhabitants. The bulk of the flowers used were Roses, Pinks, Stocks, Candy-tuft, Sweet Alyssum, Violets, Stevia, Gladiolus, Pelargoniums, Fuchsias, Pansies, Laurustinus, Diosma, Erica, Mignonette, Gypsophila, and Abutilon, all of which were grown in the open ground. The choice and more costly flowers from the greenhouses were, Camellias, Eucharis, Tuberoses, Epiphyllums, Agapanthus, Azalea, Heliotrope (also from the open ground), Spanish Jasmine, Cyclamen, Poinsettia, Chinese Primrose, Begonia, Cineraria, Orange-blossoms, and *Adiantum cuneatum*. The price for Camellia bouquets during the holidays was from $2.50 to $5, and for baskets of flowers, from $5 to $30, which is from thirty to forty per cent. higher than the prices usually paid.

This goes far to show that the people of San Francisco do love flowers, and are willing to pay their money for them. I believe I am correct when I state that the people of such cities as Chicago and St. Louis expend much less for this purpose. At the same time it is well known that our florists furnish much more for the same amount of money than the florists of the Eastern cities are in the habit of doing during the winter season. This is mostly due to the large expense in-

curred there in cultivating all the flowering plants, under glass by artificial heat, at this time.

During the coming month Hyacinths and the Lily of the Valley will be in bloom, and continue to flower for several months in the house or under glass ; Cyclamen, Camellias, Eucharis, Azaleas, Epiphyllums, Bouvardias, Heliotropes, and many other choice house-plants will furnish their quota of flowers.

ADIANTUM FARLEYENSE FROM SPORES.—I have always understood that this Adiantum would not produce "seed," but a number of seedlings have come up with me in a pot in which a plant of this Maiden-hair Fern is growing. I am much interested in the matter, and will feel greatly obliged by some of your correspondents informing me whether or not this is a rare occurrence.—F. L. BARNES, *The Croft, Walton-on Thames.—The Garden.*

CUT FLOWERS AT A LONDON SHOW.—The *Gardener's Chronicle* says : "The arrangements of cut flowers generally were scarcely equal to those seen at previous shows, except in bouquets for the hand (in which improvements were apparent in size, grouping of colors, and making up) ; the first prize fell to R. Biggs, Esq., of Lewisham, for a bouquet of mixed colors ; and an extra prize was awarded to Mr. Noble, gardener to Mrs. Betts, for a pleasing mixture of Stephanotis and white Rose buds with forget-me-not, which, however, would have taxed the grasping powers of any lady who had not been blessed with a very large hand. The vases of cut flowers were much too crowded, and the colors were not well arranged ; in the two winning vases there were flowers enough to have filled five or six such vases, if a due proportion of foliage had been provided. Miss Mahony was first, and Miss A. M. Lovibond was second, for the best arrangement of three bottonhole bouquets. In table decorations the first prize went to Miss Lovibond, and the second to Mrs. T. R. Watts. The following was the arrangement on the first prize table :—The centre was a tall trumpet vase, with two dishes, one above the other. Cissus discolor twined up the stem to the top, which was nicely arranged with grasses and a double Fuchsia with red sepals and white petals ; on the upper of the two dishes were scarlet Pelargonium and white Begonia, and in the lower dish three large white Cactus blooms with scarlet Pelargoniums, the whole judiciously intermixed with Maiden-hair. The end vases were also trumpet-shaped, in a dish of scarlet and white Pelargoniums and Maiden-hair, and at the top were Fuchsias, with long white tubes and sepals and rosy petals.

TROPÆOLUMS.—I looked in some time since at Mrs. Benham's, Brentford End, Isleworth, where Mr. Porter, the raiser of so many good Tropæolums, is gardener, just to take stock of his seedlings of the present year. I find he grows them largely in all sorts of places, and especially in and around shrubberies, where they make a brave show. Mr. Porter has a true, and in his best seedlings a really refined Lobbianum strain, with small rounded and well bearded flowers thrown well up from the foliage. He is also securing in them much more substance than is commonly found in the Tropæolum, and consequently they are not so liable to be suddenly frizzled up when a warm sun prevails. Of colors I find the principal ones to be yellow, crimson, and scarlet, with variations of each, some of the scarlets being intensely deep and rich, whilst others are pale. Yellows vary both in shade of color and in color of blotches, which are red maroon and crimson, and vary also in density. It is a singular thing that the golden King of Tom Thumbs, the most indifferent form of a yellow Tropæolum sent out, is the only yellow kind without a blotch. Mr. Porter and other raisers have yet something to do to give us first-class yellow Tropæolums that are pure selfs. The crimson shades are very effective, some being nearly black. The whole collection includes a capital variety.

The best uses to which to put the Lobbianums, I take to be, first, greenhouse decoration in pots, and second, as climbers in the open ground in the summer. Mr. Porter uses them with great effect trained over dense growing shrubs, such as the Holly, Portugal Laurel, Rhododendron, &c., and shrubberies or beds composed of these are greatly enlivened and beautified in the summer, after their own bloom has fallen, by these trailers being carried over them. After one or two years' growth in this way self-sown seedlings will keep the shrubberies gay. For pot-work a constant supply of easily struck cuttings is best, and well established plants often flower very profusely if kept in a little warmth through the winter, and are most acceptable to cut from.—*A. D.*, in *Gardener's Chronicle.*

A STAND OF FLOWERS.—A pretty stand of flowers for the adornment of the dinner table can be arranged at this season with the following flowers which are obtainable, selecting as a stand the Marchain form of Vase :—Round the edge of the lower tazza I should place a fringe of mixed varieties of Fern fronds, with a few silver ones so placed as to show the meal on the back of the fronds ; the tazza I should fill with Arum bloom, Scarlet Pelargoniums, White Epacrises, and Maiden-hair Fern ; drooping round the edge of the upper tazza I should place fronds of Maiden-hair and Pteris serrulata, in the tazza White Primulas, Scarlet Pelargoniums, Roman Hyacinths, and a few light Maiden-hair fronds to wave over the flowers. In the trumpet I should form a plume of White Cyclamen, Roman Hyacinths, Epacrises and Scarlet Geraniums, with fronds of Maiden-hair drooping round the mouth, down from which might also fall three or four long sprays of Lygodium scandens. If some spikes of Cyperus alternifolius be obtainable a few might be placed in the lower tazza with excellent effect. If this stand be not deemed a sufficient decoration it can be added to by placing some specimen glasses grouped round it, each containing a small bouquet, the colors of which would harmonize well those in the centre piece. Upper Norwood, A. HASSARD.—*Gardener's Record.*

MANAGEMENT OF SOFT-WOODED PLANTS.—To have such things as Primulas and Cyclamens in flower during the winter season, a temperature rather higher than that required for the ordinary stock of greenhouse plants will be necessary ; and these things, therefore, should be placed at the end nearest the boiler, and the ventilators opposite them kept closed, for the air admitted at the other end of the house will suffice for them. On the other hand, such things as Cinerarias and Calceolarias, which do much better in a temperature comparatively cool and moist, should be placed in the coldest end of the house, and at a moderate distance from the hot-water pipes, so as to avoid their being subjected to the drying influences of the artificial heat. They should also be exposed as little as possible to cold currents of air. If mildew breaks out upon any of these plants, dust the foliage at once with good flowers of sulphur ; for there is nothing to surpass sulphur as an antidote to mildew, which at this season of the year will soon do a considerable amount of injury to the plants. The plants should also be examined frequently, and all dead and decaying leaves carefully removed before they are able to contaminate the healthy foliage.

NEW PLANTS.

CAMELLIA, MRS. GENERAL LEE.—The Maryland Horticultural Society offered a handsome premium last winter for the best seedling Camellia This was awarded to Mr. John Feast for the beautiful variety named as above. Baltimore has been celebrated in the past for its attention to Camellia raising, and it is pleasant to find her yet dusting her laurels.

ANOTHER LARGE WATER LILY.—It is reported that M. von Hulle, of Ghent, has recently received seeds of a Paraguayan Water Lily, which is said to eclipse the Victoria regia.

ANTIARIS TOXICARIA.—The Upas tree of Java, the milky juice of which is an acrid poison. It is an erect-stemmed woody plant of tree-like habit, with spreading branches, bearing oblong pointed hairy leaves, and inconspicuous flowers. The great interest of the plant centres in its undoubted virulence, notwithstanding that the tales of its being poisonous to animals which approach, or birds which fly over it, have been greatly exaggerated, the truth being that it inhabits pestiferous valleys, where the atmosphere is loaded with carbonic acid, to which the deadly effects which have been observed, are mainly due. It has been introduced some twenty or thirty years, but it is still an uncommon plant.

ADANSONIA DIGITATA.—This is the famous African Baobab tree, called also "the tree of a thousand years," it being at one time considered as the oldest organic monument of our planet, a calculation having been made that one found by the traveler Adanson, after whom the genus is named, was upwards of 5,000 years old. It grows to be a large tree, with deciduous leaves, somewhat like those of the Horse Chestnut, and large white flowers. In the young state the pinnate leaves stand out on longish spreading petioles, and have sinuated lobes, which are tomentose on the veins of the under surface.

STEUDNERA DISCOLOR.—An ornamental-leaved stove Arad. The stem is short, thick, and fleshy. the petioles long, green, and terete ; the leaf-blades oblong-ovate, peltate, and acuminate. of a glossy green beneath, and above marked between the primary veins with a series of broad dull brownish purple blotches similar to those which occur on the leaves of *Alocasia*

Jenningsii, while the veins are scarcely at all raised, except the primary ones, which are prominent; the spathe is short, ovate, acute, yellow on both surfaces, with the base of a reddish purple color. This plant was imported by Mr. W. B., from India.—*W. Bull.*

ECHEVERIA ABYSSINICA.—This succulent, of branching shrubby habit, was brought from Abyssinia by Major Leveson at the time of the Abyssinian war. The plant has the habit of some of the large-leaved shrubby Sempervivums, but being described by my correspondent as bearing red flowers, it has been doubtfully referred to Echeveria, with which it sufficiently accords in habit. The stems are as think as one's finger, and terminate in flattened rosulate heads of spathulate acute leaves, three to four inches long, of a pale glossy green color, and finely ciliated at the margin. The plants form a branched conical mass a foot and a half high, and as much through, and will be a welcome addition amongst succulects.—*W. Bull.*

ADIANTUM SEEMANNI.—Though not a new name amongst our garden Ferns this is in reality a new garden Fern, and is described by Mr. Moore, in the *Gardener's Chronicle* of March 27, 1875, (page 396), as "a noble species of the Maiden-hair Fern, for which we are indebted to Messrs. Veitch & Sons, who gave us fronds from their specimen plant which are fully two feet long, with fertile pinnæ, three inches long and two inches broad at the base, while some of the sterile pinnæ are nearly four inches long and two and a half inches broad. They have a comparatively slender glossy black stripe, bare at the lower part, and bearing towards the top from four to eight of the magnificent pinnæ already noted, which are attached by a slender petiole an inch long.'' It received a Certificate at the Royal Botanic Society's Fete in June, 1874, under the name of A Zahnii, but the above has been proved to be identical with the Maiden-hair described by Sir W. Hooper, so long since as 1851, as A. Seemanni, the plant previously sold under this name being A. Wilsoni.

A NEW PLANT FOR TABLE DECORATION.—Amaranthus Henderi stands in the first rank of plants for this purpose. We have seen plants of it two feet high, with about thirty or forty shoots, forming perfect pyramids eighteen inches across at the bottom. Some grow from three to four feet high. The prevailing color of this variety is intense rosy-carmine, a fact that may be readily understood when it is stated that Armaranthus elegantissimus was one of its parents. It is stated at p. 262 to have been a seedling of Messrs. Lamoureux's; that is a mistake; it was raised by Messrs. Hender, whose name it bears, at the Bedford Nursery, Plymouth.—*The Garden.*

STENOSPERMATIUM WALLISII.—Under the provisional name of Spathiphyllum Wallisii Messrs. Veitch have lately exhibited one of the most remarkable and beautiful stove Aroids known to us, and which was introduced from Columbia by Mr. Wallis. It is, we believe, new alike to science and to garden, and forms a new member of a genus including only three or four species, from Peru, Columbia, and the Amazon district. As a decorative plant its points are, its Cordyline-like habit, thick rich green leaves, and more especially its slender, whip-like, erect peduncles, bent over at the top, and bearing a nodding spathe of ivory-white color, like an open shell, and with an oblong spadix, which bears the same relation to the spathe that the clapper does to a bell.—*Gardener's Chronicle.*

HIBISCUS (ROSA SINENSIS) KERMESINUS.—A grand flowering stove plant, with the foliage and general habit of other varieties of this extremely ornamental species. The flowers are large and showy, full double, the petals broad, rounded, and undulated, the three or four outer series reflexed, the central ones erect, the innermost consisting of the transformed column developed into numerous petaliferous lobes bearing stamens on their margins. The color is a fine rich carmine crimson. The plant has been imported from the South Sea Islands.—*W. Bull.*

MEDINILLA AMABILIS.—A remarkably showy stove plant, introduced from Java, and having the general habit of *M. magnifica*, but with erect pyramidal panicles of large rosy peach flowers. The stem is quadrangular, the angles being furnished with a narrow undulated wing; and the leaves are opposite, sessile, oblong-obovate, obtuse with a short acuminate point, a foot long, and seven to eight inches broad. The flowers grow in large panicles, which are erect, and composed of four-branched whorls, the branches each forming a cyme of numerous rosy pink flowers, which measure two inches across,

the unexpanded buds being of the same delicate pink color, and having a waxy appearance. A grand stove plant of the flowering sub-division.—*W. Bull.*

POINSETTIA PULCHERRIMA ROSEO-CARMINATA.—This fine variety of one of the must useful of winter decorative plants resembles the type form of *P. pulcherrima*, so far as regards growth and foliage, the difference consisting in the color of the fine-spreading head of bracts which are larger, smooth, and of a brilliant rosy carmine hue. In the specimen from which these notes are drawn up, the crown of colored bracts measured fifteen inches across; the inflorescence first branched trichotomously, and then each of these branches were forked. The number of bracts displayed on these six ramifications was forty-five, all perfect in form, and pure in coloring, the larger ones measuring seven inches in length, and upwards of two inches in breadth. The bracts are much smoother and flatter than in the old form, and spread out so as to form a fuller and more regular crown.—*W. Bull.*

QUERIES.

FORCING LILIUM CANDIDUM.—*Mrs. S. E. P., St. Joseph, Mich.*, writes: "What treatment does Lilium candidum require for winter forcing? Reply through columns of *Monthly.*"

[The best white lilies we ever saw forced were by Mr. Strong, at Brighton, Mass. These were grown in natural beds of terraced earth, in his hill side houses. We fancy they would do well in large pots or boxes of earth, grown one year in them before forcing. They seldom do much good forced the same year they are potted. In this connection, has any one had any experience in winter flowering the gorgeous gold banded lily of Japan?

Most persons have seen it by this time. The cut will assist those who have not.—ED. G. M.]

Fruit and Vegetable Gardening.

SEASONABLE HINTS.

The past season in many places of the East has been one of very abundant bearing, and unless the food has been kept up by a liberal supply of manure, there will be many weak and exhausted trees, and short crops next season. We prefer to manure in such cases as these in midsummer. The cells of trees are like honey combs, and store up matter for use the next season. They have of course to do this while growing. Whenever this has not been done, matter for a surface dressing should be got ready during autumn and winter. Much injury has been done to fruit culture by the expressed dread some cultivators have of a "too rank growth," and a consequent advice not to manure. A fruit tree never suffers from too much manure, if the roots are healthy. If a tree seems to suffer after a heavy manuring, it is only that it was in a bad way before this. Of course, if one were to empty a cesspool, a cart load of fresh lime, or some other inordinate mass of food under a tree, it would suffer; but our meaning is that no amount of manure that would be found of benefit to any regular garden, will be otherwise than beneficial to a fruit tree, *if the roots be healthy.*

Lettuces sown last month will now be large enough to set out for permanent growth. A common hot-bed frame, set on a bed of leaves or

spent stable manure, will enable one to enjoy delicious salad all through the latter part of winter, where sufficient protection against severe frosts can be secured. In this division of our hints, it is more of an object to preserve them through the winter for the purpose of setting out in the open air in spring. In the States this can be readily effected by their being set out in the open air in a sheltered place. Here in Pennsylvania they often do very well by having the ground thrown into ridges about six inches deep, running east and west, and the plants set out on the northern sides. They have a little straw thrown over them in severe weather, and get through the winter admirably, heading early in spring. The Early York Cabbage is extensively grown the same way. Where the climate is too severe to allow of this, they must be put under cover of shutters, as before described in our hints.

Cabbages can be preserved in such a celler, though most prefer them in the open air. One way is to pack them closely together with their roots uppermost, and then cover them with soil, on which straw or litter is thrown to keep them from freezing. By being packed this way, the water cannot get into the hearts, which is one of the chief causes of their rotting. Where plenty of boards can be had, they may be packed with their heads uppermost, and the rain kept off by the material.

Brocoli and Endive may be taken up with balls of earth, and set in cool cellars closely together, and they will grow sufficiently—the former to produce good head, and the latter to blanch beautifully all through the winter.

Asparagus beds should be cleaned, by having the old stems cut off and the soils from the alley ways dug out and thrown over beds. It keeps the frost from the roots, and thus permits them to grow and lay up matter all winter for next spring's growth. Very early in spring the soil should be raked back into the alleys, so as to leave the roots but a few inches under the soil, as the nearer they are then to the sun's rays the earlier will the crop be.

Celery must have continued attention to prevent the soil from entering the heart. Where very fine results are desired, the plants should be protected from early severe frosts, so as to enable the plants to grow without injury as long as possible.

Roots of most kinds, such as Carrots, Beets, etc., should be taken up before the frost is severe. They all keep best packed in sand in the open air, but it is too inconvenient to get at them in winter; hence cellars are employed to preserve them in. Cellars for this purpose should be cool say with a temperature of about 45°, and not all dry. It is not meant that it should be damp, as the roots will become rotton, but it must be moist enough to prevent shriveling.

However, if any protection can be given so as to enable one to get at the pit in frosty weather, most things keep better so than in any way. Celery keeps very well packed in earth, so that the frost does not get at it; but it must be laid with the tops sloping, so that the water may be kept out of the heart.

COMMUNICATIONS.

THE AMSDEN PEACH.

BY JOHN WAMPLER, CARTHAGE, MISSOURI.

I see a request from F. K. Phœnix, of Bloomington, Illinois, asking those who have fruited the new peaches, including the Amsden, to report for the press. The Amsden Peach has been fruited as yet only on two farms, that of L. C. Amsden and John C. Teas, and as both are my near neighbors I have visited the trees frequently and examined the fruit in all stages of growth, and ate freely of the fruit in 1874. Enclosed find circular of L. C. Amsden, which gives the report of Jasper County Horticultural Society, and endorsed by Patrons of Husbandry, and as this gives a pretty full report for 1872 and 1874, I will only add what this peach has done in 1875, first correcting one error, and I think the only one in friend Amsden's statement. He says, ripe two weeks before Beatrice; this was made with one specimen of Beatrice. A more thorough test in 1874 and 1875, by John C. Teas and others, in this vicinity, shows that the Amsden ripens about eight days before Beatrice.

This summer, 1875, a very destructive hail storm on May 21st, destroyed nearly all the peaches in this immediate vicinity. Only about ten specimens of the Amsden were left to ripen on Amsden's farm and a less number on the farm of John C. Teas. Before the hail storm the original Amsden tree had on a full half crop and more than either of a number of varieties near it. These few specimens ripened about three weeks before Hale's Early, except where Hale's Early ripened on trees in a dying condition. Such trees of Hale's ripened fruit a week or more before trees that are healthy. A good many trees of Hale's Early are dying, supposed to be caused by overbearing and the extreme drouth of 1874. The original Amsden tree, as well as all the younger trees, are in a very vigorous healthy condition.

The largest specimen of Amsden this season measured 7⅜ inches in circumference; in 1874, some specimens were a little larger. This season, 1875, Amsden was ripe July 3d to 14th. The season being unusually late. It is claimed by some that Amsden and other peaches will ripen ten or twelve days earlier in some situations in this latitude 37°. As we are high up on the Ozark Mountain range, perhaps there would not be so much difference as stated above, but a decided difference. In quality, the Amsden is better than any very early peach I have ever eaten—more fragrant than any peach I have ever handled, as fine in color (dark red) as any peach I have seen, and may in truth be said to be a peach without a fault, except that it adheres slightly to the seed, which may be by some considered a fault.

As no buds or trees of the Amsden Peach were set before the fall of 1874, except on the two farms named, it is not possible that the Amsden has yet borne fruit any where else. In 1874 a few thousand buds were sent out by L. C. Amsden, generally in small pots, and scattered through most of the peach growing districts, and all must wait till 1876 to learn if the Amsden will succeed throughout the country as it has done here.

It is proposed by different parties, to call this peach Amsden, instead of Amsden's June (as it has been called), and we favor the short name.

EARLY BEATRICE PEACH, FOR FORCING.

BY JOHN FALCONER, ROCHESTER, MASS.

I note Mr. Phœnix asks for light on early peaches. As I am one of those who have fruited Beatrice, I can safely say it is a very early and fine sort. In a house for peaches it stands next tree to Hale's early. Beatrice is almost ripe, when Hale's is hardly half grown; it is also good size, and a beautiful color; indeed a very fine early fruit. The two other sorts, Alexander and Amsden, I have not. Many of Mr. River's other fine sorts I grow, and find them true as himself. I will send notes of them if desired to the *Monthly*.

[Do, if you please.—ED. G. M.]

HEALTHY CHERRY TREES.

BY F. R. ELLIOTT.

Here it is again coinciding with my practice and observation of grass. Keep the ground loose around them the first year, then let them alone. Don't prune or dig around them, but mow the grass that may grow, if you please, and leave it on the ground. The old cherry trees in New England that are now producing abundantly,—vide those in Bradford at Cherry Hill so called,—have never been cultivated.

EARLY PEACHES.

BY RANDOLPH PETERS, WILMINGTON, DEL.

I mail you to-day a sample of Early Beatrice, also samples of Hale's Early. Both grown side by side; had plenty of Beatrice as ripe as samples one week ago. Hale's Early not as ripe as samples sent for six or eight days yet. There is full ten days or more difference in the time of ripening. Early Beatrice has fruited in many parts of Maryland and Delaware on young trees, and in all cases about two weeks earlier than Hale's Early; size medium, color up fine, perfectly free from rot on the trees, and a good shipping peach. Peach growers all pleased with it. Comes up freely to all that is claimed for it. And our growers pronounce it a *perfect success*. I send you sample of Early Louise, it is five to seven days earlier than Hale's Early, in ripening. I hope these specimens may reach you in good order.

A WONDERFUL STRAWBERRY.

BY JOHN T., RED BANK, N. J.

Brown's Wonder is the variety "I take my pen in hand to inform you, etc." Yes it is a *wonderful* variety, but for its worthlessness only Should this variety continue to grow and produce in the future as it did the past season I think it would take about a hundred acres, under extra cultivation, to produce one mess for a sick grasshopper. When picking what a tempting sight it was—the bed of Brown's Wonder! Such a display of foliage and such a want of fruit, while the contrast with Monarch of the West was "very pleasing." This bed of Brown's Wonder was so tempting that I immediately let the Monarchs hang, and went for a hoe. It struck me that the contrast would be still more pleasing to have bare ground by the Monarchs.

Brown's Wonder might be a good thing for covering sandy door yards, where grass cannot be made to grow at Atlantic City and Cape May —the only place that I can think of where it would be of any value.

Fortunately this variety has been offered by but few in this country. W. C. Wilson, Astoria, L. I., and A. Hance & Son, Red Bank, N. J., being the first to offer it, who stated in their catalogues that it was claimed to be of great merit and a *wonder* in every sense of the word, without further comments. I remember seeing it figured in a foreign catalogue, which figure was accompanied by a most glowing description. Well the strawberries *did* look good in that picture, and there were such "heaps of them." Truly the fruit was literally heaped about the plant and the berries were about the size of hens' eggs. Strange what a wonderful change a trip across old Ocean wrought. It may be, however, that America's air and sunshine does not agree with its delicate constitution.

Speaking of strawberries, permit me to say that Monarch of the West was remarkably fine this year. A bed of them on sandy loam, when in fruit, was enough to gladden the heart of any body—especially if he ever was fond of good strawberries. The plants were loaded with fruit, and as it is a good grower there were "lots of 'em." This variety seems to possess every desirable quality of a strawberry. It is a good grower, a good cropper,—not so many berries as some varieties,—they were so large there couldn't be. A good color, bright, and just the right shade, a good sh pping berry, and what a good flavor! I thought I could never get enough of them—but I did. Col. Cheney was also fine, but not so fine as the Monarchs. They were less uniform in size and less regular in shape. Flavor also inferior. Monarch is uniform and of a true strawberry form, but Col. Cheney in inclined to Coxcomb shape.

[To assist our readers in seeing the point of our correspondent's communication, we illustrate with a sketch of the Brown's Wonder, as it was said to grow in England.—Ed. G. M.]

BROWN'S WONDER STRAWBERRY.

STRAWBERRIES AND POTATOES.

BY JOHN FALCONER, ROCHESTER, MASS.

As a much edified reader of your journal as well as subscriber, I would kindly call attention to a short paragraph under the head of Editorial Notes, in the August number of the *Monthly*, about a large strawberry plantation in the United States, causing surprise to a gentleman in an English paper. A fifteen acre field of strawberries is no doubt a large one,—yet maybe, said gentleman might find one in the tight little Island to match it, if he looked around him. Whether or not, is not of great import. But when you go on to say that our English friends would perhaps be more surprised to learn that they (the strawberries) can be bought in immense quantities in season, at ten cents per quart, I can beat you. In a letter from my son in July, in Liverpool, the sellers at the street corners, were selling them at a penny a pound, and such berries! a dozen would kick the beam, so says he, and I have no doubt he speaks true, as I never knew him to tell a "lee." But man, what I don't like at all is, when you add that the poorest can eat them as often as the English poorest eat potatoes. God help us. Yankees eating strawberries at ten cents per quart, and Englishmen at a penny a pound for his taties, puir bodies, tis a pity to mak the potatoes and strawberries quarrel, are they not both God's gifts? I hope not to see such comparisons made.

[Our correspondent is mistaken in supposing that any slur was intended on the English because they eat potatoes. The potato was referred to simply as an illustration of a cheap and abundant article. We do not know but our meaning would have been just as plain if we had said plums instead of potatoes,—and surely we long for this unattainable fruit too deeply, to be supposed contemptuous in referring to other people's eating them. Still we are really obliged by our friend's note. If there is any thing we abhor in horticultural writing it is the sarcastic, contemptuous style of treating other people's manners or customs. Even when opposed to our views, we would treat them tenderly. Yet the temptation to appear knowing, smart, or peculiarly gifted over others, is one besetting us all, and we need hints like friend Falconer's, just as we need weekly sermons, to keep us all straight. It is not that we —all of us—do not know better, but we are apt to forget.—Ed. G. M.]

FROST-PROOF APPLES.

BY F. R. ELLIOTT.

Here you are again with a revival of what I wrote thirty years ago, as the saying of Prof. J. P. Kirtland, that the Tewksbury Winter Blush was one of the best producers, hardy tree and the apple good in April as in October. This puts me in mind that I have been at work now two months trying to get at some reliable list that can be incorporated in a small fruit book, giving locations, soils, &c., for each variety. I am just now a little mixed, but I find after carefully comparing, that the old varieties to-day stand best.

EARLY BEATRICE PEACH AND CLAPP'S FAVORITE.

BY I. J. BLACKWELL, TITUSVILLE, N. J.

We have fruited the Early Beatrice this summer for the first, one tree three years old, from the bud last spring, ripening four peaches, size medium, quality good. First peach ripe 25th of July, the last ripe July 30th. Tree very thrifty and was the first and second year trimmed very closely for buds taken all off the first year except main stem, and second year all except one limb which set fruit the next spring, but dropped before maturity.

Hale's Early, within twenty yards, are hard and green to-day, August 3d, and will not be ripe before another week unless the weather is very favorable. The Beatrice will probably become a standard variety, on account of its early ripening, unless the Amsden or Early Alexander supercedes it.

The Clapp's Favorite Pear is here earlier and larger than the Bartlett, also a better grower, and must, if it continues its good behavior, become popular with pear growers. This pear will not keep long after being gathered, as it soon rots at the core.

EDITORIAL NOTES.

Dr. Paine's Remedy for the Potato Beetle.—A correspondent reports a trial with Dr. Paine's recipe, and the result was, the insect was unharmed! He says the Beetle rather enjoyed the bath than otherwise. It is possible Dr. Paine had not the genuine "Doryphora decemlineata" to deal with.

Thriving Pears.—Quite in accord with American experience, a correspondent of the London *Journal of Horticulture* speaks of the vast superiority in quality of Doyenne du Comice and Beurre Superfin Pears from trees that had the fruit well thinned when young.

Temperature Under Grass.—Recently we gave the results of some experiments made in Europe under grass and under clean surfaces, showing that the frost did not penetrate near so deep, nor did it thaw so early in spring,—and we suggested that these facts ought to have an influence in orcharding. A friend informs us that the orchard of Godfrey Zimmerman, near Buffalo, not "neglected" in grass, but *cultivated* in grass, has shown great advantages in this respect. Last winter killed large numbers of fruit trees near there where the surface was clean;

but Mr. Zimmerman's trees are in splendid health, and well filled with fruit.

STRAWBERRIES AS A "DRUG" IN CHARLESTON.—Last June, says the *Rural Carolinian*, the fruit went down to ten cents, and, finally, to five cents a quart, and became a "drug" at that. For the first time in our history, everybody who could afford to eat at all, ate strawberries, and their flavor was not spoiled by the strong taste of money, which has generally adhered to them here. Nobody complained. The farmers had already made a good thing of their eighty acres' venture, and could afford to see the remainder of their crop make glad the hearts of the poor.

DISCOVERY OF THE PHYLLOXERA REMEDY.—M. Dumas recently announced to the French Academy of Sciences that a mode of treating vines attacked by the phylloxera had been discovered, which is certain in its results in destroying the insect and in restoring the vine to health and fecundity. The remedy is the combined employment of sulpho-carbonate of potash, which kills the insect at any depth, to the soil, and of potassic ammoniacal, and sulphureted manures. *Les Mondes* states that M. Dumas himself is the fortunate discoverer, though his announcement to the Academy was not made until after his process had been tried by exhaustive experimenting by the commission appointed to examine into the various plans submitted. This being the case, M. Dumas becomes the possessor of the $60,000 reward, beside the numberless other prizes of smaller sums offered throughout France.

NEW FRUITS & VEGETABLES.

THE AUGHINBAUGH BLACKBERRY is said to be the earliest in the Californian market. It is unknown in the eastern states. As figured in California Horticulturist it is long, and narrow towards the apex, with a large number of smallish pips.

THE BRIGHTON GRAPE.—Mr. H. E. Hooker, excellent authority, says: "We have fruited the orignal vine for three years, and it has given us unqualified satisfaction. Its origin is as follows: Mr. Jacob Moore, of Brighton, N. Y., (well known for his enthusiastic devotion to the business of artificial crossing of fruits, in order to produce improved varieties), raised this among many other cross bred seedling grapes; it being a cross between the Concord and Diana Hamburg. The infusion of a strain of the Hamburg blood has doubtless given to it some of its wonderful excellence of quality while the preponderence of the native element preserves to it remarkable vigor and hardiness of plant and foliage. We know of *no one* variety which combines so many excellent traits as we find in this.

WILD GOOSE PLUM.—A Lebanon (Pa.) correspondent sends us specimens of the Wild Goose Plum, not quite like those of Mr. Myers, noticed in our last. These are more like the Chickasaw Plum, being covered with a beautiful bloom like the grape. They are not as good in quality as the Delaware specimens,—but still good enough to be of excellent use in any one's garden.

THE BISMARK CABBAGE.—This early variety is well spoken of.

PEACH.—*The Condor.*—We received specimens of this handsome peach last summer from Messrs. Rivers & Sons, of Sawbridgeworth. The sample we obtained was about medium size, of a roundish depressed figure with a deep suture, terminated by a small nipple-like point. The surface was very finely downy, and the whole fruit tinted as if washed over rather lightly with pale rosy red, the color not being very dark at any point, while towards the crown it became a little marbly. The flesh was whitish, slightly blotched with red about the stone, and very juicy, rich, and piquant in flavor.

Our samples were received about the end of July, and had therefore probably been grown under glass. The variety is said to have been raised from Early Silver, and to be a large peach of a bright crimson color, ripening early in September. The glands of the leaves are reniform.—*Florist and Pomologist.*

LIMA BEAN—DREER'S IMPROVED.—Mr. Dreer sends us specimens of this kind. It is very distinct; the pods not being more than half the length of the common kind, but yet having quite as much bean. The Beans are crowded in like Peas. Mr. Dreer say they are very prolific, and as there is certainly little waste in pod, it is quite likely the seeds get the advantage.

STEELE'S IMPROVED BLACK WALNUT is a Maryland seedling. A large nut, (broader than long) with a very thin shell and a remarkably white kernel, was discovered by J. B. Steele, Esq., of Caroline Co., and the original is evidently a graft, as the tree is forked, and one side is an inferior nut, while the other is the nut named and perhaps the best walnut out.

THE BRILL PLUM.—We are indebted to our young and enterprising pomological friend, R. D. Manard, Esq., of Independence, La., for several fine specimens of this very excellent but comparatively little known variety of plum. We had not, until this season, seen the fruit of this so-called new variety, but from the growth and peculiar habit of the tree, we were pretty well convinced that it belonged to the family of the "Cherry" or French Myrabolan plums. The fruit we have examined this season confirms our suspicions, and proves the "Brill" and the "Red Cherry" plum to be identical, or very nearly so. As the "Red Cherry" and "Hagan's Cherry" plum, we cultivated this variety for several years before the war, and were well pleased with it in all except early productiveness—it does not bear well on young trees. There is also a yellow variety, known as the Golden or Yellow Cherry plum, belonging to the Myrabolans. This variety is a little earlier and more productive, while at the same time it is equally as large and good, and, if anything, more vigorous. With root pruning, the Myrabolans can be made very profitable market plums. Year before last, we saw one of this family at Mobile, that was very excellent, and ripened in September. Another, known there as the Hendrix plum, ripens early in July, and is a very desirable variety.—*Our Home Journal.*

Natural History and Science.

COMMUNICATIONS.

SPLIT BUD GRAFTING.

BY C. M. B., SERGEANTSVILLE, N. J.

Seeing your article in September number of the *Monthly* and remembering that I had some correspondence on the subject last winter, I thought I would forward it to you that you might see what others were doing. I would say that I have succeeded in getting six compound grafts of Red Astrachan and Keswick Codlin to unite, and they have now made about twelve inches of growth.

The following is the letter referred to:

COMPOUND GRAFTING.

Apples with distinct portions differing in flavor in the same specimen, have been produced by uniting the halves of two grafts and the union of two half buds in one sprout, branch, or tree. Most attempts have been made with sweet and sour; but the writer has succeeded in producing fruit from the union of two acid varieties, which shows marked difference in flavor in different portions of a single apple.

You ask for the *modus operandi;* here I give it:—Use scions of equal size, shave down each to an exact half, being very careful to halve the bud and not bruise the bark—the two half scions to match in bark and bud. Place the halves together, holding them to match by the thumb and fingers, or winding the upper end with silk or grafting paper. Sharpen the lower, and from the bark side, as you would a single graft, and set it down into the cleft of the stock, wax thoroughly, covering stump and cleft and scion also, so as to exclude air and moisture, leaving the covering at the bud-union very thin, so that in swelling the sprout may easily push through. In its growth, watch the waxing and keep scion and cleft covered when growth bursts the wax.

[The question of the sour and sweet apples must be removed from this one of split bud, or compound grafting. It is always the Rhode Island Greening that is either sour or sweet,—but as it is well known that this variety often has this varying character when there is no pretence of bud grafting, the whole theory, so far as this is concerned, must fall to the ground.

We do not say that no one has tried it, and that a split bud will not grow, as some do,—our own experiments show that such split buds will sometimes grow, but it is certain, that no hybrid has ever yet been proved to be had in this way,—yet as there is good reason to believe that bud grafts in

the potato have produced hybrids, it is probable compound grafted buds might. We are anxious to encourage experiments. Such attempts as that of our correspondent with Red Astrachan and Keswick Codlin are praiseworthy. Let us have them to place on record, and that we may watch their progress. We want no after-thoughts. It is too often the case that people first see something wonderful, and then for the first time only remember that something very wonderful was done to produce it a long time ago. It is this kind of "evidence" which is the ruin of horticultural philosophy.—ED. G. M.]

THE POTATO ROT.

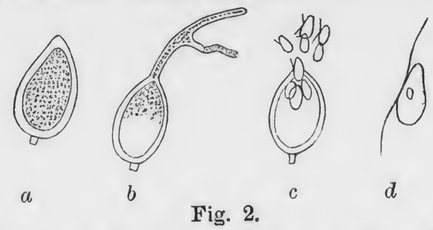
BY W. G. FARLOW,

Assistant Professor of Botany in Harvard University.

(*Continued from page* 277.)

In nature, the asexual spores appear principally on the under surface of the leaf and on the stalk, but, wherever the tissue of the plant is cut so that the enclosed mycelium readily reaches the air, we may have them produced. This may be shown, artificially, by making a section of a tuber affected by the rot, and placing it in a moist place. In a short time the cut surface will be covered with a layer, like cotton wool, which, on examination by the microscope, will be found to consist of mycelium and spores, precisely like those in Fig. 1, only much more luxuriant. It is only in the air, however, that the asexual spores are produced, never in the substance of the potato. When, however, the potato tuber has so far rotted that there are cavities in the interior, the spores may be produced in the cavities.

As just remarked, the spores easily drop off, and, if we bear in mind that the greater part of them are on the under surface of the leaf, they naturally fall upon the leaves below and to the ground. They may also be blown away to a distance. They are easily recognized by their oval shape, somewhat pointed at one end, and by their having a very short stalk at the blunt end, as in Fig. 2, *a* If they fall upon a moist surface, no matter of what kind, they begin in a few hours, sometimes even in the course of a single hour to germinate. The way in which they do this varies in different cases. The more common mode is as follows: The contents of the spore roll themselves up into several differeut masses which collect at the small end, and, finally, burst through, as is shown in Fig. 2, *c*, leaving the empty shell behind. Fig. 2 *d*, gives a more highly magnified view of one of the bodies represented in *c*. They move rapidly about over the moist surface on which we have supposed them to fall for from fifteen minutes to half an hour,



a *b* *c* *d*

Fig. 2.

the motion growing constantly slower. This motion is brought about by the vibration of two hair-like bodies, called *cilia*, attached as shown in the figure. From the fact that they move about like animalcules they are called *zoospores*. The number produced in each spore is generally from six to fifteen. At the end of about half an hour, having come to rest, the cilia disappear, and the bodies elongate at one end into a tube, which soon begins to branch just like the original Peronospora mycelium. The germination by means of zoospores, although the most frequent, is not the only method. Sometimes, the contents of the spore are discharged in one mass, from this mass zoospores are produced as before. A third and more simple way is shown in Fig. 2, *b*. Here the germinal tube grows directly from the smaller end of the spore without the intervention of zoospores. It is not very well understood why the spores of the same fungus should be subject to such variations in their mode of germinating, but it would seem to depend partly on the influence of light; the production of zoospores proceeding more favorably in the dark, whereas the direct production of a germinal tube takes place more frequently in the light. I have, however, repeatedly sown spores of Peronospora infestans in watch glasses, and both modes of germination were seen in the same watch glass. The germination by zoospores is the more dangerous, of course, because each spore can then reproduce from six to fifteen new Peronospora plants instead of only one, and those who are fond of figures can easily make most appalling calculations to show what would be the result if all these germinal tubes grew.

Fortunately, the circumstances under which the tubes will grow are limited, as the group of fungi to which the Peronospora infestans is, or

until recently has been, supposed, at least, to belong, will grow only on a single species, or a few nearly related species of plants. Consequently, although the Peronospora spores will germinate anywhere if there is only moisture and warmth, the germinal tubes will all die unless the spores have fallen upon, or near, some potato plant, or some species of plant botanically closely allied. Some spores, of coarse, when ripe, easily fall upon, or are carried by the wind to other potatoes, as yet unaffected by the rot. Others fall to the ground and germinate there, and seem to be able, without great trouble, to penetrate to the tubers. De Bary found the ground under infected plants full of the germinating spores. If the germinal tubes come in contact with a potato leaf, stalk, or tuber, they push their way directly through the epidermis without apparently, being obliged to enter by the breathing-pores. Once inside the mycelium grows at the expense of the potato cells through all parts of the plant, as we have already seen. The potato rot fungus will grow so far as we yet absolutely *know*, only on certain Solanceæ, including the tomato. It does not, however, succeed well on the latter. The germinating power of the spores lasts for several weeks, but they do not germinate after a winter's exposure.

In brief, then, the mycelium of the Peronospora infestans, after making its way through the stem, leaves, and root of the potato, passes through the breathing pores into the air, and there produces asexual spores. These falling on the leaves of healthy plants, or reaching the tubers in the ground, spread the disease from plant to plant with greater or less rapidity, depending on the weather, until the frost destroys all except the tubers which have been gathered by the farmer. The question arises, "How is the disease propagated from year to year?" Certainly not by the mycelium in the dead leaves and stalks, which cannot survive the cold of winter, or by the asexual spores which have been described. One way, and the only one, so far as has yet been proved, is by means of the mycelium in the tubers which have been gathered in the fall and planted the next spring. Of course, very rotten potatoes are not harvested, neither are those known to be rotten planted in the spring; but, nevertheless, as can be proved by microscopic examination, a certain amount of mycelium can often be detected in potatoes which appear sound, and it only needs a sufficiently damp season for it to produce disastrous results.

The question whether the disease may not also be propagated from year to year in some way different from that just mentioned, requires farther consideration; for, although such may be the case, we are not, as yet, in possession of a sufficient number of facts to warrant us in speaking with certainty, and it must be regarded as an open question which botanists are trying to answer. There are, in the first place, theoretical grounds in favor of such a belief. The bodies called spores in fungi are some of them asexual, like those which we have seen in the potato rot, and others are the result of some sexual action, and are known as *oospores*. Any species of fungus may have both sexual and asexual spores, and perhaps, several different kinds of the latter. Also, when a fungus is parasitic on different kinds of plants, the mycelium may, on one kind, bear only asexual, on another only sexual, spores, or the two may be borne together. Although, in the case of a great many fungi, the oospores have never been found, all modern research renders it extremely probable that they always exist, and we do not, at the present day, consider our knowledge of a fungus complete until we have found the oospores, and the organs which have produced them, the antheridia and oogonia. In the case of Peronospora infestans, the oospores have never been discovered, and, consequently, the true systematic position of this fungus is uncertain. Judging from the mycelium and the asexual spores, it seems nearly related to Peronospora (Botrytis) gangliformis, Berk, and the true Peronosporæ, where both oospores and asexual spores are known. Reasoning by analogy, we should expect to find the oospores of the so-called Peronospora infestans like those of Peronospora gangliformis, which causes the mould in lettuce, unfortunately common in this vicinity, and the source of considerable loss to market gardeners. Let us examine this plant, in passing, as it may help to a clearer conception of the potato disease.

The lettuce mould, like the potato rot, sends its mycelium through the foster plant, until it finally breaks through the breathing-pores and bears its asexual spores in the air, as shown in Fig. 3, which represents a portion of the epidermis of the lettuce with a breathing-pore through which the mycelium has grown. The spores are more decidedly oval than in the potato rot, and are arranged star-fashion on the swollen tips of the mycelium. They germinate by direct ger-

minal tubes, in the way shown in Fig. 2, *b*, and these penetrate into the interior of the common

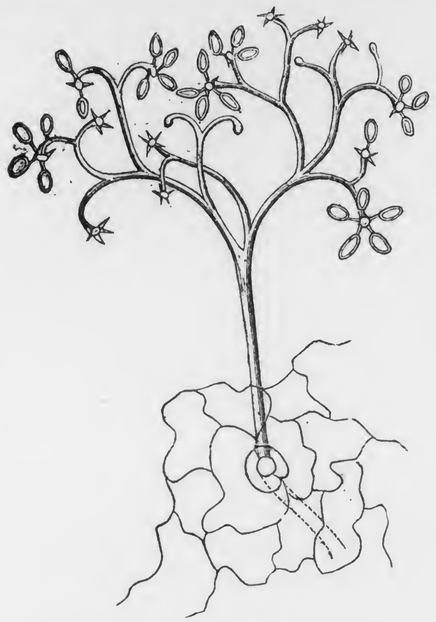


Fig. 3.

groundsel (Senecio vulgaris), chiccory, and sow-thistle, as well as of different species of lettuce. In the substance of the leaves of some of these plants, especially the groundsel, the oospores of Peronospora gangliformis are produced. These are small globular bodies, with a thicker outer covering than the asexual spores have. They are produced in the following way: The mycelium swells up into a sac or oogonium, which is cut off from the rest of the mycelium by a cross partition, shown in Fig. 4, *o*; and the protoplasmic mass, *s*, rolls itself up into a ball at the centre, which is to become the spore. The antheridium, or male organ, is formed by a similar swelling at the end of another filament, which applies itself to the surface of the oogonium as shown at Fig. 4, *a*. The sexual act consists in the growth of a small tube, called the *pollinodium*, from its supposed resemblance to a pollen tube, which penetrates to the protoplasmic mass in the centre of the oogonium. As a result of this contact, a wall of cellulose is formed around the mass which grows into the spore. These sexual spores, buried in the leaf, are much tougher than the asexual, and can endure the cold of winter and drought of summer to a much greater degree. When the lettuce leaf dies, the proper leaf cells decay, leaving the oospores

Fig. 5. Fig. 4.

behind, which then, after the lapse of some weeks, begin to germinate.

Another familiar case of a fungus having both sexual and asexual spores is seen in the Cystopus candidus or white mould on cruciferous plants, mustard, radishes, cabbages, &c. The asexual spores are here again on the surface of the leaf or stem, while the sexual are buried in the tissue. The former are not single as in Peronospora infestans and gangliformis, but in rows packed closely together, which, to the naked eye, appear like white spots on the leaves and stems. The oospores are produced in the same manner as those of Peronospora gangliformis, and differ from them in having certain brown wavy ridges running over them, as in Fig. 5. These oospores are only set free by the decaying of the leaf substance around them, and take a very much longer time to germinate than the asexual spores. Analogy, then on the supposition that the potato rot is a true Peronospora, would lead us to search for the oospores in the substance, not on the surface, of the potato or some allied plant. The potato, however, has been so well searched by different observers, that, if the oospores are really there, it seems hardly credible that they should for so long a time have escaped observation. The more probable supposition would be that the disease, as well as the potato, was imported from Peru, and that, in that country, the Peronospora lives upon different species of Solanum, of which there are a good many that inhabit Peru, and that, although when growing on the potato only asexual spores are produced, yet, on other species of Solanum, oospores as well are found. If this last supposed species of Solanum has not yet been introduced into Europe or North America, that is a sufficient reason why we know nothing about the oospores. Until quite recently, this view has been adopted by many botanists.

The migration of a fungus in the track of plants

exported for cultivation is not so improbable, as it might at first sight seem. In the case of the Peronospora infestans, we have no accurate record of the migration; but, within a few years, we have seen a good illustration, in the case of the so-called hollyhock fungus (Puccinia Malvacearum, Mont.), of what might happen in other cases. Some years ago Montagne described a fungus from Chili which was parasitic on certain species of mallows, and which he named Puccinia Malvacearum. At that time, the fungus was entirely unknown both in North America and Europe. A few years ago, a disease began to attack the hollyhocks, members of the mallows family, in the United States. This disease was found to be caused by the growth of Puccinia Malvacearum. A little later the same disease was noticed in England, and later in Central and Southern France, where it attacked the common mallows of the field as well as the cultivated hollyhocks. In 1873 the fungus first appeared in the region of Strasbourg, and in 1874 had advanced as far as Amsterdam in Holland, and Nuremberg and Erlangen in Germany. This instructive case shows that a parasitic fungus may spread over the world as readily as common weeds have done.

(*To be concluded in our next number.*)

EFFECTS OF LIGHT ON PLANT-GROWTH.

BY REV. L. J. TEMPLIN.

The question as to the effects of light on the growth of plants, though perhaps, of no great practical value, is yet of considerable interest to the student of nature. There can be no question about the necessity of the presence of light for the continued growth, and perfect development of the vegetable organism. That no real, substantial growth, even for a limited time, can take place in the dark, seems to be settled by the dictum of scientific men. And I am not prepared to say it is not settled correctly. But when we see development—enlargement of plants during the absence of light,—the question very naturally arises, is not this development "real growth?" If not, wherein does it differ from such growth? A large proportion of vegetable substance is composed of carbon. This is derived from two sources, air and soil. Just what proportion is supplied from each of these sources, is not known. It is probable this exists in the form of carbonic acid, in both cases, before it is taken into the vegetable system. If this can be elaborated and appropriated to the building up of the structure of the plant, only in the presence of sunlight, the inference would be that the development of plant structure could take place only when such light is present. But as a matter of fact we find that vegetables do grow, or, at least, enlarge, in the absence of light. Some time ago I reported the results of some observations that I had made on the night growth of plants, for publication. I am not surprised that some of the doctors are startled at the heresy implied in some queries propounded in connection with a statement of those observations. Since that I have made still further investigations in this same field. It occurred to me that if light was the controling element in the growth of vegetation, that the presence or absence of moonlight might have a perceptible effect on the night growth of plants. I therefore made a careful measurement of the growth of certain plants during two consecutive days and nights, nearest the full moon, and a like period nearest the moon's change. Below I give the results. The figures show the per cent. of the whole growth made during the two days and nights, that was made during the day and night respectively.

	Growth during light of moon.		Growth during dark of moon.	
Kind of plants.	during day.	during night.	during day.	during night.
Corn	48.65	51.35	50.	50.
Pumpkin	65.85	34.15	58.	42.
Bean	75.36	24.66	54.5	45.5
Squash	59.52	40.48	58.23	41.77

It will be seen that there was a considerable growth, or what seemed to be growth, at both of these phases of the moon; and what seems strange, the percentage of night growth was greater during the dark of the moon than during its light. Now if this growth does not "make substantial structure," if this "growth is of no benefit to the plant till light has had its effect on it," will some one who knows this to be the case, explain the nature of this growth, and wherein it differs from that growth that does make such structure?

[We give the above room, on account of the facts and figures, of which we never have too many, and which are always welcome. It was received before our last number appeared, and hence the writer had not seen the correction of our own badly chosen language. We may repeat again that botanists have never taught that there is no growth in the dark,—they only say that material to make growth must be previously elaborated by light.—Ed. G. M.]

CYTISUS ADAMI.

BY A. M. C. JONGKINDT CONINCK, DEDEMSVAART, NETHERLANDS.

It seems strange, that in the number of June 12th of the *Gardener's Chronicle* and of *Sieboldia* (a dutch horticultural paper, edited by Mr. H. Witte, curator of the Botanic Gardens at Leyden), notes are inserted about the same subject—"Cytisus Adami." In both papers it is mentioned, that on Cytisus Adami both yellow and violet spikes can be seen, and, what is more curious still, that both violet and yellow flowers may be observed on the same spike. Some of your readers may be interested to hear, that the latter fact has recently been seen in Mr. R. J. Blaaund's garden at Zindbrock, Netherlands. Flower spikes of Cytisus Adami have been observed producing both yellow and violet flowers. Mr. Blaaund sent one of those spikes to Mr. Witte, who says the following about it in *Sieboldia:* "the spike, which lies now before us, is not one of the largest, and already shows by its development to keep a medium between the spikes of Cytisus Laburnum and C. purpureus. It bears fifteen flowers. Examining them from the base of the spike, they are arranged in the following order: One yellow flower, two violet flowers, one yellow flower, one violet flower, two yellow flowers, one violet flower, one yellow flower, one violet flower, five yellow flowers. Consequently we find five violet and ten yellow flowers. This fact is so striking, that one can scarcely believe it. We do not now again mention the origin of this tree, on which so much has been written. A clear explanation of this fact is until now always a wish which very likely will not be so soon accomplished. For the present we content ourselves with this note, thanking Mr. Blaaund very much for his kindness in sending the spike."

EDITORIAL NOTES.

INSECTS AND FLOWERS.—Some time ago a correspondent sent us the following extract, desiring us to comment thereon in these pages: "In a lecture delivered a short time ago at the London Institution, Sir John Lubbock said:—'The observations commenced by Sprengel and recommenced by Darwin seemed to have given to flowers an additional interest, and had shown that insects, and especially bees had an importance previously unsuspected. To them we owed the beauties of our gardens and the sweetness of our fields. To them flowers were indebted for their scent and color, indeed their very existence in its present form. Not only had the brilliant colors, the sweet smell, and the honey of flowers been gradually developed by the unconscious agency of insects, but the very arrangements of the colors, the circular bands, and the radiating lines, the form, size and position of the petals, the arrangement of the stamens and pistil—all had reference to the visits of insects, and were disposed in such a manner as to insure the great object which these visits were destined to effect.'"

[That a certain number of plants are fertilized by insects, and that we are greatly indebted to Sprengel and Darwin for our knowledge of these facts, is undoubted,—but we believe the number is immaterial in comparison with the great mass of flowering plants which are self fertilizers. We do not believe it proved that odor and color have been developed by the unconscious agency of insects,—but rather, in the case of those plants which have insect fertilization, by the fact of possessing odor and color, they have, perhaps, been saved for a greater length of time from annihilation in the order of evolution. It was rather a fortunate accident prolonging life, than a prearranged plan for the propagation and dissemination of the species. We found however that we were so nearly if not entirely alone in our views, and it would therefore be necessary to go so much into detail with our own observations making the answer to our correspondent too long for our pages, that we thought best to work them up into a paper for the American Association at Detroit, where it was read and discussed, and we presume it will find a place in the publications of the Society, where our correspondent and all interested will have the opportunity of reading it.—ED. G. M.]

SUNSHINE IN SCOTLAND.—Records kept for a number of years show that the sun in Scotland shines on an average of two and a half hours a day in January, and nine hours in June.

HOW "ENGLISH PEAS" COME TO BE WEEVILLY.—We noticed a complaint in the *Gardener's Monthly*, lately that a packet of Carter's first crop received from England had been found to be affected by pea-weevils. Our contemporary mentions the strangeness of the fact, it being supposed that the insect is not destructive except on this continent.

We think we can explain the mystery. The peas were, probably, not English peas, but Canadian peas. English nurserymen have discovered that peas grown in Canada are brighter, more vigorous and altogether a better article than the home-grown product; and so large quantities are grown here, shipped to England and thence retailed at more or less fancy prices, a very large trade being done with the United States.

The misfortune with the English dealers is, that they are not sufficiently well-posted in Canadian farming matters to enable them to select the proper location for their seed-farms. The pea-bug thrives as well in some parts of Canada as in the Uuited States. In localities lying to the north and north west of Toronto, the insect does not prevail, and it is to that secton that the continent owes the possibility of the cultivation of peas as a paying crop.—*Canada Farmer.*

QUERIES.

CLEMATIS VIRGINIANA.—*R.J. B*, *Bremen, O.* This is the beautiful vine referred to in the following. It is not uncommon now in nurseries. "The enclosed vine I found on a hill by the roadside, climbing over the fence (out of an old field) and down into the ditch by the side of the road. I never saw it before. Do you know what it is?"

DESCENT OF ROOTS.—*Prof. W. J. Beal, Lansing, Mich.*, writes: "On looking over one of my recent articles on the length of roots, as quoted in *Gardener's Monthly* for September, I see I did not convey the idea intended. The roots of a two year old peach tree extended to one side in mellow land, (rather poor sand), seven feet four inches. None of them that I found in this case went over two feet down; and the one which went seven feet four inches from the trunk was not over eighteen inches below the surface. But few roots went over four feet from the tree."

[We are glad to have this very important correction from Prof. Beal. Because some roots go deep, many have an idea that all the roots should be encouraged to go down,—a tendency which every practical horticulturist of experience, endeavors by all practicable means to check. Prof. Beal's valuable observations are read with great interest everywhere,—and with so much copying and re-copying will be liable to these accidents often, as we know to our own frequent annoyance.—ED. G. M.]

Literature, Travels & Personal Notes.

QUERIES.

POSTAGE ON SEEDS AND PLANTS.—*X.* says: "I hope you will 'keep it before the people' that while Congressional book lumber goes through the mails free, and while magazines pay only three cents per pound, seeds, cions, &c., under this beautiful new Express law of last winter, have to pay sixteen cents per pound postage.

Congress will soon be in session and it remains to be seen whether the people have any rights or whether America belongs to salary-grabbers and Express corporations. Can you tell us what is being done to overthrow this imfamous enactment—if possible the very first business of the session?"

[To tell you the truth, friend X, we believe nothing very extraordinary is being done,—and we doubt very much that any change will be made in that part of the law which affects us, unless more is done. The express companies have looked forward to this victory for many long years, and it is not in human nature to suppose that they will let go their hold without a much severer struggle than it is likely a few scattered horticulturists can afford to make. The law in regard to this class of postage was first made in a moment of natural shame that other countries were getting ahead of us in similar respects—and it was a shock to our feelings as being the first nation on the earth to be behind in all truly progressive movements. We could not stand to see ourselves in the back ground, and our principles disgraced. For the moment the interests of express companies had to make way for the general good. But we slept while they kept awake, and here we are now. The best thing we can suggest is, that wherever horticulturists have the ear of the public press, they should show how a repeal of the law is to the best in-

terests of the whole people. Abuse of Congressmen, or companies, will do no good at all.—ED. G. M.]

EDITORIAL NOTES.

CATALOGUE OF GEO. SUCH, SOUTH AMBOY, N. J.—In former times we had a corner for notices of catalogues,—but they poured in on us by the hundred. We could not notice all, and it was unfair to select some and pass the rest by. We have had to abandon such notices, except where some public interest would be served. The present is one of these cases. Mr. Such, without any thought of immediate profit, some years ago went into the business of growing rare and valuable plants with the idea of increasing the taste and accommodating those who were looking for them. This catalogue shows how much his efforts have been encouraged. Under the superintendence of Mr. Taplin, it is one of the floral institutions of which every American is proud.

THE PATRON'S HELPER, published at Des Moines, Iowa, now two years old, finds itself for the first time on our table. It is issued in the interest of the Patrons of Husbandry, and is intelligently and ably conducted.

AN AGED BOTANIST.—We noticed at the time, the one hundredth year of Lady Smith's age. We see by a recent English paper that she has just past her one hundred and third and is still in perfect health. Like her distinguished husband, Sir James E. Smith, she had a great love for botany.

OUR ADVERTISEMENTS.—Every one we suppose reads the advertisements in our pages,—if there be any who do not they lose a great deal There are advertisers from England, France, Holland, Germany, Chili, and other distant places besides,—while the number of good things offered nearer home, is astonishing. The editor has nothing whatever to do with the advertising department, and so he feels free to say that the publisher may well be proud of that part of the magazine.

While on this subject we may say that we think advertisers mistake in keeping themselves so much in the back ground. Recently an advertisement appeared of a florist's establishment or sale, and the reader was advised to "inquire of P. S., care of Thomas Meehan, Esq." We had no particular objection to the party doing this. Three parties came to see about it. Once the editor was not in,—the next who came found the place so far away that it could not be reached in time for his return for the train to go home, when there would have been plenty of time if they went direct,—the third one who called, purchased the place. There is little doubt but if the other two had been in the competition a much better price could have been realized.

In like manner gardeners and others have their names under initials,—or to be left at the office, or somewhere else,—where it is frequently days before they get them, when often five minutes make all the difference between a bargain or not. This slow way of working is not adapted to this age.

DISCOVERY OF THE MAMMOTH TREE.—At page 284 is an account from the Journal of David Douglas. It was an extract from another paper, and our only addition is the illustrations of the Sequoia, the changing of "Wellingtonia" to Sequoia, and the first paragraph in regard to the danger of collecting. A reference to the journal itself will show that it was the *Sugar Pine*, and not the Sequoia, that the language refers to. However the main point of the paragraph was the dangerous work,—but the correction is necessary to the accuracy of biographical history.

REPORT OF THE SECRETARY OF THE MAINE STATE POMOLOGICAL SOCIETY, FOR 1874.—From Geo. B. Sawyer, Secretary, Wiscasset. This is one of the most useful publications of the kind that has come before us. The apple question is particularly ably and intelligently discussed,—but this is to be expected from a place like Maine, which is the great apple orchard of the United States. Our good brother editor, S. L. Boardman, of the *Maine Farmer*, offered a handsome premium in the shape of a silver vase to that woman who shall present to the Society the best original plan for a town or village flower garden, with a list of the plants to be grown in each bed, and accompanied by a description of its management and general culture. These essays are given in this volume. The premium one we have been kindly allowed to copy; and we hope to give it in its proper department some day.

THE CHRISTMAS FLOWERING OR GLASTONBURY THORN.—The *Gardener's Chronicle* has this pleasant bit of history: "Another Christmas Tree which may fairly claim notice upon the present occasion, is the far famed 'Glastonbury Thorn,' which, tradition tells us, sprang from the wand of S. Joseph of Arimathæa, who planted Christianity in England, and 'built with wattles from the marsh a little lovely church in days of yore.' When the tradition that

> 'the winter Thorn
> Blossoms at Christmas, mindful of our Lord,'

first arose, it is not easy to ascertain, but it is one of considerable antiquity, and lasted long beyond the period which some persons are fond of styling 'the dark ages.' The fame of this Thorn extended to foreign lands, and slips or pieces of it were valued articles of export. Visits were made to it at Christmas as recently as the beginning of the last century; and Queen Anne, in common with many of the nobility of that period, purchased slips of the tree at a high price. The original tree remained until the reign of Charles I., when it was cut down by a Puritan; one of its trunks had already been destroyed in the time of Elizabeth. A slip was, however, secured; and two old Hawthorns, purporting to be desendants, are still to be seen near the old Abbey at Glastonbury.

It seems almost incredible that such a circumstance as the blossoming of a Thorn should seriously influence the conduct of a large number of persons; but that such was actually the case is plain from the following extract from the *Gentleman's Magazine*, referring to Christmas Eve, 1753. It will be remembered that the introduction of what was termed the 'new style,' which took place in that year, had met with considerable opposition; and the Glastonbury Thorn was visited by a large number of people, but was found (as might have been expected) to show no appearance of leaf or bud, whereas on Old Chrismas Eve 'it blowed as usual.' The extract above referred to runs as follows:—'At Quainton, in Buckinghamshire, above two thousand people went, with lanterns and candles to view a Blackthorn (*sic*) in that neighborhood. and which was remembered to be a slip from the famous Glastonbury Thorn, and that it always budded on the 24th, was full blown the next day, and went all off at night. The people. finding no appearance of a bud, it was agreed by all that December 25th (new style) could not be the right Christmas Day, and accordingly refused going to church, and treating their friends on that day as usual; at length the affair became so serious that the ministers of the neighboring villages, in order to appease them, thought it prudent to give notice that the Old Christmas Day should be kept holy as before.'

"The Glastonbury Thorn is known to horticulturists as Cratægus Oxyacantha præcox; examples of it are not very uncommon, although the blossoms seldom fully expand."

ROBERT BROWN.—The late Sir R. J. Murchison, writing late in life about the early part of his scientific career in London, from 1826 to 1838, says:—"I must specially dwell on the great botanist, Bobert Brown, who was chiefly to be met with at the Sunday breakfasts of Chas. Stokes, in Gray's Inn, and who provoked my impatient temper because he never would pronounce upon the genus—scarcely even upon the class—of a fossil plant. Profound in his acquaintance with living plants, he knew too well the fine limits and subtle distinctions to be observed; these being generally obliterated, and the fructification being barely visible, he paused and looked again and again, and came to no conclusion. Lindley, on the other hand, being of a less cautious temperament, often dashed off an opinion, and therefore gratified geologists. Robert Brown, though a quiet, sedate man, was full of quiet humor, and told many a good story to his intimate friends, among whom I was delighted to be reckoned to the day of his death. I was one of the mourners at his burial at Kensal Green, when this illustrious man had but a few old friends to pay the last honors."—*Journal of Botany.*

PROF. RILEY IN EUROPE.—Mr. Riley is now in the south of France. [Now returned.—ED. G. M.] In the country devastated by the Phylloxera. He has been giving the growers valuable advice as to the kinds of American Vines not liable to be attacked by this pest, and which, in consequence, are likely to be of great value as stocks to the French growers. To mark their appreciation of his services to Vine culture in France, the Agricultural Society of Herault gave a grand banquet in his honor, at Palava, on the 12th inst.—*The Garden.*

A FLORISTS' FEAST LONG AGO.—The following copy of the prize list of a flower show, held many years ago, may be interesting to some of your readers—P. G. "To all Gentleman Florists.—Your company will be esteemed a favor to dine with the Society of Florists, at the Lion and Lamb Inn, in Leicester, on Monday, the 16th day of April, 1787. Ald. Coleman, J. Newbold, stewards. The following free prizes will be given:—The best and compleatest Auricula, 10s. 6 '. ; second ditto, 7s. 6d.; third ditto, 5s.; best seedling ditto, 5s. The best Polyan-

thus, 7s. 6d.; second ditto, 5s.; third ditto, 2s. 6d.; best seedling ditto, 2s. 6d. Dinner to be on the table at two o'clock. The flowers to be the produce of each person's own garden, and the seedlings of their own raising, and never shewn before for a prize. N.B.—All florists to leave the blossoms they shew for inspection of ladies and gentlemen of the town the next day; to be seen at the Lion and Lamb. Gentlemen florists who live at a distance from Leicester to be allowed to shew their Auriculas in viols."—*Garden.*

Horticultural Societies.

EDITORIAL NOTES.

PENNSYLVANIA HORTICULTURAL SOCIETY.—We had occasion to say of one of the last meetings of this Society, that there was a lamentable falling off in the evidences of *skill* in the objects exhibited. It is a great pleasure to note that on this occasion there was a marked improvement. Things were better grown than we have seen them for a long time. In this respect few things could excel the Caladiums of W. Joyce, gardener to Mrs. M. W. Baldwin. They were not drawn up as usually seen,—not much over two feet,—and yet had hundreds of healthy leaves. The same good credit must be awarded Alex. Newitt, gardener to Mr. H. P. McKean, for his Lycopodiums. These were grown in flat pans, about two inches deep, and some eighteen inches over,—the soil somewhat elevated in the middle. It would be scarcely possible to beat them. As a specimen of good growth we might also notice a Croton maximum in Mrs. Baldwin's collection, The variegated Crotons often have a sickly look,—as this one was, it became a pleasurable object. That extremely beautiful leaf plant, Sphærogyne latifolia, was also in perfection in this collection. The leaves measured about twenty inches by eighteen. Mr. Hugh Graham's collection, always good, was improved for this occasion by the absence of enormous tub plants, requiring time rather than skill to grow, and the presence of smaller but better grown things. Rare palms are always a feature in this collection. On the present occasion we noted as among the most desirable for our readers to know about Livistonia excelsa, Areca lutescens, Cycas Neo Caledonica, Martinezia Lindeni, Caryota urens, Cocos Australis, and Phœnix pumila. None of these grow extra large, at least for a long time. Mr. F. Hahman, a Philadelphia Florist, has some tolerably well grown Petunias in pots, which however had not had sun enough to induce an abundant flowering. His double geraniums were also very well grown. We have not noticed this name among former exhibitors, but he gives evidences of skill which will no doubt place the older plantsmen on their guard.

There were not many old and rare, or new and scarce things on exhibition. Tapionates Carolina in Mrs. Bissett's collection we saw for the first time in flower. It is a dwarf somewhat bushy, succulent plant, with purplish tinted Gloxinea like leaves, and rather large pure white flowers. A well grown plant would probably be very attractive. Mr. Dreer had a small plant of Desmodium penduliflorum. It is a purple pea shaped flower, and a plant which might be very effectively grown. Another plant just coming into notice, Antigonon leptopus, was in Mr. W. T. Feust's collection. It is a climbing plant, bearing a profusion of rose colored flower like bracts. Mr. Foust also had a pretty and rare fern, Adiantum Sancta Catharinæ. It is one of the coarser frond kinds, but the edges are nicely laciniated. Mr. Dick is always rich in succulents. Echeveria rotundifolia is one of the most peculiar of these. It has some popular resemblance to the common ice plant in foliage, but it is a shrub.

In the way of fruits the quality is perhaps finer as regards pears than they have been for some years past. This is particularly the case with those from Mr. Satterthwaite, of Philadelphia. There were pears from a great many distant places as well as from near home, but all the premiums for special varieties, with the exception of that for Beurre Bosc, were taken by him. His Bartletts, and Beurre d'Anjous have hardly ever been equalled by anything exhibited, while his Lawrence were so large and fine that good

Pomologists hardly knew them. Mr. S. also had some very pretty specimens of the Evening Party apple, which is regarded as among the "coming" kinds. It has somewhat the appearance of Early Joe, but is a late apple. A dish of Cornell's Fancy apple in this collection attracted general attention by their size and beauty. Ellwanger & Barry, of Rochester, and C. M. Hovey & Co., of Boston, added much to the interest of the exhibition by contributions of numerous varieties of pears; and the collection of plums from the former made people wish they could only go and do likewise.

It is singular to note how varied is the coloring of fruits with locality. The Seckel Pears of Richard Thatcher, of Darby, were as brilliant as full blown roses,—while Satterthwaite's were colorless, but of immense size. P. H. Alburger's Pears were also beautifully colored. The grape is always well represented, and the present did no discredit to the ancient reputation. Philip Reilly, gardener to Mrs. S. W. Merrick, was conspicuous among the exhibitors of foreign grapes,—and Mr. Ricketts, of Newburg, with his native seedlings.

One of the progressive features of the Society's exhibitions is the increasing attention given to cut flowers. On this occasion there were excellent contributions from the following firms:—Pennock Brothers, H. A. Dreer, Meehan, Traute, J. W. Sherwood, Habermehl, Hugh Graham, Mrs. Bissett, Craig Brother, Jennie Scott, Hoopes Brothers & Thomas, Plender, and perhaps some others.

TEXAS HORTICULTURAL SOCIETY.—This is a new organization of great promise as we judge from its first exhibition, held on the tenth of August at Houston. The attendance was beyond expectation. The premiums, numerous and liberal, were all warmly contested,—and showed how great was the interest everywhere felt. The grape and peach seem the leading fruits in which general interest is most centered,—though apples, pears, and other fruits made no mean show. The following account is given of a new hybrid grape:

"E. W. Krause, Waco, Texas, makes a splendid display of grapes and peaches. One item particularly, is the Texanna grape, a new hybrid, produced by fertilizing the Texas native mustang with pollen of white Hungarian (foreign). This bunch is from the first bearing of the vine which is now three years old. Its habit of growth is vigorous and healthy, and the wood is stout and short jointed. The fruit has much the appearance of the Malaga, in color."

HORTICULTURAL HALL IN BALTIMORE.—It is under consideration to erect a hall in Baltimore, for the Horticultural Society. Plans have been drawn, and the estimate of cost under 40,000 dollars.

THE AMERICAN POMOLOGICAL SOCIETY.—The meeting at Chicago, is to be ranked among the very successful ones of the Society. One of the best features is the bringing together of friends with mutual aims and sympathies. In this respect there was little to complain of. Friends met friends at every turn,—and from Her Majesties Dominions to Mississippi and Florida, and from Maine to Nebraska we saw familiar faces, and grasped familiar hands.

The fruits were admirable,—and in despite of predictions founded on "short crops," could not be well excelled in either quantity or quality They were placed in the Horticultural Department of the Inter-state exhibition, and were not well arranged. There were some complaints on this score; but we judge it was somewhat owing to the managers not having h d the aid of superior advice in the matter. We know ourselves something of the difficulties which surround committees of arrangements; and are not disposed to be too critical in a case like this. The members of the Society, whether contributors or not, were kindly given free tickets to the exhibition, which in itself was worth going to Chicago to see.

The meetings for business were particularly harmonious, and well conducted. But this is a matter of course when Marshall P. Wilder presides. The new secretary, W. C. Flagg, had the management of most of the details, and earned the thanks and received the good will of all. Berckmans, Thurber, and Manning, on New Fruit Committee, had their hands full from before early breakfast to late at night—and other committees worked well. It was indeed wonderful to note how much was done in so short a time.

One evening was given up to essays, talks, and discussions. Mr. Bishop told of the wonderful progress of orange culture in Florida, and the way to make it pay. That essay will go into the Proceedings of the Society. Prof. Riley spoke on the *importance of small things in the culture of fruits.* He pointed out the distinction between various species of grasshoppers, canker worms and so forth. The distinctions were

very small; but of great importance,—for some of these insects are perfectly hateful,—while others do comparatively little good or harm. The address received what it well deserved, a special vote of thanks. Mr. C. M. Hovey made some very good remarks on the fungoid diseases of fruit trees, showing that fungi would not account for all the appearances,—and leaving no doubt that many diseases, especially cracks in some varieties, are due to climatic causes. But perhaps the best discourse of the evening was by Dr. Hull, the President of the Illinois State Horticultural Society, on *how to grow fruit.* His great point was that there is no advantage in having roots wander horizontally long distances away. He brings the food near to the trunk of the tree, and by persistent root pruning keeps the roots within bounds. He is not only able to show by the profit of fruit culture that this is correct, but also proved in an excellent manner that this practice is in exact accord with all we know of vegetable science. A. W. Harrison, Dr. Sylvester, Mr. Sawyer, and others also made interesting remarks.

The South Park Commissioners took in carriages the whole convention around their beautiful grounds. Mr. Cleveland, the landscape gardener, entered enthusiastically into the details of the work,—and Prof. Babcock did the same with his botanic garden. Both gentlemen have reason to be proud of their work. And then the Illinois State Horticultural Society finished the whole by a banquet to their brethren from distant parts, which was an extremely enjoyable experience. Dr. Hull ably presided in the early part and Col Wilder succeeded during the evening, and every body knows what this means. Various toasts and sentiments were offered, and responded to by Col. Wilder, Governor Beveridge of Illinois, President Shaffer of Pennsylvania, Secretary Harrison of Pennsylvania, Ex-president Hovey of Massachusetts, and Prof. Rodney Welch of Illinois, whose response to the toast of the "Granger's Welcome," we give herewith:—

"Wisemen from the east," we welcome you here,
To our plain backwoods banquet, our rough western cheer;
Though we've few Boston nick-nacks to grace our rough boards,
We have piled on the best this poor shanty affords.

Our food is corn dodger and flesh of the swine,
Our champagne's made of corn; of barley our wine.
We ride in farm wagons, we sleep on "shuck" beds,
And your Boston-made hats are too small for our heads.

We are out on the border, and do not propose
To match you in living or wearing store clothes,
We strive to take comfort, and lightly we prize
Your three-story boot heels or paper neck-ties.

We are all border ruffians, and proud of the name,
We have staked out our lot, and we call it our claim,
We are armed to the teeth, and our teeth are home-made;
We can fight if we must, though it is not our trade.

Daniel Boone was the Trojan who first sought our shore;
The rifle and flask and Penates he bore;
While most of our classics,—and they are but few,—
Were composed by the Choctaws, the Pawnees, and Sioux.

Though awkward our manners, and barb'rous our speech;
Though our words pain your ears like the savages' screech;
Before you condemn us with scorn or with sneer,
Think how far 'tis to Boston, and don't be severe.

I know a fond mother, who assures her three boys,
If they grow up in virtue and make no loud noise,
Say "Yes, ma'am" and "No, sir;" be very precise
In blacking their shoes and in keeping them nice,

If they learn all their lessons and keep at the head,
And each night say their prayers e'er they jump into bed,
If they never rob bird's nests and never tell lies,
They shall all go to Boston instead of the skies.

Our Common you've seen; you can walk there for hours;
You may tread on the grass; you may pluck the wild flowers;
You may smoke there at will, and at every half mile
There's nothing to hinder enjoying a "smile."

And now, boys, take our hands; they are hardened by toil,
They are moistened by sweat, they are blackened by soil;
Go with us to our huts; there's no lock on the door,
And we'll make a field bed on the soft prairie floor.

Though you're Jews, still your welcome to draw from our well.
Though to spies, if an hungered, still food will we sell.
And you'll find your corn-money each man in his sack,
And we'll give your our Goshen if you will come back.

Also by J. T. Allen and Hon. Sterling Morton of Nebraska, ex-president Dr. John A. Warder of Ohio, Dr. C. C. Hamilton of Nova Scotia, Colonel Chamberlain of Virginia, Dr. Tice, the meterologist of Missouri, Hon. W. C. Flagg of Illinois, Mr. Jonathan Perian of the *Western Agriculturist*, H. W. S. Cleveland of Chicago, Prof. Riley of Missouri, and Prof. McAfee of Iowa.

The great through line of the Pennsylvania Railroad, and the Boston and Albany Railroad, entered into the spirit of the occasion, and issued through tickets at very low rates,—the palatial Grand Pacific Hotel of Chicago, also treated the

pomologists liberally,—but the officials of Chicago did not do the handsome thing; and those who live in Richmond, Boston, and Philadelphia went their ways boasting about the courtesies extended by *their* mayors in the past to the Society, and wondering why Prof. Welch did not include this little item among the others in his poem, as things which the great "granger" country had yet to improve on.

We give below a part of the PRESIDENT'S ADDRESS.

ADDRESS OF PRESIDENT WILDER.

We assemble here at the invitation of the Illinois State Horticultural Society, to whom and to the Inter-State Industrial Exposition, we tender our grateful obligations for their courtesy and the arrangements made for our accommodation.

Twenty-seven years have taken their flight since the organization of our Association. Many of those who assisted in its formation rest from their labors; but some of them are here to rejoice with us to-day in its progress, prosperity, and usefulness. Our Society still lives in a fresh and vigorous manhood, and we are permitted once more to assemble for the promotion of the objects so dear to its founders and so essential to the welfare, not only of our common country, but of all mankind. Like all other associations and enterprises, it has had to pass through its years of pupilage before it could arrive at its present state of knowledge; but it has now attained to manhood, and is able to act with an energy and enterprise which gives promise of long life and still greater usefulness. It has celebrated the first Quarter-centennial of its history, and now awaits a fuller and more glorious development of the benevolent purposes for which it was established.

Gentlemen, your presence in such goodly numbers affords me the highest gratification and encouragement. I am most happy to meet so many of our Western cultivators, whose personal acquaintance I shall be glad to make; and I am especially pleased to recognize many whose names are honored for the contributions they have made to the cause of science, and will be cherished as long as merit shall be appreciated and worthy deeds command the gratitude of mankind. This is as it should be; and, coming, as we do, from distant and different sections of our extended country, embracing almost every variety of soil and clime, we are enabled, in a short time, to accomplish much in comparing the effect of temperature and other climatic influences on the fruits of our different localities, and, by our record of experience, to decide on the kinds suited to our various districts; and thus build up the science of American pomology.

Our Society has held its meetings in the various quarters of our country—East, West, North, and South; and now it assembles, for the first time, in this great commercial centre of the West. It has been extending its jurisdiction and influence with every session, until it embraces the whole Union, and the provinces of Great Britain that lie on our borders. It has officers and local committees in all these sections of our land, and has assumed the vast work of designating fruits which are found to be congenial to the various soils and temperatures of fifty States and Districts that are named on its catalogue. When we consider that these results have been secured without governmental aid, or public patronage, and simply by voluntary association, and how long it has taken old and richly endowed institutions to make their influence felt on the world, it is a matter of surprise that our Association should have impressed its importance so deeply, not only on the minds of our people, but on the nations of the Old World. How distinctly do we now see the wisdom and foresight which prompted the founders of this Society in the formation of a national institution, whose example should be followed by the nations of Europe, for the promotion of the same science.

The fruit culture of America has surpassed the world. Like the genius and invention which characterize this nation in other arts, it has taken its stand as the fore-runner and herald of a new era in the history of pomology. Yet, gentlemen, we have scarcely entered on the vast field which we are to occupy. We have but just seen the dawning light of our science, which is yet to illumine this great Western world. True, we have planted our ensign in almost every section of the country, we have stationed our pioneers from the Atlantic to the Pacific, from the Lakes to the Gulf, and have gathered into our fold the most experienced and enterprising cultivators of this country, and we have already produced many native fruits, which are not surpassed by those of foreign climes. But when we reflect, that our country is constantly expanding and increasing in its territory and population, to which no human foresight can fix a limit, we see the grandeur and importance of our work.

The progress of fruit culture is especially evinced by the improved methods of cultivation, the high standard for quality, the great quantities of fruits now sent to market, the improved methods of packing, and the increased facilities for transportation, not only to all parts of our land, but for foreign exportation, so that at this writing two thousand and four hundred baskets of peaches are on the way to England, by steamship, for a market.

Nor is this progress confined to the fruits of our northern clime. This interest and enterprise has exerted a powerful stimulus in the Southern, South-western, and Pacific States, not only in the culture of the grape and other northern fruits, but of the orange, the olive, almond, and fig for commercial purposes, which, as a national society, we are bound to include in our sphere of action. How great would have been our surprise, if we had been told, at the formation of this Society, that, at its Quarter-centennial celebration, magnificent oranges and lemons would grace the exhibition from Mississippi and California, and still more strange should we have thought the prophecy, that the latter State would have groves and plantations of the orange to the extent of hundreds of acres at the present time; or what would have been thought of the interest now manifested in Florida and the Southern States, giving promise of a great future for the culture of semi-tropical fruits in America. Within a few years a new zeal has sprung up for the culture of these precious fruits, which give hopes of a development of resources that may rival those of the most favored foreign climes. Already thousands of acres have been assigned for the culture of these fruits which cannot fail ultimately to become valuable, subject only to the losses which always occur in the beginning of the new enterprise, from want of experience on the part of too sanguine operators.

But what shall we say of the grape, now multiplied into hundreds of varieties, some of which are suited to every portion of our land. Many present can remember the time when the Isabella, Catawba, and Scuppernong where the principal varieties in cultivation, and when not a seed had been sown for the production of a new variety. Now, millions of seeds are sown, and from these thousands of new and varied offspring arise, some of which are constantly taking their places on our catalogue. Instead of two or three varieties, as in former years, we have the collections of Ricketts, Bush, Campbell, Moore, and others, containing a hundred varieties or more, and from which, in all probability, some valuable kinds are, in time, to be added to our list for cultivation in some section of our country. Nor should I omit the wonderful fact that, within the borders of these United States, may be produced, in amazing abundance, every variety of grape known to foreign climes, and from which, ere long, may also arise native varieties of equal quality and adaptation to the soils of our Western coast. In the words of Prof. Gray, "A good time is coming for the grape. New varieties can be produced so easily that they will have achieved their position when the American Pomological Society holds its Centennial celebration."

Nor is there any reason to doubt that, as with the pear and other fruits, new varieties of the orange, lemon, almond, olive, and fig may be produced of equal or better quality than any we now possess, and adapted to a still wider space of territory. Of the fig, and the raisin as articles of commerce, Dr. Strentzel, our Chairman of the Fruit Committee for California, writes that a wide field is opening on the Pacific coast, and we believe that both these and the orange will be greatly increased in the extent of their cultivation and general use. The total yield of raisins in California last year was estimated at four hundred tons, valued at nearly eighty thousand dollars.

Have you ever, my friends, thought of the significance of the phrase "American pomology," a phrase till lately unknown among us. Think how recently the fields, which now furnish the majority of fruits, were the abodes of the red man in the forest-wild, and look, for a moment, on the contrast. What a grand display of our annual product of fruits! What mountainous heaps of apples, pears, and grapes! What millions of baskets of peaches and strawberries! And yet how limited the product when compared with the harvest of that measureless breadth of acres which are to be covered in the future with these fruits. How emphatically do these point to that important part which our Association is to play in the development of the fruit resources of this continent, and in helping on the grand end of human happiness. Gratifying and wonderful as our progress has been, it is but as a glimpse of the morning compared with the noon-day glory, when these rich gifts of Providence to our favored land shall have arrived at their full development. The grain, and other manifestations of material wealth, with which our country abounds, are the reserved stock, upon which the nations of the Old World rely to meet the insufficiency of their own crops; and the time will arrive when the fruits of our land, now becoming so popular in foreign markets, will be required by the imperative demand for these products, and without which the comforts and happiness of life would be greatly reduced. It is, therefore, our duty as benefactors of mankind, to develop these immense resources of our country, and to increase our fruits to their fullest extent; so that from our Eastern to our Western shores, they may be distributed in abundance, not only to the wealthy, but to all classes, as a part of their daily food. The trees we plant live to bless the world and enrich the inheritance of our children long after we are laid beneath them; and, with the return of each successive season, to shed their fragrance on the air and crown with golden fruits the harvest of the year. Nor are these blessings only for a day or an hour.

"Another crop the following year supplies,—
They fall successive and successive rise."

MISSION AND IMPORTANCE OF THE SOCIETY.

I have often addressed you on the importance and mission of this Society, and I was inclined to refrain from further remarks on this subject; but the more I reflect on it the more am I impressed with the imperative obligations which rest on us to do what we can in our day and generation for advancing its great interest. In the providence of God our Society has been made the leader of pomological progress on this continent.

"There is a tide in the affairs of men,
Which, taken at the flood, leads on to fortune,"

and there is a tide in the affairs of institutions as well as of individuals. We seem to live in a peculiarly favorable period for the promotion of our art. When we consider that our Society was the first national institution of the kind, and that its example has been followed in so many other nations, we may take it for granted that the methods which we have used are the best for the acquisition and the diffusion of knowledge on this subject. These considerations impress us with the importance of our work, and the duty to develop, on the virgin soil of this Western Continent, the wonderful resources which have for long ages lain hidden in the arcana of pomology. Nor is it singular or strange that they should have remained thus unknown; for Providence puts it into the hearts of men to work together for the advancement of his grand designs by the development of the resources he has kept in store to ameliorate the condition and increase the happiness of His children, no faster than the age is prepared to receive a more refined and higher civilization. Thus was it in the discovery of this country, with its vast agricultural and mineral resources; thus in the Declaration of its independence as an asylum for the oppressed of the world, and thus in giving us the illustrious men who have led the way in the march of civilization, which characterises the age in which we live.

"That every blessing may be ours
Which Providence has given,
To every land and clime beneath
The canopy of heaven."

Thus He gave us Columbus and Vespucius, Franklin and Morse, Washington and Lincoln; and thus he gave us, not less efficient in their spheres, Coxe and Prince, Buel and Thomas, Dearborn and Manning, Downing and Brinckle, and Kennicott, and others who now live for the promotion of American Pomology, and with them the assurance that He will raise up those who shall carry on the work when we are gone.

Standing, then, as we do, to-day, in this great commercial city, which but a few years ago had only a beginning—looking down the Atlantic slope and stretching our vision over to the Pacific coast, and from the lakes to the Gulf, and embracing within our recollection the entire history of the pomology which has made our nation so renowned, who does not feel a desire to aid in its promotion throughout the whole domain. For myself, I yearn that my life may be prolonged to witness its further advancement; and, should I be called to depart, I pray the good Lord that He will make me a ministering angel to earth, so that I may still witness its growth. Permit me to say, that I esteem more the privilege of having been a co-laborer in this most beneficent work, than in any other with which I have been connected; and I appreciate more highly the favor of the official position with which you have so long honored me than that of any other which has been conferred on me during a somewhat protracted life of public and private service. Pardon me, gentlemen, for these personal allusions: but when I reflect that this is but the youth of this Society, and contemplate what its maturity will be; when I reflect upon the blessings which have resulted from the

labors of its members; when I contemplate the happiness that it is to confer on future generations, when our vast territory shall be peopled by an enterprising population, elevated in the arts and refinements of life,—my heart rises in gratitude to the Giver of all good that he has permitted me to be a humble co-worker in what has already been accomplished by the diffusion of our precious fruits—far more precious than all the gems that have come down through a long line of monarchs.

THE PUBLISHED VOLUMES OF PROCEEDINGS

And here let me acknowledge the great aid which has been rendered to our association by co-operation of the press, and the agricultural, horticultural and other kindred institutions, so numerous in our land, most of which have taken an interest in our work and the growth of our Association. Thus the concentrated efforts of a thousand societies and thousands of experimenters are uniting their efforts with ours, and through us are urging on the good work, and making the published proceedings of this Society, as they ever should be, the acknowledged pomological authority of the land. Let me state, for the information of our recent members, that these have been regularly published from the organization of the Society, and comprise, in a condensed form, a mass of information on the pomology of this country, and the adaptation or non-adaptation of fruits to its several localities, such as is nowhere else to be found.

Few are aware of the time and labor which have been expended on these volumes in preparing them for publication. They embrace the life-work and the concentrated wisdom of a generation of the wisest and most experienced cultivators of our own times. In the language of our worthy friend, Mr. John J. Thomas, "*No other similar institution has attempted so much as this Society, and no other has accomplished so much.*" Into these volumes this information is condensed so that not only the people of the whole country but those of foreign lands can avail themselves of it. Formerly these were published in octavo, but the last two are in quarto form, and constitute, as I have before remarked, a pomological library in themselves. Especially is this the case with our Catalogue of Fruits, embracing, as it does, columns for fifty different States and districts, into which are compacted the list of fruits for each. These States are grouped into divisions, somewhat similar in climate, and other characteristics affecting their culture, the names of the fruits being all classified and arranged in alphabetical order, with their synonyms, and with marks indicating their value for each section of our country.

The General Chairman of the Fruit Committee, Mr. Patrick Barry, is constantly in correspondence with the various State and local committees in regard to the merits of the fruits which come under their notice, thus establishing the value of each, so as to secure approved lists of the different species of fruits cultivated in this country. Nor should it be forgotten that all these services have been rendered without any pecuniary compensation to our officers, except to a secretary for a few years. And here let me express our obligations to Mr. Henry T. Williams, secretary *pro tem* at the session of 1873, for his liberality in tendering the sum which would have been his due for his services in the compilation of our last volume of proceedings, and also to our secretary, the Hon. W. C. Flagg, for the generous interest in the welfare of the Society, which prompted him to decline the usual salary; so that the services of all officers are now rendered gratuitously. Especially to be remembered with gratitude are the faithful and efficient services of our treasurer, Dr. Thomas P. James, who from the organization of the Society, has performed the duties of the office without any other recompense than the satisfaction to be found in their conscientious discharge. Our funds, being all derived from membership, have never been abundant, and some incidental sums have been occasionally paid to keep a balance in the treasury; but, were they more abundant, they would materially assist in promoting the objects of the Society, and the dissemination of its publications; and permit me to say, that no better disposition can be made of this world's goods than to give a portion to our Society, so that its bureau might be in constant working order, with the ability to distribute its publications throughout the country.

In this connection, I think it proper to state, that one example worthy of imitation now exists in the generous intentions embodied in a will, already executed, by which the American Pomological Society is to receive ten thousand dollars at the decease of the generous devisor, which we hope may be far in the future. Let others go and do likewise!

(*To be concluded in our next number.*)

The Gardener's Monthly,

DEVOTED TO

HORTICULTURE, ARBORICULTURE & RURAL AFFAIRS

EDITED BY THOMAS MEEHAN.

Old Series—Vol. XVII. NOVEMBER, 1875. New Series—Vol. VIII. No. 11

Flower Garden and Pleasure Ground.

SEASONABLE HINTS.

This department begins to present to many minds a dreary appearance, and yet the rustling of the dry leaves and the whistling of the winds through naked boughs, and the plaintive voices of trembling evergreens, have a charm for many which not even the cosiest city parlor, with the most agreeable of friend to chat with, could favorably compare. We often try to think one month better than another,—which we would prefer for joyous pleasure,—which we would rather select as a month to die in, but find none to choose from. All have special points to admire. Certainly the fall of the leaf in the country is not the least enjoyable of any.

But to more practical matters. These leaves have to be gathered up. They are excellent to mix with hot bed material, and where practicable, should be saved for this purpose. They do not heat so rapidly as stable manure, and in this have an advantage as tempering its violence, making it last longer, and maintaining a more regular heat. They are excellent material to put round cold frames to protect half hardy plants. A board is put up the height of the frame boards, and about a foot or more from them, and the leaves filled in between. If the plants are somewhat tender, the bottom of the frames may be filled in a few feet with the leaves. Much heat is thrown off during the decomposition of the leaves, which though not enough to keep out severe frost, yet modifies somewhat the temperature. These leaves after they have been two or three years decaying, make admirable stuff for potting and flowers in general.

Leaves are the natural protectors of grass; clearing them from lawns, it has a tendency to impoverish the vegetation. Mowing of course also weakens a lawn. This makes an occasional top dressing advisable,—any decaying matter will do. This is the season to apply it. We would not, however, use stable manure when other can be had. It is so disagreeable in color all winter,—and there are other objections besides. Sometimes lawns, after frequent mowings, become so weak, that not even manurings will bring them up again; for, as we have often taught our readers, cutting off green herbage weakens vitality. When this is the case, small Veronicas and other minute weeds, which the scythe does not cut, grow strong enough to crowd out the enfeebled grass. We have some resort to weeding in such cases with little beneficial results. The best plan is to break up the lawn at this season, let it lie all winter, and seed it again anew in spring. The Blue Grass of Kentucky or Green Grass of Pennsylvania—botanically *Poa pratensis*—is better than any "mixture" for making a first-class American lawn. For reasons we have given, lawns run out faster when a mowing machine is used, than when scythe cut, but the advantages of a machine are so great, that we wonder that they are not in more general use. There are many good ones now, all excellent for the purpose.

As soon as the ground gets caked with the first real frost, herbaceous plants should be protected. Though hardy, they will repay this extra care,—mostly natives of woods or grassy places in their native state, they expect a covering of leaves or dry grass. We find dry leaves the best material

for the purpose, a few inches is a sufficient depth,—a little soil being thrown on to prevent the leaves blowing away. Where such material is not at hand, the common garden soil may be drawn over them, as before recommended in these pages.

There is some danger of Pampas Grass rotting by moisture getting down in the hollow of the leaves into the heart of the stem. A friend tells us he guards against this by burning off the old leaves of the Pampas before putting the dry leaf covering on. Last year we kept them remarkably well by turning the whole plant over on its side, and then covering leaves and roots with a foot of earth. It was a severe winter, but the plants were in good condition in spring.

One of the last thought of things, too frequently, is to apply manure to flower beds. But it is scarcely less essential to a fine summer display, than it is to the production of fine vegetables; and certainly as necessary as to trees, or the lawn. Still it should be applied with caution. While a poor soil will only grow plants to a diminutive miniature size, which, though clothed with a profusion of small, starved-looking blossoms, make no show; a soil over rich will cause too great a luxuriance of foliage, which is always opposed to an abundance of bloom. In most cases we prefer half-decayed leaves; where these could not be had we would use stable manure. The former spread over the soil two inches thick, or the latter one inch, would form a dressing which, in ordinary cases, should last two or three years. It is difficult to get flowers to do well in even the most favorable soil, if it is liable to hold water to stagnation in winter. Where flower-gardens or beds exist under such circumstances, advantage should be taken of the present season to have it thoroughly underdrained. It will be more beneficial in the end than the most judicious manuring; it is indeed in itself a powerful means of fertilizing the soil.

Most of the tender plants that we desire to preserve over the season, have now been lifted from the borders, and removed to winter quarters,—and in a few weeks the beds will present a rough and forsaken appearance. It is too often the practice to leave the borders just in this neglected condition till spring-time returns. But the person of true taste finishes up the beds, and makes all tidy. In the absence of summer flowers, even order pleases.

COMMUNICATIONS.

PLAN FOR A SMALL GARDEN.

BY MRS. A. A. SAWYER, WISCASSET, MAINE.

In this design the garden is supposed to be located on the southerly side of the house, and extending forward towards the street, which runs north and south in front (west) of both; but the plan may be reversed or modified to adapt it to any given locality. Somewhere on every town or village house lot there should be land enough for such a garden as is here represented. Between the house and garden there should be a narrow plat of grass, and a more extensive lawn in front of the house, in which circular or fancy shaped beds may be cut for small shrubs of select varieties. Stumps of trees can be covered with running vines. Rustic boxes and seats, if they are artistically made, and vases also, add much to the beauty of a lawn or garden. The surface should be level, and terraces ascending or descending may be introduced on either side to make it so.

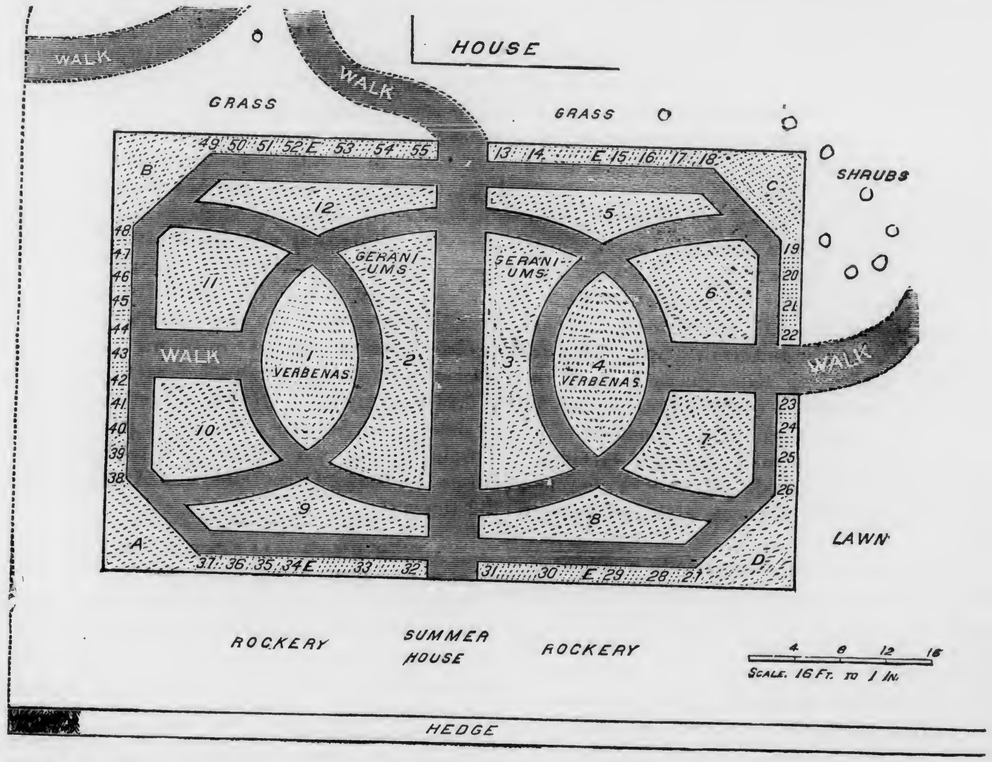
In beds No. 1, and No. 4, the centres of which are raised about one foot above the surrounding surface, plant hyacinths and tulips, for spring blooming; a circle of hyacinths at the centre, with tulips filling the other spaces. They need a rich soil, and are perfectly hardy; set bulbs in the fall, three or four inches deep, and cover well with boughs to protect them through the winter. Fill the beds with verbenas of all the leading colors, (without removing the bulbs); set about one foot apart, and peg down as soon as set out, if the plants are large enough. I would recommend buying the plants of florists instead of raising them from seed. If one chooses, young roots may be potted in September and kept in a cool room during winter, and cuttings may be made in February for bedding out in June.

Bed No. 2 and 3—Geraniums. Scarlet, white, pink, salmon and carmine—set in ribbon style. I recommend keeping them in pots plunged about two inches below the surface, and a flat stone should be put at the bottom of each pot to prevent the roots from going through the outlet; they should be plunged one foot apart, and should be watered every day if there has not been rain, but on no account apply water to the leaves, blossoms or buds. The advantages of treating geraniums in this way are, they can be put out in beds earlier, will blossom more freely and if frosts are expected early (as we sometimes have them), the pots can be lifted and sheltered, and

put back again in the morning, and have your beds look pretty all through the autumn. Keep in pots during winter, or take them from the pots and pack in boxes of sand; and in either case keep in a cool, dry place, and water once a week. Or they can be hung in the cellar, shaking the earth lightly from the roots, and hang where it is cool but where they will not freeze; or, if preferred, buy of florists, as they are not very expensive. I am wintering forty or more for plunging in my garden next summer.

In Bed No. 5, I would have snapdragon, in all of its beautiful colors. The plants are hardy, and if properly covered with evergreen boughs blossom better for having a watering of liquid manure occasionally. Start in the house, or buy of florists, or plant in bed where they are to stand. Support tall ones by tying to stakes. A few plants of mignonette in this bed is quite an addition to it.

Bed No. 7—Tropaeolums. Tall ones in centre, with trellis for their support; dwarf for edging, and put a few (say five) plants of *Perilla Nankinensis* in a row, or around the tall ones. Buy the latter, or start in the house, as they are tender annuals. The tropaeolums are hardy and can be planted out in border; have plants one foot apart of each of the above.



many old plants will live through the winter, and blossom freely all summer. Make a ribbon bed, or have plants in masses; cover the seeds lightly with fine earth. Pansies set in this bed would be pretty, as they require shade in the summer to bloom well.

Bed No. 6—Asters. Tall ones for centre (new Victoria) and "chrysanthemum flowered" next, dwarf pyramidal next, and dwarf bouquet for edging. They need a very rich soil, and will

Bed No. 8. This is to be filled with double geraniums, one of scarlet and three pink ones; house heliotrope, feverfews, white and buff carnation pinks, one or two rose geraniums, and six gladioli for centre, and portulacca (six or eight plants) to cover the ground; geraniums, carnations and heliotrope to be plunged in pots. Feverfews are hardy and stand our winters well, by being protected. Set bulbs of gladiolus four inches deep, and about the same distance apart;

take up in the fall, dry the bulbs, put in paper bags, and keep in a dry cool place. Portulacca is a hardy annual; seeds germinate quickly—plant one quarter of an inch deep.

Bed No. 9—Petunias. Double ones for centre; white, crimson and purple, with single varieties in all colors. They can be trained to trellises for the centre, and the single ones tied up or pegged down, just as one chooses. Buy plants, or start seeds in the house; pot some for house in September, or make cuttings; they root easily. A few plants of Coleus Verschaffeltii, are an addition to a bed of petunias. Buy plants or get cuttings from some friend; they are tender, and when kept in the house need a great deal of heat.

Bed No. 10—Zinnias. Hardy; start plants in heat, or sow out in border; transplant in June, or plant seeds as early as the middle of May. They need to be tied up and kept in a symmetrical shape. White candytuft is pretty among them; keep the soil well worked and loose about the stalks.

Bed No. 11—Stocks, or gilly flowers. The principal colors of the stocks are crimson, white, purple, pink and straw. They are handsome for ribbon beds. I would add a group of gladioli for the centre of the bed. Start stocks in house for early blooming and transplant to border when the plants are four inches high if the ground is sufficiently warm. Pot plants for house before early frosts; keep in conservatory or cellar. Sweet alyssum, a fragrant dwarf plant, will look well in this bed. Set stocks one foot apart, with plants of sweet alyssum between them.

Bed No. 12. *Phlox Drummondii* in all colors. Start in house, or plant in the bed, as the seeds are hardy. Set in masses, or it would be more pleasing to see the colors in ribbon style. Set one foot apart; plant seeds one quarter of an inch deep. They need a rich soil to do well.

(*To be concluded in our next number.*)

WINTERING THE VERBENA.

BY THOMAS T. NEWBY, CARTHAGE, IND.

Perhaps some of the readers of the *Gardener's Monthly* would be glad to know that the splendid bedding plant, the Verbena, can be kept during winter in ordinary cold frames or pits, free from mildew, and in healthy condition, by those who are fond of fine flowers, but whose purses deny the use of the more expensive greenhouse. I have a frame about three and a half feet deep, and last fall I placed pots of Roses, Fuchsias, Geraniums, Carnations, Antirrhinums, Verbenas, a Clianthus and some other plants very closely all over the bottom, and filled up all the little spaces, as the pots were put in, with moist sawdust, which kept the pots moist with but little watering during winter. Then having several other fine Verbenas I wished to save over, I fixed a shallow box at the back or north end, resting on cleets, nailed to the sides of the frame, some twelve inches from the top. The box being as long as the inside width of the frame, and about ten inches wide. This box was then filled with small pots of Verbenas, and all vacant places filled with loose earth to prevent too rapid drying out. When the sash was put on, the tops of the plants were nearly touching the glass; and the box was right over Fuchsias and other plants in the bottom of the frame; but the low winter sun shone under it sufficiently to keep them healthy; and the Verbenas were just at the point of ventilation and in full sun light, when the shutters and matting were off. The result was quite satisfactory, as not a plant in the box was affected with mildew, while those placed at the bottom of the frame were nearly ruined by it, and then it was a saving of space, which was quite an item. The past winter was unusually severe here, and I had to keep my frame tightly closed many days in succession, yet the most of the plants I attempted to keep were in fair order in the spring. Roses, Fuchsias, Carnations, and Antirrhinums did the best.

NOTES FROM GALVESTON, TEXAS.

BY W. FALCONER.

Dewberries on Galveston Island.—The dewberry grows wild in several parts of the Island, where the ground is good and moist, and not over salt or exposed. It is also cultivated as a market garden crop, and in many private gardens in and around the city are very productive patches of the same. In Mr. Folt's garden, on Broadway, there is growing against the South side of a close wooden fence, a yard wide belt of dewberries, that yield them as much fruit in April and May, as they can use. Mr. August Middlegger, a farmer and market gardener some six miles West the Island showed me a patch of dewberries covering nearly an acre of ground, in full bearing, and from which he had that day gathered thirty-seven quarts before noon, and expected to pick nearly as many more from the same patch in the afternoon. Last year he sold four hundred dollars worth of fruit from the same patch, and all the care it gets is to plow down the vines every year. Mr. Middlegger advises a dressing of manure at the time of plowing. In lawyer Tucker's garden I saw some very healthy patches of this fruit, run in odd corners, and six feet wide beds. Mr. Tucker's idea concerning them is rich annual top dressings of compost and leafsoil, to keep the roots near the surface, the shade afforded by the vines being ample protection of the roots from the drying power of the sun. The healthiest patch of dewberries I saw at Galveston, was in a private garden at the South-west of the City, where the soil was rich and long cultivated and somewhat shaded by Orange trees. Here the vines were kept rigidly clean and allowed to trail over horizontal bars a foot from the ground.

Dewberries and Strawberries are the only small fruits, exclusive of grapes, I saw cultivated on the Island, and there is a good demand for both in the Galveston City market.

THREE GOOD, SOMEWHAT HARDY PLANTS.

BY J. J. S., GERMANTOWN, PA.

It seems to me, your long ago correspondent, as if it were a duty to tell people what is good, in fact what is best for gardens. We read and re-read without receiving the ideas which actual eyesight would convey. Old as I am, I don't visit gardens as much as I formerly did, and I must tell the fact that three introductions, for ornament, so new as not to have reached everybody, are invaluable. They are Hydrangea paniculata grandiflora, Retinospora pisifera aurea, and Ampelopsis Veitchii. Try them.

EDITORIAL NOTES.

PUBLIC PARKS.—While spending a few days recently in the vicinity of Elmira, New York, we could but admire the beauty of Eldridge Park, and to regret that such public benefactors were all too rare. Meeting since then with the following from the London *Daily News*, we give it here, as just appropriate, and to the point:

"Whole libraries of doubtful value have been written for the purpose of determining the measure in which employers are responsible for the condition of their workmen. Such inquiries are generally vain and sometimes mischievous. But no such danger attends the action of the public benefactor who gives his neighbors freer access to purer air and elevating influences of natural scenery. Six years ago the multiplication of parks for the benefit of our crowded populations was declared by the Legislature to be an object of public policy, to which funds derived from rates might properly be applied, and in some places it is only by means of the authority vested in public bodies that such objects can be accomplished. There is, however, always something grateful in the dedication to some high public purpose of private wealth which is too often lavished in idle ostentation. A public park in the vicinity of a large town is a blessing, the value of which is literally incalculable. All over the kingdom may be found larger or smaller parcels of land, given by their former owners with some modest intent, which have long since grown into foundations of a magnitude which never entered into the most sanguine anticipations of the donors. Many of these, however, were devised for purposes the beneficence of which is of a character calling for the revision of posterity."

PLAN FOR A SMALL PLACE.—So many small gardens might be made beautiful that are now utterly neglected, and that too without any great pretension to great art in landscape gardening, that we have much pleasure in giving to day the premium plan for a little garden of this kind, as offered by Mr. Boardman of the *Maine Farmer*, and which was awarded to Mrs. Sawyer, of Wiscassett, and which we have been kindly permitted to copy from the recent proceedings of the Maine Pomological Society.

QUERIES.

PLANT FROM CALIFORNIA.—*Z. E. B., Brocton, N. Y.*, writes: "Enclosed I send you a twig cut from a tree in Santa Rosa, California. It is described to us as something very fine and desirable. Can you give us the *name*, and inform us if it will stand the climate of New York State?"

[It is a Melaleuca or in garden language, one of the Australian "Bottle Brushes," and will not do well anywhere when the thermometer goes below freezing point.—ED. G. M.]

Greenhouse and House Gardening.

COMMUNICATIONS.

PEN PICTURES OF PET PLANTS; or, THE ROMANCE OF PELARGONIA.

FOUNDED ON FACTS.

BY WM. T. HARDING.

Happy recollections of Floriculture pleasantly return to my boyish days, when I, a mere novice in the profession, felt proud of my success at grafting variegated Geraniums, (Pelargoniums) on to stems of the old scarlet, or horse-shoe kinds.

In the mind's eye, I see again the handsome standards, ranging from two to five feet high, which occupied the stage of a country flower show years ago. They were the glory of the greenhouse, and were often noticed and commented upon, as something unique. At any rate, they had the merit of being novel, if nothing else; and were a source of pleasure to the young gardener who grew them.

Since the year 1632, when Pelargonium triste, or *night smelling*, as it was called, reached England. from the Cape of Good Hope; some three hundred varieties have followed, and found a home in "the tight little Island." And it would be no exaggeration to say, a thousand or more varieties have sprung from their Caffrarian ancestors. But, "as all things in their course must change, (Pelargoniums not excepted) and seasons pass away;" so have the elder members of that ancient family, with few exceptions, one by one, passed by, and are seen no more. Being out of sight, they are out of mind, and their names are never mentioned now! The modern cultivator knows them not.

However curious or comely, fragrant or pretty they might be, (and they were exceedingly so,) they seem to have lost favor with the public, simply because they are no longer in vogue. Young and fresh favorites have taken their places; while they, succumbing to the inexorable decrees of tyrant fashion, have had their day, and departed.

As the progressive horticulturist *must* keep pace with the times, and cater to the somewhat capricious views of his patrons, he varies their pleasures by introducing new fruits and flowers; and as old acquaintances pass by, we are in due time made familiar with the new comers. And as that seems to be the way of the world, we rapidly approach the advent of the georgeous era of Geraniaceous grandeur.

With a pleasant surprise, we are ushered in to the age of magnificent Zonales, and their lovely congenors. Who can forget the enthusiasm with which the renowned Mrs. Pollock was received? Affecting great taste and elegance in dress, she made a successful debut, richly attired in a most superb and brilliantly shaded tricolored mantle. The new style proved very attractive, and became *the sensation of the day*, among the fancy. Soon after, followed the rustic beauty, the Lass o'Gowrie, robed in rosy red and snowy white. And the gay Cavalier, Peter Grieve, like "a baron all covered with jewels and gold," makes his bow. Lovely Venus, (not a Roman myth) with Mabel Morris, Donna Maria, and Queen of May, present their charms in graceful combination with the Beauty of Mount Hope; —of whom it may be truly said, "she is all my fancy painted her."

St. John's Wood Star, as brilliant, as a meteor, brightly glimmers among crowns and coronets of such magnates as the Empress Eugenie, Emperor of Brazil, Princess of Wales, Princess Beatrice, Crown Prince, Prince Arthur, Duke of Edinburg, Earl Rosslyn, Lady Cullum, and Countess of Tyrconnel. In the mean time, the Glow Worm gilds the elfin flower of spring, and United Italy rejoices beneath pale Luna's rays, who serenely looks down with love and delight, on Little David, the Nymph, Bijou, and Dandy. With returning morn, the rising sun tints the eastern sky with celestial splendor, and soaring above with a dazzling brightness, awakens slumbering nature from her evening repose; and while warming the brow of Foust, gives a healthy tone to the fair face of Mrs. Benyon, and the Virgin Queen.

Whatever claims are due to others; (and they are many, we will admit) none are more worthy to wear the Bronze Belt than the matronly Mrs. Longfield, Queen Victoria, or Mrs. Hutton. As a faithful and conscientious chronicler should be truthful, I have so endeavored, and while briefly recording the merits of a few, have found there are still a legion of glorious names to bring forward; but, fearing it may seem invidious to point out one, and pass by another, will justly pronounce them all, to be as beautiful as the bow in the clouds.

Another very interesting coterie remains to be noticed, and a most pleasant featured group are they. Their admirers, recognize them as the Nosegays. Master Christine, a universal favorite, is a fair specimen of his kith and kin. This remarkably good looking family, "so buxome, blithe, and debonair," and at all times admitted as welcome guests to the boudoir, greenhouse or "in my lady's chamber." Observe the Fairy—by no means an imaginary being—who vies in comeliness and grace with the Queen of Nosegays, while gentle Edwin pays court to the charms of Stella.

Fancy the venerable Robert Buist pausing to observe General Lee review his Black-band, and then gallantly bowing to pretty Phœbe, who meeting his blandishments "with reproof on her lip, and a smile in her eye," turns away to flirt with the Moor of Venice, Tom Pouce, and Vulcan. Prominently among the Ivy Leaved allies, L'Elegante, Lady Edith, Golden Queen; and the Duke of Edinburgh, wears a Holly Wreath, in the centre of which is placed a silver Gem. Lovely Magenta variegata, is the beau ideal of Prince Arthur, who conspicuous, with a Golden Ivy Leaf, seems "quite the gentleman."

As I write the Romance of Pelargonia, the sound of Fairy Bells comes swelling on the soft breeze of night, sweet as the vesper hymn of a saintly choir. In ideality, they are as musical and cheerful to the writer, as were the famous Bow Church Bells to Whittington. If the history of that person is authentic, the bells undoubtedly rang golden changes for him; while I fancy they chime the more rythmical melody of Pet-ta-tun-El-e-gans.

Of the Double Zonales, Madame Lemoine, Marie Crousse, Wilhelm Pfitzer, Charles Glyn, and Andrew Henderson, may well triumph and delight in the Gloire De Nancy. While the Troubadore, and the Lord of Lorn sings a roundelay to the imperatrice Eugenie and Wilhelmina von Verna. In the cursory remarks I offer, I necessarily omit much I intended saying, and for the present make no mention of the show, or fancy Pelargoniums. They well deserve a page or two, and perhaps may get them. In conclusion, I would suggest that some of the excellent kinds referred to, be grafted on to strong well formed stocks, such as I alluded to at the commencement. Either the cleft, or saddle method will answer. In either case, it matters not which, after heading off the top, remove from the stock a portion of the woody substance, in the form of a V; (not simply to make a slit as is frequently done) and shape the scion wedge form, so as to fit nicely in, and the splice will be perfect. Tie rather firmly and close, with soft bass matting, place them in a shady and cool part of the greenhouse, syringe or damp the parts where operated upon daily, and they will soon form a union, and become one and inseparable.

EDITORIAL NOTES.

GAS TAR IN GREENHOUSES.—One of our Western agricultural exchanges has the following paragraph: "The owner of a greenhouse in Detroit, which is heated by steam, painted the pipes with gas tar, in order to protect them from rust, and the gases from the heated tar had a very unfavorable effect on the plants, causing the flowers to wither and the foliage to fall off. A fine lot of Chinese primroses were destroyed and the bad effect of the evaporating gases were visible on almost every plant in the house."

If the owner referred to had been a reader of the *Gardener's Monthly*, this heavy loss would not have occurred to him. While in Detroit this summer we paid a hurried visit to the greenhouses of Taplin & Davis, and found them suffering severely from an escape of gas from the street mains. There is no excuse whatever for this. It is just as easy to make pipes gas tight under ground as above ground, and where this neglect to make them so results in injury to the roots of trees or plants in greenhouses as it often does, common equity suggests that the city should pay for the damage and collect it from the careless contractors.

THE SCHIZANTHUS.—We called attention last month to the beauty of the Collinsia bicolor, a Californian annual, for early spring flowering in the cool greenhouse. The following from the *Record* relates to another annual equally beautiful, and adapted to the same purpose:

"Mr. W. Stone, Lismore Castle, Waterford, writing to the *Garden*, states that those who have not grown the Schizanthus in the form of pyramids from three to four feet in height, and as many across at the base, can form but little idea of its beauty when covered with its handsome little Orchid-like flowers, which last in

perfection for two or three months. The last week in August or the first in September is the best time to sow seeds of it, and when the young plants are up, pot them off, and shift them on as may be required, the last shift being into a ten or eleven inch pot, for plants of the size mentioned. The soil should be the same as that used for all soft-wooded plants. Grow it near the glass, and give plenty of air. For pyramids, there must be a good stake in the centre, to which the side branches should be fastened from time to time. Due attention must be given to stopping, as on this the shape and beauty of the plants depend; the last stopping should take place not later than February. They flower in April, May, and June, and the best varieties for pot culture are S. pinnatus and S. retusus, more especially the former."

BOUQUETS.—The *Gardener's Chronicle* says that at the recent *Caledonian Horticultural Society* bridal bouquets were shown by Miss Philbrick, of Colchester, and the Messrs. Gilbert, of Ipswich, neither of whom showed in their usual style. In the class for ball-room bouquets Mr. Rose, gardener to E. Packard, Esq., outdistanced all competitors by the choice he made of the material and the exquisite taste displayed in arranging the same. The flowers used consisted of Gardenias, Hoya bella, buds of several Tea Roses, such as Homere, Isabella Sprunt, Madame Falcot and others, with a few pips of Madame Lemoine and Jewel Pelargoniums, and a delicate pink Bouvardia to give a little color. These, with a few sprigs of Panicum variegatum and fronds of Maidenhair Fern, made a bouquet that was greatly admired.

THE INDIAN DAPHNE.—The *London Garden*, through a correspondent, gives the following hint in regard to this good old thing: "This Daphne is not only admirable for pot culture, but also for planting out in conservatories and against walls. A plant of it six feet high, and covered with blossoms, is a pleasing sight, and would fill one of our largest houses with fragrance. I wonder Daphnes of this kind are not planted out, as they make finer plants so treated than in pots. They are also admirably adapted for the clothing of walls in positions of partial shade. Few plants could be better adapted for the clothing of Camellia house walls. They would bring to them almost the only gift nature has withheld from Camellias—fragrance; while their leaves and flowers would harmonize well with those of the Camellia."

PLANTS FOR DINNER TABLE DECORATION.—The *Gardener's Chronicle* tells us that at the Royal Caledonian exhibition plants suitable for dinner-table decoration were also well done. These were arranged down the centre of the fruit tent. The six staged by Mr. Rose were of the choicest kinds for this class of work, and perfect in color and finish. The six plants were of the following varieties:—Cocos Weddelliana, Croton interruptus and C. angustifolius, Dracæna Guilfoylei, D. Shepherdi, and D. Cooperi, all splendidly colored. Mr. J. Berry and Messrs. Gilbert, took second and third, the latter having two nice Palms—Calamus speciosus and Dæmonorops fissus—and good colored Dracæna nigra rubra and D. Cooperi.

PEPEROMIA RESEDÆFLORA.—A brief paragraph in the London *Garden* reminds us that we saw the plant grown for the same purpose, in the cut flower establishment of Taplin & Davis, Detroit, by whom it was highly appreciated:—"One of the prettiest and rarest of all bouquet and bottonhole flowers now in season is Peperomia resedæflora. This plant bears tiny spire-like spikes of white flowers at the apex of pink stems, the lower portions of which are clothed with small velvety leaves."

GREENHOUSES OF J. C. WHITIN.—The new Hothouse of Dea. John C. Whitin, of Whitinsville, Worcester Co., Mass. At the grand entrance we were met by Mr. Geo. Cruickshanks, who gave us his open palm, and through his kind strong face shone out a warm heart that bade us welcome to his Flower Castle, where winter is not known, and beauty and fragrance reign constantly. He is, and has been for many years, head gardener at Deacon Whitin's.

We are now in the "Greenhouse," and in front of us and the doorway, is the most wonderful lemon tree of New England. This tree was raised by Oren Wade and is nearly forty years old. It has been the property of Mr. Whitin twenty-five years, and a large part of the time has been under the care of Mr. Cruickshanks. There has seldom been a day in all these score of years and more, that there was not ripe and green fruit, and blossoms to be found on its branches; and there have been as many as 150 lemons on it at one time, many of which weighing nearly one pound each; and I am told the fruit is very fine in flavor.

I never have seen more healthy and beautiful foliage or growth before. Surely age sits lightly on this, as on many other tropical trees, plants, and shrubs, that have passed their long years under Mr. Cruickshanks' careful eye and hand.

Here are Auracaria imbricatas at the advanced age of twenty years, in a very flourishing condition; Cycus revoluta (a variety of palm,) and several other varieties of palm, of lawful age and large size; Camellias from four to six feet high and covered with elegant and many colored blooms; Daphne Odoratas whose blossoms vie with the trailing arbutus in fragrance and form; primroses, and many other plants in bloom, of many different shades of color and forms of growth; tiny heaths, and a large general collection of Greenhouse plants, the description of which would fill columns of your paper, —so we must move on as we have over three hundred feet in length of glass-covered territory to inspect, heated by 1800 feet of water-pipe, and we shall find many more things to talk about and admire.

From the "Greenhouse" we enter the "Stove" where are the more delicate and fruit-producing flowering plants and shrubs. The most showy plants in this room are the Poinsetta Pulcherrima with their dazzling scarlet bracts, forming a crown to a tall, slender, leafless stalk, three to five feet high, and resembling a flowerpot in diameter. Single bracts have been sold often at one dollar each. The Torenia Asiatica, with its trailing vines and gay blue flowers, is one of the most beautiful hanging-basket plants in the room. His Coleus Chameleon foliage surpasses anything I have ever seen. By-the-way, Mr. Cruickshanks says the *poverty* of his soil accounts for the elegant foliage of this class of his plants. Here are also bananas, pine apples, and many other rare and peculiar plants and shrubs.

Next we pass into the "Cucumber House," where are many rare young plants and shrubs, being grown from seeds and cuttings,—among which are many colored Cyclamens, in bloom in Dec., 1874, grown from seed sowed in March, 1874, some plants having as many as twelve blossoms on them.

Still another door opens and we are in the "Strawberry House;" here are 700 large sized pots of strawberries, mostly Triomphe de Gand, that show the care of a master hand, and a promise of abundant and delicious fruit in February and March. And in the next room—the "Lettuce House" are the family's vegetables for for early use—tomatoes, string beans, lettuce, peas, &c., and some of the half hardy roses, and other half hardy plants.

Now we must retrace our steps, and linger not, (for time and the cars wait for no man)—except a very short stop in the "Stove," where our kind-hearted guide shows us how things take root in the tan bark, by pulling up a few pine apples, and setting them back with a slight of hand only gained by long practice, and with a talismanic order to "root on," leads the way to the "Grape House" which though *last* is not *least* to me.

In this house are a great many choice varieties of grapes, peaches, &c., started, and such marvelous growths I have never seen before.—*New Haven Palladium.*

NEW PLANTS.

DOUBLE CYCLAMEN PERSICUM—coming true from seed, is advertised by the London firms.

ALONSOA LINIFOLIA (ROEZL).—The plants of this handsome Alonsoa grow from one to one-and-a-half feet in height and are furnished with flax-like leaves, and are bushy and compact. The centre branch as well as the surrounding ones are so disposed as to form a symmetrical and graceful specimen, the compotent parts of which are covered, from almost the base to the summit, with innumerable glowing light scarlet blossoms. An uncommonly free-flowering nature and dwarf graceful habit, combined with an exceedingly pretty dark green foliage, agreeably contrasting with its gay-colored flowers, are characteristics possessed by this novelty, which cannot fail to procure for it a rapid and universal cultivation. It is easily grown, and is susceptible of both pot and open-ground culture. Employed either for large or small masses, or as isolated specimens, the Alonsoa linifolia, bearing as it does a striking resemblance to certain of the elegant-foliaged New Holland Plants, will produce a surprisingly beautiful effect, and is well worthy of general cultivation.

NERTERA DEPRESSA.—On the Rockwork of Kew there is a nice patch of the charming Nertera depressa. It is thickly studded with berries like of those Solanum capsicastrum reduced to the size of small peas. Though cultivated for the last five years, it seems only now to be receiving the favor it deserves. It is a native of bleak antarc-

tic mountains, and, notwithstanding, grows rapidly and well in a forcing pit during the spring of the year, and may then be increased to any extent by means of the creeping rooting stems. In summer it does well in cold frames. It is known to some as N. scapanioides, which name was given by Lange in his seed catalogue of 1868. N. depressa is the oldest, and should therefore be upheld. It is found on the Andes from Cape Horn to New Grenada, on the Island of Tristan d'Acunha, and in New Zealand and Tasmania.—*Journal of Horticulture.*

LOBELIA SUBNUDA, (BENTH.)—Some plants, like individuals, attain notoriety from the earliest moment of their introduction; whilst others of equal merit are unaccountably ignored, and reach celebrity only after the lapse of years. To the latter class belongs this little plant, for although cultivated in Germany, and offered in seed catalogues under the *alias* of L. picta during the last five or six years, it does not appear to be at all known in England. Its chief merit consists in the character of its foliage, which forms neat spreading tufts four inches in diameter or more, each leaf being about an inch in length, of an ovate form, doubly serrated at the margin, of a deep purple on its under side, and of brownish-purple color above, the mid-rib and veins being green, thus affording a pretty contrast of tint, approaching that seen in some species of Anæctochilus. There is a little variation in different specimens, some exhibiting a more decided opposition of color than others, but in all it is more or less marked. The flowers are comparatively small, of a very pale blue color, and are freely produced on erect branching stems about six inches high. They add but little to the attractions of the plant, and may be removed when seeds are not required. It appears most at home in the greenhouse, but will probably succeed fairly in the open border, during the warmer months of the year where the purple tints of the foliage will be deepened, and its size somewhat diminished. If dried out, it should be planted in half shaded places. A native of Mexico.—*Garden.*

ERYTHRINA PARCELII.—A very handsomely variegated-leaved stove plant from the South Sea Isles. It has a stoutish woody stem, furnished with alternate leaves, the petioles of which are fully six inches long, and support three leaflets, the middle one of which has a footstalk of one to two inches in length, and the lateral ones a stalk of half an inch in length. The leaflets are upwards of five inches long, sub-rhomboidal, more or less accuminate, and narrowed in a somewhat angular manner towards the base. The variegation is yellow, sometimes forming a feather-like stripe along the costa and main veins, sometimes more suffused, and forming a band an inch wide, in which case the lateral veins take on more color, and the colored line becomes again branched; when at its fullest coloring, the centre of the leaf is mottled with yellow. There is a peculiar thickening of the petiole with glands just below each of the leaflets. The leaves are strikingly ornamental in character. The flowers are very attractive, of a bright cinnamon red color.—*W. Bull.*

ERCILLA SPICATA.—A curious evergreen climbing shrub—Ercilla spicata—is said to be now in full flower at Kew. It is a native of Chili, and appears to be quite hardy against an east wall, where it has made very vigorous growth, and which it now overtops. It can lay little claim to beauty, but it is of great interest to botanists, its position in a natural arrangement having puzzled more than one writer. Another name for it, and the one usually found in nursery catalogues is Bridgesia spicata (Hooker and Arnot), who originally referred it to the Rutacæ. It is now placed in the Phytolaccaceæ. The small flowers are yellowish green, and borne in dense spicata axillary racemes, about as long as the dark green coriaceous ovate-oblong leaves. It grew for many years against one of the walls at Chiswick.—*Gardener's Record.*

QUERIES.

FUCHSIA CARL HALT.—*S. F. T., Saratago Springs, N. Y.*, writes: "I have a Fuchsia of 'Carl Halt,' that now has double flowers. Will it remain always double or will it go back? It may not be Carl Halt, but it was billed that way and the flowers are variegated like it, leaves same. It is much finer double than single. Please give me your opinion of the matter."

[The kind is not known to us. We shall be thankful to any one who knows the true kind for a reply to above.—ED. G. M.]

HYBRID FERN.—*L. F., Hoboken, N. J.*, writes: "Would you be kind enough to give me your opinion of the fern I send you a leaf of, if it is a new variety or not? I raised it from seeds and it has the growth and habit of Pteris serrulata cristata, but is variegated like Pteris cretica alba lineata. I think it is a hybrid of the two."

[This is a beautiful fern, unlike anything we have seen before, partaking exactly of the characters of both species named.—ED. G. M.]

Fruit and Vegetable Gardening.

SEASONABLE HINTS.

No wonder those who watch the proceedings of Pomological Conventions, are often puzzled by the apparently contradictory opinions offered as to the merits of various kinds of fruits. The facts are no doubt accurately reported. One for instance asserts that his Vicars are worthless,—his next door neighbor, perhaps, declares it one of the finest varieties he ever tasted. We have often noticed that both of these classes are right. The only thing which astonishes us is, that the one who has the inferior fruit, and knows his neighbor has it of the highest excellence, should condemn *the variety*. But this is the way of the fruit growing world. Each one thinks his knowledge of culture perfect, and if the fruit does not come up to the first-class quality in his hands, all other people's experience is ignored; the variety must be worthless. We have a friend of this class. Some first class varieties on his grounds, he calls worthless. The fruit is never of the size represented in the books; and when it becomes soft, is insipid. We told him that his trees lost their leaves too early. They were suffering from leaf blight; but he thinks the leaves fall early because they "ripened early." We had never been able to convince him that this early falling of leaves, is of the slightest injury. On his grounds was a Vicar of Winkfield, which being out of the way of his careful culture, bore fine fruit every year; but one year, about the usual time of the leaf blight's appearance, some caterpillars, carelessly treated, ate off the leaves of one side of the tree. On this side he had half-sized worthless pears, on the other half, fruit of the usual excellence. Now he is satisfied the leaves cannot remain on too long healthy for the tree's good. How we wish we could impress this lesson on all fruit growers! We have often given our opinion that this blight, which causes the fall of the leaf before the maturity of the fruit, is a greater foe to pear culture than the fire blight, which destroys a whole tree in a night, ever has been. Those who have pears in this condition should have them grafted over again with sorts which have a better habit of holding their foliage. This is the most certain remedy we know.

Fruit trees that have not been judiciously summer pruned will require some little in the early winter months. By far too many branches are left on most trees.

It is little use to attempt to grow vegetables well, unless the soil is well treated. They may be and are grown on thin soils, not only at a great expense for manure, and at a great risk of dying out in a dry season, but of having the roots rotted out in a wet one. In those parts where the frost has not yet been severe enough to injure the celery crop, it may have another earthing up. Care must be exercised in the operation not to let the earth get into the hearts of the plants or they will be liable to rot. Where the plant has evidently finished its growth for the season, measures should be taken to preserve it through the winter. For family use, it is probably as well to let it stay where it is growing, covering the soil with leaves, litter or manure, to keep out the frost, so that it can be taken up as wanted. Where large quantities are frequently required, it is better to take it up and put it in a smaller compass, still protecting it in any way that may be readily accessible. It always keeps best in the natural soil, where it is cool and moist and free from frost, and whatever mode of protection is resorted to, these facts should be kept in view. Beets, turnips, and other root crops, will also require protection. They are best divested of their foliage and packed in layers of sand in a cool cellar. Parsnips are best left in the soil as long as possible. If any are wanted for late spring use, they may be left out to freeze in the soil, and will be much improved thereby. Cabbage is preserved in a variety of ways. If a few dozen only, they may be hung up by the roots in a cool cellar, or buried in the soil, heads downward, to keep out the rain, or laid on their sides as thickly as they can be placed, nearly covered with soil, and then completely covered with corn stalks, litter, or any protecting material. The main object in protecting all these kinds of vegetables is to prevent their growth by keeping them as cool as possible, and to prevent shrivelling by keeping them moist. Cabbage plants, lettuce, and spinach sown last September, will require a slight protection. This is usually done by scat-

tering straw loosely over. The intention is principally to check the frequent thawings, which draw the plants out of the ground.

COMMUNICATIONS.

DREER'S IMPROVED LIMA BEAN IN CONN.

BY O. S. HUBBELL, STRATFORD, CONN.

As the Lima is my favorite legume, I was delighted by the prospect of a new variety, said to be larger, more prolific and sugary. My hopes were somewhat diminished when I received ten packages, including about two hundred diminutive and much shrivelled beans. After a season of careful trial, I regret to say that I am more disappointed in the other qualities claimed for it, than in their size. It was three weeks later in blooming, the beans are conspicuously deficient in sweetness, smaller and fewer in pod, and the lower portion of the vine so nearly sterile that one plant of the old yielded as many shelled seed as sixteen plants of the new; each gathered within four feet of the ground. When both varieties were brought to table in separate dishes, the new were invariably rejected. Whatever it may be in Pennsylvania, it is valueless in Connecticut. The only *improvement* perceptible is in *economy of pod.*

[Among the incomprehensible things is that which induces a good thing at one time and place, to be a poor article in another. Here is a case where an article carefully tested by one of our most accurate seedsmen, and found by others who endorse him to be all that he claims for it, is found next to worthless by a gentleman in a distant State. We often have a similar experience with other things. Taylor's Bullitt grape came to us with an excellent character. When it fruited with us it had but three or four berries to a bunch, and only a bunch here and there. After being exasperated with its shortcomings, for several years it was left to its fate, and, we must confess, notwithstanding our knowledge of variations, some feeling against those who "could have sent out such a thing." Happening this autumn to be in the garden of Mr. Birks, a gardener of Germantown, we were astonished to find this same variety literally breaking down with its weight of fruit, and fruit of the most delicious quality. There were bunches of a half pound weight, looking very much like the sweet waters and muscadines of our graperies. Mr. Birks informed us that for some years it was worthless with him, and yet the same vine, on the same soil and conditions, eventually redeemed itself.—ED. G. M.]

ORIGIN OF THE BIG RAMBO.

BY REV. J. H. CREIGHTON, PATASKALA, OHIO.

Much has been said about the origin of this apple which has several names; Large Rambo, Cummin's Rambo, Western Beauty, Musgrove's, Cooper, &c. I will state what I know to be facts and not attempt any decision as to any thing beyond the history. Nearly sixty years ago Wm. Cummins, of Pickaway County, Ohio, bought half a dozen of these trees at a sale, from the farm of Mr. Bogart, near Lithopolis, Fairfield County, Ohio, and such was their fine size, that grafts have been taken to all parts of this country. These old trees in Pickaway Co., are yet alive, and bear fruit. I happened to meet Mr. Sydner Cummins a few days ago, who is a son of Wm. Cummins, and who lives near the old homestead, and from whom I learned that one of the neighbors (Mr. Wm. Whitehead.) once took sprouts from the roots of the old tree, which has been bearing the same kind of fruit. These are now large trees. This latter fact goes to show that the original seedling must have been on the Bogart farm above mentioned. But if any one can show any history older or better, we will hear it.

FALL PEACHES.

BY LORRIN BLODGETT, PHILADELPHIA.

I hope you will pardon me for again sending you specimens of my peaches, which more than sustain the promise they gave when first in bearing. I have always insisted that the peach season need not be so spasmodic and unprofitable as it is made to be by growing August peaches only, and putting out orchards only on light sandy soils. For six or seven years past I have not failed in getting a fair crop every year—this year excessively large—and from thirty seedling trees have at least five distinct varieties, coming ripe respectively, August 15th, September 5th, 15th, 30th, and October 15th to 20th. They all have the qualities of those I send you to-day—for which I think the clay soil and thorough fertilization they receive, are more to be credited than anything else. The late cold weather has been very unfavorable to the quality of peaches; many of those brought to market show marked effects of it, and much inferiority. Yet those I send you are reasonably good, and would bring the most remunerative prices. I feel an interest in continuing to prove that we may have peaches of the highest quality through September and October, as well as in August, and in stemming the tide of public indignation which appears to be setting against peaches altogether. I may yet send you specimens of their ripening October 15th to 20th, which last year were very large, weighing in several cases eight ounces each, and perfect in quality. The enormous crop on the trees this year, will reduce the size.

[We agree with our correspondent that it is so easy to raise good seedling peaches, that no doubt much better peaches might be had than those which are now popular, if only care in sowing and selecting were exercised. Most of our popular varieties are not from any "skill" on the part of the "hybridizer," as the story books are fond of telling us; but are mere accidents found at large. Mr. Blodgett's Peaches were superior, and they endorsed all he says.—ED. G. M.]

NOTES ON SOME OF THE RASPBERRIES.

BY WM. F. BASSETT, HAMMONTON, N. J.

Davison's Thornless.—This is not so strong a grower as most of the Black Caps, but with me bears fair crops of good berries and is indispensable on account of its earliness.

Seneca Black.—This variety I regard as the best in quality of any of the Black Caps, and it is also a very vigorous grower, much more so than Doolittle, and it ripens immediately after that variety, and is much larger, sweeter, and more jucy.

Mammoth Cluster.—A very large variety, still later than Seneca, and also a very vigorous grower but not as juicy or sweet as either of the preceding.

Golden Thornless.—A vigorous grower, and very large and beautiful fruit, but I find all the yellow varieties inferior in quality to the black.

Ontario.—This variety which was sent out as remarkably early, proves to be no earlier than Doolittle and much poorer in quality, and its only recommendation is its firmness.

Norwood Prolific.—Is evidently a hybrid having the same style of growth as the Black Caps, and also growing freely from tip, and producing no suckers, but having red berries. It is an *extremely* vigorous grower, stands the sun perfectly, and will doubtless be as hardy on sandy soils as a Black Cap. I have only fruited it one season, but it produced abundantly of good sized berries, similar in color to Philadelphia, and to my taste better in quality. I regard it as one of the most promising varieties we have yet tried.

Ganargua.—Another Hybrid which I have only had this season, but it produced a few berries, considerably darker in color than Norwood, and poorer in quality, and the foliage burns in summer.

Amazon.—A new red variety, from Edesville, Md., claimed to be 300 or 400 per cent. more productive than any other variety, and as large as a Wilson Blackberry. I have only tried this one summer, but it produced a few berries, and both in habit of growth, appearance, and quality of fruit, is so nearly like Belle de Fontenay, that I am inclined to think them identical, although I have thrown out the latter, and cannot compare them so fully as if both were growing together.

Southern Seedling, or Thornless Red.—Obtained from Indiana last spring, is much like Philadelphia, in appearance of cane and leaf, but less thorny than even that, and the berries much better in both color and quality. I left the old canes about a foot high when planting, and besides making strong growth of new wood, my plants have ripened considerable fruit continuously up to the time of writing this article. I regard this as very promising.

THE BRANDYWINE AND OTHER PEACHES.

BY RANDOLPH PETERS, WILMINGTON, DEL.

On Saturday, I sent you samples of the Brandywine Peach, or seedling No. 1, as per my catalogue. Brandywine is an accidental seedling of the Crawford's Late; tree a strong grower, and productive; fruit average larger than Crawford's Late, different shape and quality, and will ripen ten days after Crawford's. Ripe with Smock, will average double the size of the Smock, and command more than double in market value. I esteem the peach for its large size, fine appearance, good quality, and market value, as there is no large fine peach ripening at same time that we know of in Maryland and Delaware. We handle peaches enough to know what a good peach is. Yet with an immense crop this season we have had but few

really good peaches; the trees were fruited and the severe drouth in spring and early summer tended to make them small and poor in quality. During the height of the season on the Peninsula, we averaged from 350,000 to 500,000 baskets per day, which were sent to market via railroad, steamboat and sailing vessels. In some sections not easy of access to markets the fruit was never gathered. Thousands of baskets rotted daily. Some of our growers, located on good land, with select varieties of fruit, and where they were handled with care, made some money on their peach crop, but a great many did not make enough to pay for the baskets and crates, they were shipped in. We did not have canning and drying houses enough in the fruit districts. The failure in prices of fruit this season will not be without its good results, as it will show our people the importance of paying some attention to planting only choice varieties of fruit, for even this season choice fruit paid the grower. Heretofore our growers could plant bad varieties, cultivate badly, pick and market in bad order, and still realize from $75 to $150 per acre on their peaches. Too many planted. Now, it is of no use to plant and grow bad fruit, and expect large profits as heretofore. Good varieties grown and marketed with care, only will pay.

[The specimen received, was a nice showy fruit, but not of the highest character as regards flavor. But this may have been exceptional in the one sent.—ED. G. M.]

EDITORIAL NOTES.

THE EUREKA POTATO.—A correspondent of the London *Gardener's Magazine* states that he grew 300 tubers of this variety that weighed 369½ pounds. The winter saw some enormous ones on exhibition at the New York State fair, that would probably excel this English weight. The whole collection of potatoes at this State Fair was superior to any thing we ever saw in America.

TOMATO DISEASE.—The London *Garden* says: "Lovers of Tomatoes will learn with regret that the plant is this year attacked with the greatest virulence by the Potato disease. Both the leaves and fruit are attacked, the leaves shrivelling up and the fruit rotting. It is unfortunate that this should have happened just as the tomato was beginning to be commonly planted as a field crop in the market gardens round London."

So far as we know there has been nothing of this character seen in the United States. Occasionally we have seen it suffer a little from the same fungus that is known as Verbena rust.

THE BARTLETT PEAR.—This in England the William's Bon Chretien, the *Gardener's Chronicle* says is highly popular in England. It is rare that any one variety of fruit is so good the whole world over.

OHIO BEAUTY CHERRY.—This popular American cherry has recently been figured in the London *Florist and Pomologist*, which is one of the handsomest of all the European illustrated monthlies. It thus describes it as it grows over there: "The Ohio Beauty is of a different character, belonging to the group in which the flesh is pale and the juice uncolored. The fruit is large, roundish heart-shaped, with a faint suture. The skin is yellow, spread over with bright rich red on the sunny side. The flesh is pale yellow, tender, sweet, and juicy. It ripens about the same time as the Early Lyons Both varieties are worth a place in every garden where cherries are prized."

AMERICAN BLACKBERRIES IN ENGLAND.—The *Gardener's Chronicle* says that it is doubtful whether any but here and there a few nurseries have the improved American Blackberries in England. Extensive advertising failed to induce any to plant them, "possibly because we felt we had a sufficient supply of blackberries in our own hedges." This is to be regretted, as our friends would find them a valuable addition to their list of fruits. There is about as much relation between their blackberries and our improved kinds, as between their Wild Sloe and a Greengage Plum.

LARGE GRAPES.—Gigantic bunches of grapes were plentiful at the Edinburgh International. Mr. Curror, of Eskbank, had a bunch of Calabrian Raisin, weighing 26 pounds 4 ounces; Mr. Dickson, of Arkleton, a bunch of Syrian, 25 pounds 10 ounces, and Mr. Hunter, of Lambton Castle, a seedling black, 14 pounds 11 ounces.

THE PRUNING KNIFE.—I believe it was Loudon who said that a man would never make a gardener who was afraid to use the knife. Things have changed since Loudon's time, and the best modern gardeners do not use a knife once where Loudon's contemporaries would have cut-away waggonloads. And yet there is room for more improvement in this direction. The average British gardener has still too much liking for a

good knife; he still likes to allow his trees to waste their energies by making a great quatity of useless wood to be afterwards cut away. If he buys trained trees for walls he must cut them back for a year or two in the hope of getting them into some perfect form as drawn out for him in gardening books. He may cut and he may hope; we will never realise the picture; such trees only exist on paper, and it is as well to acknowledge the fact at the outset, and make up our minds, instead of attempting impossibilities, to have the wall covered in two or three years and a good crop of fruit on it.—*Journal of Horticulture.*

MUSHROOM SPAWN.—The best spawn I ever used was some that had been kept above a warm and dry place for two years or more. It became as hard as a board, and had to be broken up with a hammer when wanted for spawning the beds. I find also, that spawn kept in this way produces Mushrooms sooner than under ordinary circumstances. I have seen the Mushrooms up in four weeks from the date of spawning, and have gathered plants in six weeks—about the period, it is generally supposed, that spawn requires to run. Many Mushroom growers make a mistake in spawning their beds at too low a temperature, say at 75°. This temperature will do, but a temperature of 85° is perfectly safe, will cause the spawn to run sooner, and will give quicker returns.—J. S., *in Garden.*

PLUMS.—There were last spring 160 varieties of Plums growing in pots in the Royal Horticultural Society's Garden at Chiswick, and most of the trees were profusely in bloom. This collection is a valuable one, and if, as may reasonably be expected the trees bear well, a comparison of their habits and fruits will, doubtless, furnish some valuable information concerning our different varieties of Plums; due allowance, of course, being made for the restricted conditions under which they are grown.-*Garden*

NONSUCH PARADISE STOCK.—The ripening fruit on red Astrachan Apple trees, in the Sawbridgeworth Nurseries, is now conspicuously brilliant, and abundant. The very high color in this case is owing to its being grafted on the Nonsuch Paradise. It is, of course, one of the best early Apples.—*The Garden.*

PRODUCTION OF GUM IN FRUIT TREES.—A French botanist, M. Prilleus, has, according to the *English Mechanic*, been recently making researches as to the production of gum in fruit trees. According to him, the flow of gum constitutes a very veritable disease; which he names *gommose.* The alimentary substances held in reserve in the deeper parts of the tissues, instead of serving for the growth of the plant are employed for the production of gum, and a portion of them accumulate, awaiting the instant of their transformation, about gummy centres, which seem to act in the organism as centres of irritation. M. Prillieux compares this effect to what occurs when an insect deposits one of its eggs in the tissues of a plant. Under the influence of this local irritation a gall is formed, the tissues are changed, and the new cells which appear store up within them masses of alimentary substances, and especially of fecula. These deposits are destined, not for the wants of the plant itself, but for the development of the little parasite which is found within. The production of gum at expense of the plant's reserves has no other limit than the entire exhaustion of the plant. Among remedies, M. Prillieux particularizes scarification of the bark, by longitudinal incisions in the branches. The *rationale* is this: the elements necessary to the formation of new tissues have been transformed into gum, and they have to be brought back to their original destination. Hence a more powerful attraction (for the materials of the organism) must be introduced than that of the gummy centres. The wounds necessitate production of new tissues; and under this very active excitation the matters in reserve are compelled to formation of new cells, and cease to be drawn towards the gummy centres.

NEW FRUITS & VEGETABLES.

NEW AMERICAN PLUM.—We have from Mr. Bassett a box of Plums from a tree growing on his grounds, and which we think well worthy of cultivation for its culinary qualities. As to its botanical relationship we have to confess to being puzzled, not only with this but with other plums which have been lately brought to our notice. Recently we have seen fruit that we were in doubt whether to refer to *Prunus Americana* or *P. Chicasa*,—and in this case we cannot say whether this should go to *P. Americana* or *P. maritima.* It is however a very strong grower,—indeed as strong as the best variety of the foreign Plum, and in this respect from a cultural point of view, is very different from the ordinary condition of the beach plum.

As much attention is being given just now to selecting the best varieties of our native plums for cultivation,— a prominence their tractability and productiveness entitle them to, it will be as well to prepare for a distinctive name for them. As it is now we have Wild Goose, Miner, and some others, all good enough in themselves, but very inferior when, as mere *plums*, contrasted with our garden varieties. We recommend that the word "American" be added to those of this class. Thus we have the Miner American,— the Wild Goose American, and, if Mr. Bassett so choose, the Bassett American Plum for this one. It will avoid a comparison which is of no advantage,—and let us all know at once what we have to expect by the very name.

YELLOW EGGPLANT.—*W. F. G., Trenton, Tenn.*, writes: "I have grown this year a novelty to me, a lemon yellow eggplant, raised from purple seed. Is it a freak or mixed seed? Seed bought. Fruit crop this year short."

[A yellow eggplant is new. It is worth looking after. With change in color often comes change of quality. It may be more agreeable in some respects to some tastes.—ED. G. M.]

LUELLING CHERRY.—We have before referred to this cherry. An Oregon correspondent now says of it: "This variety originated in Portland, Oregon. We have the only stock east of the Rocky Mountains. It is a Seedling that came up near two bearing trees, one of Napoleon Bigarreau, the other Black Tartarian, supposed to be a cross between the two. Color, black, like Black Tartarian; flesh solid, as the Bigarreau; believed to be the largest cherry known—being one-half larger than any other variety. Specimens have measured three and one-half inches in diameter."

NEW STRAWBERRIES.—*Mr. Bateham, in Ohio Farmer*, says: "THE STERLING is a large and beautiful berry, of the brightest red color, glossy and firm, fitting it to bear carriage well; in appearance like the Jucunda, but in form a little more oval, having more of a neck, which renders it easier to pick from the vines and prepare for the table. The plant, too, resembles the Jucunda, but has rather more foliage, resembling in this respect Triomph de Gand, but the fruit is of better shape and more uniform in size than the latter, and the plant seems more productive than the former, while the quality of the fruit is as good as either, which is praise enough. From long experience in growing strawberries, both the originator and present owner of the Sterling feel confident that this will become the leading variety of this country, both for market and home gardens.

THE MARGARET also is a large and fine berry, and beautiful in its dark glossy appearance; like a Black Tartarian cherry not fully ripe; it seems also quite productive, but the plant not quite as vigorous as the Sterling.

DAMASK BEAUTY.—This has been before noticed in *The Farmer* as a new variety, produced by a Mr. Snider, of Tallmadge, in Summit county. I found the fruit of it on sale in Akron, at the time of my visit to the Falls; and my impressions of it are the same as I have before expressed, that while it is a large and good flavored berry, its peculiar light color is a serious objection to it both for the market and home use; and it is too soft a berry to bear transportation. This was fully concurred in by several citizens of Akron who examined the fruit along with us. It resembles the old 'Ohio Mammoth.'

DR. WARDER.—I fruited this new variety for the second time, this season, and am highly pleased with the beauty and quality of the fruit; but on my sandy soil, the plant, like the Jucunda, does not carry foliage nor fruit enough to be profitable. I again report the Michigan, Chas. Downing, and Green's Prolific, the best and most profitable for sandy soils. The Seth Boyden has also done well with me; and this too I found bearing finely on Mr. Lodge's ground; but the fruit is not as fine as his new varieties. I should have said that the Sterling and Margaret are both pistillate kinds, but not destitute of stamens."

QUERIES.

APPLES FOR N. W. OHIO.—*J. C., West Cairo, Allen County*, says:—"Will some of the fruit growers of North Western Ohio please answer me through the *Gardener's Monthly*, what in their judgment is the most profitable varieties of Apples to grow for market in that section of the country."

GRAPE FOR NAME.—*W. H., Dubuque, Iowa.* The grape came in such poor condition, it could not be certainly recognized.

SALWAY PEACHES.—*Mr. Meyer, Bridgeville, Del.*, with some admirable peaches, says: "I send you to-day by express a small box of Salway Peaches. These are from trees bearing their first crop, some five years of age. You will please let them ripen well, so as to give you a fair test of their quality.

I would say, as a neighbor fruit grower said to me, the Salway is all that has ever been claimed for it, and even more. One branch of about five feet long, three quarter inch in diameter has on it sixty-one peaches, about the average size I send you. Quality, great bearing, size, and lateness, make it a *very* valuable addition to our late fruits, in sections where it will ripen and mature, being fully eight to fifteen days later than Smock Free.

I will look for a more full report in next number of the *Monthly*. Please try some of them slightly cooked, if you wish the full flavor."

Natural History and Science.

COMMUNICATIONS.

THE POTATO ROT.

BY W. G. FARLOW,

Assistant Professor of Botany in Harvard University.

(*Concluded from page* 307.)

But it may be that the potato-rot fungus is really not a Peronospora at all. It may be a fungus, imitating to a certain extent, the rust in grain, which passes through different stages, in one of which it lives on the berberry, in another on grain. Perhaps the potato rot, after living for a certain length of time on the potato, and bearing asexual spores, passes in some way to an entirely different plant, and there bears its oospores. But to what plant does it change? We cannot tell, with the least degree of certainty. There is a suspicion that it may be to clover or grain, wheat or oats, for example, from the general belief that the rot is very likely to appear when potatoes follow either of those crops. Besides, the mycelium of a fungus supposed to have some connection with the potato-rot fungus has been found in clover and straw. Should this really prove to be the case, we shall have gained a valuable piece of information, since in no case should potatoes be planted near or be allowed to alternate with either clover or grain, for fear of propagating the rot. Unfortunately, about this point theories are abundant and facts as yet scanty. There is by no means a unanimity of opinion as to whether potatoes are very likely to rot after clover, wheat, or oats. Of the fungus found on clover and on straw, we know nothing about the fruit of either kind, and, unless there is something more peculiar about the mycelium than we have been given to understand, it would be visionary to trace any particular connection with the potato-rot fungus. Botanists are, however, at work on the subject, and we may expect at any moment valuable discoveries in this direction. Professor De Bary, of Strasbourg,—whose memoir of the Peronosporæ, published in the "Annales des Sciences Naturelles," vol. xx., 1863, is the most exhaustive account of that group yet published,—is still at work, and from him we may receive a solution of the botanical difficulties. In the mean while, the American farmer can contribute something to the general stock of knowledge by noting the apparent effect which a different succession of crops has upon the prevalence of the rot. In the Journal of the Royal Agricultural Society of England, vol. x., part 2, for 1874, are given the results obtained from answers to twenty-five questions, addressed to one hundred potato cultivators in different parts of England. From these answers, it would seem that there is a tendency for the rot to prove particularly bad when potatoes follow clover. Interesting facts on this point might be observed by our own cultivators to supplement those recorded in England, and we would propose the following questions for the consideration of farmers in connection with the rot:—

1. What is the nature of the soil on which you have planted potatoes this year?
2. What crop has preceded the potatoes?
3. What was the preparation of the land for potatoes? What manures have been used?
4. What varieties of potato have you planted, noting whether the varieties were early or late?

5. What was the date of planting ?

6. What was the exact date of the appearance of the rot ?

7. What varieties seemed to suffer least from the disease ?

8. What proportion of the crop was destroyed ?

9. On first noticing the rot what was done to save the tubers, and with what result ?

10 *Following a clover crop, how are potatoes affected by the rot, particularly badly or not? After potatoes, does clover do well ? Have you observed any fungus upon clover ?*

11 *Following a wheat, oat, or rye crop, how are potatoes affected by the rot? When wheat, oats, or rye follow potatoes, what is the result ?*

Before proceeding to a consideration of the best means of diminishing the rot, let us examine some of the supposed objections to the fungus theory of the disease. It may be premised that such objections are not urged by men of science, and that entomologists as well as botanists acknowledge the fungus origin. We must at the outset distinguish between potatoes affected by the rot, and rotten potatoes. If we take any healthy potato and keep it in a sufficiently wet place, it will become mouldy and, finally, rotten. We shall not find any of the Peronospora infestans on it, however, but ordinary moulds which live upon decaying substances, as Mucor, Penicillium, &c.,—moulds which can grow on almost any dead matter, but which do not attack living vegetable tissues. In other words, we have put a healthy potato under such circumstances that it has begun to decay, and then some of the spores of those fungi which live on decaying matter settle upon it,—the air is always full of such spores,—and grow. These moulds do not attack living potato plants, and are not to be dreaded, because we have only to keep the potatoes when harvested in a dry place to avoid all trouble.

In Figs. 6 and 7 are roughly represented two of the common moulds which attack decaying substances, and are found on potatoes as well as on a great many other substances. Fig. 6 is the fungus known as Mucor stolonifer, De Bary (Rhizopus nigricans and Ascophora mucedo of many writers), and it is particularly common on bread. Fig. 7 represents the mycelium and asexual spores of Penicillium crustaceum, Fr. (P. glaucum o other writers), which is the common blue mould found on most articles of food.

The potato rot is a totally different thing. Here we have a fungus which attacks the potato plant while it is yet alive, and the crop is destroyed either by a direct invasion of the tubers by the mycelium of the Peronospora, or by the destruction of the tops before the tubers have

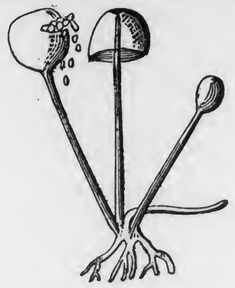


Fig. 6.

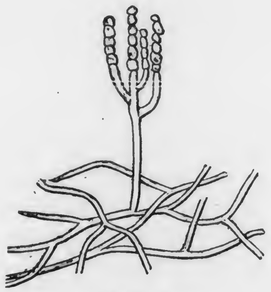


Fig. 7.

attained a sufficient size. When the potato plant dies, the Peronospora which has destroyed it, dies with it ; but, after it is dead, it may still be attacked by some of the decomposition moulds before mentioned and by insects.

Whatever science may have to say, no season during which the rot has prevailed to any extent ever passes that some cultivator of potatoes does not proclaim to the world that he has discovered that the disease is caused by insects, and offers, as proof, the fact that he has found insects on some rotten potatoes. The mere fact that insects are found on rotten potatoes does not prove any thing whatever as to the cause of the rot. It is quite as logical to infer that the rotten potatoes produced the insects as that the insects produced the rot. To prove the point, one should have found the insects on healthy potatoes, and have noticed that the rot always followed their visits, and did not appear at other times. Those who think there is something in the insect theory, and this number certainly does not include any entomologist, do not tell us what the insect is, neither do they explain why it is that turnips,

carrots, and other roots, are attacked by insects, and yet no disease in the least resembling the potato rot attacks any of these plants.

The theory that the disease arises from an exhausted condition of the potato plant which has been cultivated too long by cuttings is destroyed by the fact that seedlings are affected as well as other plants, and by the fact that the disease prevails amongst the wild species of Peru, where the potato is indigenous. The theory that it is owing to some morbid change in the juices of the potato, and that the Peronospora does not cause the disease, but itself lives upon the morbid products, is overthrown by the following experiment which has been repeated over and over again, and which any one who owns a microscope can easily perform : Slice a potato affected by the rot, and let it stay under a glass until the cut surface is covered by the cotton-wool-like mass of Peronospora. Then slice a sound potato, and place the two halves under different glasses. On one sprinkle some of the Peronospora spores from the first potato, and in from twenty-four to forty-eight hours, it will be covered with a mass of mycelium and spores, which, under the microscope, will be recognized to be those of Peronospora infestans, and the mycelium will be found running through the tuber in all directions, and the tuber becomes rotten at once. The other half will remain unchanged, except that the cut surface grows a little darker for some days, when a few of the decomposition moulds will be found on it, and it will very gradually decay. Inasmuch then as we always find the Peronospora mycelium in potatoes affected by the rot even before the spots on the leaves appear, and, on the other hand, can produce the disease at will in healthy potatoes by sowing the spores, we need not suppose that any predisposing morbid change in the potato itself precedes the appearance of the Peronospora.

From what we have seen about the cause of the rot and the knowledge which we possess of the Peronospora, it is evident that there is no such thing as a specific* against it. Whatever completely destroys the fungus will also kill the potato itself, and the farmer who purchases "a sure cure" for the rot, may be perfectly certain that he is throwing away his money, as far as accomplishing that purpose, at least, is concerned. The object is to prevent as much harm as possible from being done to the plants in which the mycelium already exists, and to prevent the spread of the disease to healthy plants. If we could control the amount of moisture in the air about the time when the disease is likely to appear, say from the middle of July until the first of September, the mycelium would not increase to any extent to cause practically any harm. That we, unfortunately, cannot do, and all that remains is to drain the land thoroughly, or plant in a dry soil. It is difficult to understand why our farmers persist in planting potatoes in swamps and wet heavy soils, knowing as they do from experience that such plants are always the first to rot. Since the disease does not appear until about the first of August, it follows that the early potatoes should be less likely to rot than late ones. This is found practically to be the case, and early varieties are much to be preferred to late ones. Exactly what variety a farmer should plant is not a question to be decided by a botanist, but it should, at any rate, be a vigorous grower, and ripen as early as possible, the size and marketable qualities being equal. Certain varieties seem to resist the disease better than others, but, as yet, we know of none which may not be attacked, and opinions as to exactly which varieties have the greatest resisting power are so contradictory that it is impossible to decide the matter. The views of persons having potatoes to sell for planting are, naturally, not always unprejudiced, and many farmers have theories on the matter in question which were evolved from their inward consciousness quite as much as deduced from accurate experiments. The Council of the Royal Agricultural Society of England has appointed a Special Committee to examine into the subject of varieties of potatoes which will resist the rot for three years in succession, and several varieties are being tested in twenty different places in the United Kingdom. Two years more must elapse before the results are fully known, and then we may, perhaps, expect more definite information on this important subject than we as yet possess.

The precautions to be taken to prevent the extension of the disease will be more definitely known when the plant in which the oospores are produced has been discovered. At present, we cannot say with certainty that these are found either in clover, or in wheat, oat, or rye straw, and our knowledge of the subject is still too slight

* By a specific is meant any thing which will not only protect tubers in which there is, as yet, none of the Peronospora mycelium, but which will also prevent the further development of the mycelium in tubers in which it already exists.

to warrant a general tirade against the folly of planting potatoes after any of the above-mentioned crops.* There is as yet no sufficient reason for not following them by potatoes if one wishes to, other than that the stubble of some of these crops may make the land more moist than that of others. Potatoes grown upon a soil where grass or clover have previously been ploughed in may suffer from rot, simply because the sods keep the land moist. It is quite probable that the oospores of Peronospora infestans will be found † concealed in some common plant eaten by cattle, and as it is well known that the spores, particularly the oospores, of many fungi, are so tough that they pass through the alimentary canal of animals without losing the power of germination, it is evident that the chances of avoiding the rot are greater if one makes use of some of the mineral manures in place of animal manure. The fact that certain crops are manured with animal manure, while others are not, may be sufficient to account for the prevalence of the rot when potatoes follow such crops.

It is, of course, of the first importance to avoid planting tubers which are already rotten, but that no sensible farmer would think of doing. How to recognize small amounts of mycelium in nearly sound potatoes does not admit of any practical solution. The botanist who has studied the subject can do it by microscopic examination, but the farmer has neither a microscope nor sufficient knowledge of microscopic manipulation, and, practically, it would not pay to send certain tubers, as samples of a large quantity, to a botanist, to decide on the probable amount of mycelium in the whole. Judging from the results obtained in England, it makes no difference whether the tubers are planted whole or sliced, as far as liability to the disease is concerned. Theoretically, it would appear to an advantage to plant deep that the tubers may have less chance for being infected from spores which have fallen on the surface. Practically, this does not work well, but potatoes planted near the surface do best. However, the plan tried by some cultivators in England, with apparently good result, of hoeing the earth up over a good part of the tops as soon as the rot appears, is worthy a trial. Cutting the tops on the appearance of the disease apparently does no good; and, if it appears in a violent form, there is nothing to be done but to dig the remaining sound tubers which, if the variety planted was an early one, are large enough to be of use at the time when the disease is likely to make its appearance.

Although the present article is written with especial reference to the potato rot, a word on the lettuce mould may not be out of place. This disease does considerable harm in the region about Boston where large quantities of early lettuce are raised for the market. Although said by the farmers of Watertown to have troubled them for four or five years, the fungus was first brought to my notice last August, growing on a plant of Lactuca altissima, cultivated in the Botanic Garden at Cambridge. A few weeks later, I received some diseased lettuce leaves from Mr. Locke, of Watertown, who wrote that the fungus caused him a great deal of trouble, particularly on the plants cultivated in hot-beds in the spring. The present month, April, I received more of the leaves from the same gentleman, with the statement that the disease was worse than ever. The appearance of the mycelium, as it breaks through the breathing-pores and bears asexual spores, has been shown in Fig. 3, p. 308. The disease, of course, is most marked on hot-bed plants, since a constantly moist and warm temperature is kept up, and the pecuniary loss to the gardener is greatest as the early lettuce brings a higher price than that which grows later in the season in the open air, and which is less likely to be affected by the mould. The belief of some farmers that the disease is caused by watering with well-water, is, of course, entirely without foundation. The disease may be diminished by not watering the hot-beds too much, and by opening the frames frequently to admit the outside air. It is a good plan, once in a while, say once a fortnight if the weather permits, to keep the frame open towards night, so that the plants may be exposed to a temperature near the freezing point. Freezing, of course, injures or kills the plant, but a temperature as near freezing as possible without serious injury to the lettuce will put back the fungus so far that it does not recover for some time. If the disease has prevailed one season, the hot-beds of the next season should be made in some other locality, and if possible only seed from sound plants should be sown. As soon as the leaves mould they should be removed, and care should be taken not to throw them where they will be likely to get into heaps of manure which are to be used the next season. The common weed known as groundsel (Senecio vulgaris) should be removed with great care. It is found in hot-beds and all cultivated fields, and does more to spread the lettuce mould than decayed lettuce leaves themselves, since in the groundsel, the oospores of Peronospora gangliformis are more abundant than in any other plant.

* During the last few months, notices have appeared in the Agricultural Reports published at Washington, and in several agricultural journals in different parts, of the country, to the effect that, in consequence of the discoveries of Professor De Bary, it is now known that the potato-rot is propagated by means of the oospores of Peronospora infestans which hibernate in clover and other fodder-plants; and farmers are warned against planting potatoes after these crops. In justice to Professor De Bary, the public should be informed that he has never said any thing which could in the least, warrant the statements above mentioned. Without saying any thing more about the question whether the rot is really more common after any particular crop, or not, it is unfair to represent Professor De Bary as authority for the sweeping statements of some of our agricultural journals

[† Since found on the potato.—Ed. G. M.]

EDITORIAL NOTES.

Effects of Forests and Rainfall.—Our readers will remember the trouble the writer of this paragraph got into a few years ago, because in a review of a paper by Dr. Franklin Hough, and which had the especial endorsement of the American Association he felt it his duty to point out that the statements on which the paper rested were not such as true science demanded, but in the main were impressions from mostly irresponsible and incompetent observers,—and which statements were generally to be met by counter observations quite as worthy of regard as those which were "selected" for the especial purpose of proving a point. The writer was charged with doing an injury to the trade in forest trees; but as he had millions of young forest trees of his own to sell, this was regarded as too absurd to notice. The true success of forest tree culture depends on accurate statements and correct facts. Nothing founded on error succeeds long. Hence those interested in raising forest trees, are as much interested in the truth of the climatal question as any one.

Considering the rather malicious manner in which we were pursued at that time, we have now the pleasure to give the following. The first from the *American Agriculturist* for October, edited by Prof. Thurber,—and the last from Mr. Robinson's London *Garden*,—both gentlemen well known for the care which they give to facts before offering judgment.

"The character of the present season will probably have the effect of modifying the views of those persons who have been led into the error of supposing that the quantity of rain-fall depends upon the existence of forests. The past summer has been one of extraordinary moisture in parts of the country where there are no forests as in Kansas, Nebraska, and Eastern Colorado, and of drouth in places where forests abound, as in Northern Minnesota and Canada. The truth probably is that the development of meteorological effects, such as the fall of rain, the course of the winds, etc., depend upon causes which are not bounded by small areas, or even such a large area as that of our own continent. The destruction of a thousand or two square miles of woods is but a small thing in comparison to the other influences which affect the rain-fall of the whole world. Forests act as reservoirs of moisture, holding it until it is distributed gradually by means of springs, streams, and slow evaporation, and thus prevent floods which never occur disastrously in wooded localities. They also moderate the heats and colds of the season just as they moderate the distribution of water. They also act as a barrier against the excessive force of the winds. They are therefore indispensable to our comfort, and where they do not exist naturally, should be planted as rapidly as possible. The whole surface of the earth cannot be given up to cultivation, any more than a man's whole life can be given up to work; some portion must be left fallow and to rest; and to grow timber is an actual rest to the land."

"The relation between woodlands and rainfall and other climatic conditions has of late been the subject of much dogmatic theorising. A comparison of maps in Walker's "Statistical Atlas of the United States," shows that the forests of Washington Territory are in regions having an annual rain-fall of sixty inches and upwards. The magnificent forests found from Minnesota to Maine have a rain-fall precisely identical with that of the nearly treeless prairies which extend westward from Chicago, viz., twenty-eight to forty inches. The northern part of the Michigan Peninsula, with its heavy timber, is marked with precisely the same rainfall

as large portions of southern Minnesota lying in the same latitudes and nearly treeless."

[We think the question may be regarded as settled in our favor,—and in the future let us go on planting timber, *for timber*, and let these mere theories about the weather alone.—Ed. G. M.]

QUERIES.

Varieties of Red Maple.—*Mr. Strong, Brighton, Mass.*, writes: "Are there varieties of Red Maple (*A. rubrum*) which retain their specially brilliant autumn coloring when transplanted? It is said that these tints depend upon the maturity of the foliage, upon the weather, frosts and the degrees of dryness at the root. For these and other reasons it may be said we see great differences in the degree of coloring in different years. Hence it might appear, at first sight, that this characteristic coloring in the Red Maple is not really normal, like the coloring, *e. g.*, of the purple Beech. In the case of the Beech the peculiar color is a law of its growth, affected in degree, it is true, by circumstances, yet always noticeable as an absolute proof of its identity.

But the Maple when in perfect health and in vigorous growth has no high color and it is not until it reaches the period of mild decay that it assumes the hectic flush. Still it is none the less true that autumn coloring is a characteristic of the red Maple. that this is a law of its maturity, like the coloring of some varieties of fruits, greater or less in degree as the seasons vary. Why is it not reasonable to suppose that some seedlings of the red Maple may possess this peculiarity in coloring to a greater degree than others? We have all noticed individual trees of marked brilliancy in color. But who can say whether or not this was owing to the nature of the soil, the amount of nourishment, or the state of health of the tree, rather than to any individual peculiarity?

It would be easy to determine the truth either by transplanting the tree into different soil and conditions, or by the much more absolute test of grafting into numerous seedlings. Can you inform me if such a test has been applied? That there are varieties worthy of selection it does not seem reasonable to doubt. I have in my mind a tree of large, vigorous growth, which begins to assume its colors in July and by the middle of August it is ablaze in the most gorgeous scarlet, and yet it shows no sign of shedding a leaf at the present time of writing. It is a tree of good size, about twenty years old, standing on a decidedly dry bank and exposed to a hot sun. I have noticed it for three successive years. Are its remarkable peculiarities owing to its condition of health, or any peculiarity of soil, or position? May I not reasonably hope to perpetuate its individuality by grafting?"

[The question of the coloring of autumn leaves is one which is not satisfactorily determined. Some observations seem to show that it is due to some peculiarity of the American atmosphere, —but American trees taken to Europe, still color, while European ones brought here color no more than in their own country. Then some think it is in someway related to bright light, and indeed if a part of a leaf that has commenced to color be shaded, and part left exposed, in the Red Maple, the exposed part colors brightly, while the covered part is quite pale,—and yet if we examine a thicket of Red Maples, we find perfectly sound and healthy leaves, shaded by the others, yet put on the most brilliant colors, while the exposed ones are still green. So also portions of the leaf commence to turn red, without any reason so far as equal exposure to the light is concerned. The color commences in spots, and these spread till the whole surface is tinted, just as fungi will often start from numerous centres, and soon all meet together.

A loss of vital power seems in some way connected with color;—as if a branch be ringed, or a tree be partially barked, the foliage changes color more rapidly, and is deeper than in perfectly healthy trees. So also trees in dry or poor places are more brightly colored as a rule than trees in rich cool ground.

And yet there are Red Maples which never turn red under any circumstances, but die away yellow or brown as a Norway Maple does; showing that the coloring is in a measure from some constitutional principle over which external or purely chemical circumstances have not sole control. It is worthy of remark that many maples in the spring have the flowers of a dun brown instead of the spring, and these are the ones that have the paler autumn foliage—an additional fact to prove that there are constitutionally darker forms than others,—and we have no doubt that a careful watching for, and grafting from these is worthy of the nurseryman's art.—Ed. G. M.]

Literature, Travels & Personal Notes.

COMMUNICATIONS.

KANSAS NOTES.

BY H. E. VANDEMAN, GENEVA, KANSAS.

As you, Mr. Editor, have repeatedly expressed your desire for western items, I again send you a few. This season has been to the farmers of Kansas, a very prosperous one. But not so to us who grow fruit, for the great fruit crop of our region,—the apple crop has been almost entirely nothing. We have some few very fine specimens, as you would have thought, had you been at our Neosho Valley District Fair, lately held at Neosho Falls. As I was Superintendent of the Pomological Department, I had a fair chance to judge of the merits of the fruits shown, and certainly never saw such fine specimens of Fall Pippin, Wine, Ortley, Fameuse, and other fall varieties, whose flavor fully equalled their beauty and proportions. Northern Spy and R. I. Greening, are nothing but fall apples here, and were quite edible last week.

Of winter varieties we had an equally good show, although the flavor had to be imagined at the date of examination. Winesap, Ben Davis, and Missouri Pippin, stand at the head of the list for market and were out in full display. A host of others could be named, but I will save your patience and only say that perhaps in 1876 you may see at your own town some of similar character. Not a scab nor a codling moth was seen. In short, South Kansas *we* think is a good place to raise apples. But I said the apple crop this year is nothing. The causes are in my opinion the defoliation by locusts and the heavy crop of last year.

We had some beautiful specimens of pears at our Fair. Duchess and Bartlett that would weigh nearly or quite a pound each and of the very best flavor. Louise Bonne de Jersey, Belle Lucrative, Buffum, were delicious, but Flemish Beauty was too ripe. Vicar and Glout Morceau gave tokens of future good cheer.

Of peaches we could of course have but a few late varieties. But there were good specimens of Heath Cling and a number of its seedlings which equalled if not excelled it. When my recently planted late peaches, procured of Randolph Peters, come into bearing, I hope to improve the late peach shows in this section. The peach crop in South Kansas this year was very good. But the people have too many inferior seedling orchards. It seems to me unaccountable why persons continue to plant seedling orchards when the proportional difference in profit right here at home is as twenty-five cents is to two dollars.

Of berries we had a good crop this year except strawberries which I have never yet seen made profitable here except a few for home use and those most dearly earned. The winters and the summers seem both to be at war with the strawberries. But I hope yet to succeed in raising them.

I would write you more of our experience with flowers and vegetables, but it seems cruel to inflict your pages with so much when there are others whose writings are much more conducive to the general interest; but I cannot forbear a little outburst of feeling over the exceeding worth of your October issue, which I read nearly all including advertisements, at one sitting and that late into the night. Those early peach notes are of great importance to me and to all. I have the whole list, but too young to bear. The old fancy of "split bud grafting" I have often had to rebut. I hope J. L. Templin may live long to be a writer for your pages. The American Pomological Society—how I longed to be there to sit as a learner at the feet of the experienced, and to enjoy their acquaintance and good cheer. I'll not venture upon President Wilder's almost incomparable address lest I never leave off these notes. May you live long to edit this best of all American horticultural papers.

[Western notes are highly esteemed by us.—Ed. G. M.]

EDITORIAL NOTES.

Why we are Short of Good Gardeners.—An Ohio correspondent says: "It is because our people are not educated to look on gardening as a source of refined pleasure, as the educated of other countries are. They understand very

well the art of making money, but have not as a general thing, acquired the art of spending it so as to get the most intellectually for the money they spend.

With the lack of this proper appreciation of the pleasures of gardening, they cannot of course appreciate the merits of a first class gardener,—and it is difficult for them to understand the difference between one and a common helper about the place. The best class of gardeners expect to be the associates of gentlemen,—and their acquirements and character entitle them to this position and treatment. Graded as barely above laborers, and with pay but just above what laborers receive, it is not to be wondered at that they leave a pursuit which is hardly regarded as a profession, for work which is better appreciated and better paid."

[There is some justice in our correspondent's remarks. It is a love for gardening alone, with the means to encourage and cultivate this love, that will appreciate the gardener's condition. These things cannot be expected in a new country to the extent that they exist in an old one. There are already many cases where the intelligent gardener is esteemed as highly as he is in England,—and we believe this feeling is growing instead of decreasing among us.

Gardening itself has more to do now than it one time had in acquiring an ascendency over people's tastes. Country seats were almost essential to the wealthy, for summer enjoyment. Now railroads are everywhere, and steamboats for all parts of the world are starting every day. Instead of summer in the country, it is summer travel,—and this stops thousands of country seats which in the old time abounded. All these things will come right in the end,—but in the meanwhile the highest efforts of horticulture naturally suffer. It is not in our opinion so much the lack of appreciation of horticulture, as it is the changed circumstances of the case,—and this greater wealth will remedy.—Ed. G. M.]

Nursery Patronage.—We heard a friend remark recently that in proportion to the patronage they receive, American nurserymen are more enterprising than any other in the world. We do not know how this may be; but when we read in an English paper that on one particular occasion *six thousand* persons visited one London nursery in a single day, it seems as if there might be something in the remark. This we suppose is more than the most popular American nurseryman would hope to see in a long life time.

Warning to Tree Purchasers.—We have a card from Geneva, warning the public against some "frauds" from Troy, Ohio, who profess to sell people one thing, and then sell them another, not at all as represented. It is not necessary to print this card. No intelligent person buys of an unknown peddler, unless he is able to judge by sight that the article is what he wants. If he did he would surely get brass for gold,—cotton for silk, and never get the "all wool" so solemnly sworn to. It is too much to expect that there is more of heaven in a tree peddler than in the peddler of any other sort of ware. We do not suppose any reader of the *Gardener's Monthly* needs to be told of this truth,—if there be, we are malicious enough to shut our eyes when that "Troy firm" goes around that way. Those who expect to gather grapes from thorns and figs from thistles, and who cannot even tell a thorn from a thistle, are surely not among our readers; and nothing we can say will save them.

Torreya taxifolia.—Dr. Gray's "Pilgrimage to the home of the Torreya," given some months ago in the *American Agriculturist*, and which as a popularly pleasant piece of writing, takes rank with his "How Plants Grow," has has been reproduced entire in the London *Gardener's Chronicle.*

Report of the Fruit Grower's Association, of Ontario.—Published by order of the Assembly. Dr. D. W. Beadle, of St. Catharines, Secretary. This has been some time on our table, but overlooked amidst a heap of back papers. In contrast with many reports like this, we have to notice no less than two thousand two hundred and fifty dollars are acknowledged from membership fees, which shows a healthy taste for horticulture among the Canadians. Besides this the government aids the Society by 1500 dollars. The report is far above the usual character of such publications,—being calculated to interest those engaged in science in connection with horticulture, as well as in the mere practical details.

Transactions of the Wisconsin State Horticultural Society for 1875, from F. W. Case, Secretary, Madison, Wisconsin. It contains the Annual address of the President, J. S. Stickney, full of excellent hints,—a most practical paper; horticulture as adapted to Wisconsin by A. J. Tuttle,—Horticultural Progress and Prospects, by J. C. Plumb,—Hardy Stocks for Apple Trees, by E. Wilcox,—How to Plant Orchards, by Geo. W. Putnam,—New Western Apples, by G. P. Peffer,—Picking, Packing, and Selling

Apples, by E. H. Benton,—Fruit and Fruit Trees at Sheboygan, by Sam. Rounseville,—Progress in the Market Garden, by J. W. Smith,—Strawberry Experiments, by P. F. Adams,—Pears, by G. J. Kellogg,—The Marblehead Squash, by E. G. Mygatt,—Ornamental Trees and Shrubs, by F. S. Lawrence,—Mulching Fruit Trees, by A. L. Hatch,—Breeding Apple Trees for Hardiness, by C. S. Abbot,—Small Fruits for the Northwest, by N. F. Lord,—Evergreen Seedlings, by H. M. Francis,—Protecting Trees from Rabbits, J. T. Hawes,—Insects in Flower Culture, by Mrs. I. H. Williams,—Mrs. Williams by the way uses one part alcohol and three parts water, applied with a tooth brush to destroy the mealy bug,—Wild Flowers by Mrs. Lewis,—Local Adaptations to varieties, by E. Chase,—Cranberry Culture, by A. C. Hitchcock,—Top Grafting Trees, by E. G. Myatt,—Apple Growing in North West Wisconsin,—What Flowers shall we Plant, by Mrs. Williams,—Best Means to Promote Horticulture, by C. S. Whither,—Profits and Pleasures of Wild Flowers, by Mrs. H. M. Lewis,—Strawberry Culture, by J. M. Smith,—Floriculture, by Mrs. Boynton,—Horticulture and Home, by N. F. Lund. All this besides the usual discussions and reports of committees. We give this list of topics in full, because it is so rare to find so much excellent matter in less than two hundred pages. We naturally supposed that most of the Horticulturists of Wisconsin must belong to a society which could show so much good work,—but there are only forty-eight names in the published list! Fortunately the Proceedings are published by the State.

Elements of Meterology,—By *Professor Tice, of St. Louis.* Mr. Tice has been prominent among the students of meteorology, and believes that it is a science in which the laws may be as easily demonstrated, as in the majority of its kindred. He seems to speak of it as if it was almost as certain in its principles as astronomy,—indeed he makes our weather elements in a great measure dependent on planetary movements,-and again in a degree on electric influences. The work is made up of an immense collection of facts, bearing on the points presented by the author. Whether all the facts have been examined, or whether only those which support Mr. Tice's views, are brought forward, we do not know. As they are given here, they seem to sustain his position; but we feel the subject as he presents it to us here, entirely too vast to be decided by a bare reading. The book is one to be studied. Mr. Tice is his own publisher. Two dollars to him will bring the book.

The American Fruit Culturist.—By J. J. Thomas, eighth edition, 576 pages, New York, William Wood & Co., 1875. When a book of this character passes through eight editions, in little more than twenty years, it is superfluous to say how useful it is, or how much it is appreciated. We must be pardoned however for saying that if any one wants to know anything whatever of fruit growing, he will find what he wants to know in it. Nothing seems to have escaped Mr. Thomas' notice. What is better there is nothing recommended nor anything supposed to be correct, that has not been positively determined to be true. Indeed, if there be a fault in the book it is an over anxiety to be correct. There may not be the whole truth, but there is nothing but the truth,—and this makes it one of the safest guides to American fruit culture in the English language. So far as the new edition is concerned, it has the merit of being mostly re-written, and thus the practical details of culture are brought down to the latest experience. A remarkably tasteful fruit chromo faces the title page,—and the whole artistic character of the work is of a high order.

Revue de l'Horticulture Belge (*Belgian Horticultural Review*). Monthly. Edited by Ed. Pynaert, and published at Ghent, Belgium. This is a green covered magazine about the size and of the scope of our own. It has but about twenty pages of a letter press, but makes up in a beautiful colored plate, and a profusion of wood cuts.

In the number before us—the fifth—the plate represents a beautiful variety of Azalea mollis, a species coming into prominence. It gives the history and culture. Another article treats of the colored leaved Dracænas. Then there are articles on bouquets, culture of *Phlebodium aureum* one of the best of large growing ferns,—Hardy Flowers of Various Seasons; Rock Flowers; Hardy Annuals; *Corbeille* Parterres; July Flowers; Monthly Hints for the Amateur; Horticultural reviews, and a full chapter of varieties. It is in French and will be good exercise for gardeners who are studying the language. Price ten francs a year in Begium,—*pour l'etranger le port en plus;* one franc for a single number. It is to be regretted that the United States does *not* pay "the bearer twenty-five cents" though it did say once it *will;* or else a quarter dollar note sent for a copy might bring one.

THE ROXBORO' INTELLIGENCER.—D. Rodney King, Publisher and Editor. It is now so long ago, few of our readers know that if they derive pleasure from the *Gardener's Monthly*, they are indebted to the gentleman above named for the gratification. Major King was at that time among the most distinguished of Philadelphia merchant manufacturers, and Philadelphia is largely indebted to him for many a public spirited measure. Her great public Parks, and other public works of a character to make the city attractive, found in him an active laborer for their establishment. The Horticultural Hall, one of the great boasts of the place, and without which Philadelphians would be badly off for room for great public meetings and entertainments of great scope and varied character, would in all probability not be in existence now but for his great and persevering energy.

It was he who conceived and carried out the idea of the *Gardener's Monthly*, and for several years the heavy sums necessary to insure its success came from his purse. Only after it was able to go alone did he cease his pecuniary connection with it. The editor's management of it has been considered a success,—but very much of this also is due to the suggestions and advice of Mr. King, which were freely given and always esteemed. Since his retirement from active business, Major King has been the managing editor of one of the Philadelphia newspapers; and now he is in the field again—his own "editor and proprietor."

The suburbs of Philadelphia,—indeed they are parts of Philadelphia,—are centres, each of them having peculiar features of its own, and supporting an active weekly paper. Thus we have the Frankford *Herald*, the Holmesburg *Gazette*, the Manayunk *Sentinel*, and the Germantown *Telegraph*, all well known and successful newspaper enterprizes. The Roxboro' *Intelligencer* is another of these. No one is more fitted for this enterprise than our friend,—and he has the best wishes, we are sure, of every reader of this magazine, for its success.

FANCOURT & SUTHERLAND.—Our excellent correspondent, Mr. Wm. Sutherland, has taken unto himself a partner,—and together they will undertake a nursery and florists business at 65th and Darby Road, under the style and title aforesaid. Mr. Fancourt was for some years propagator to Messrs. Hoopes Bros. We wish the new firm every success.

QUERIES.

THE POSTAL LAWS.—A Philadelphia correspondent says: "I like your pluck and perseverance on the postage question of seed and plants; but does it occur to you that there are other professions besides the gardeners that derive no benefit from the post office transport of bulky articles. Hood, the laugher, wrote to the editor of the *Athenæum*, an excuse for delay in returning proofs to be corrected, that he was delayed by taking a foot bath for the gout; and he asked, with that wonderful humor that has had no competitor, 'What would Job have thought if he got his *boils* from a tea kettle, administered too hot by his wife?' sympathise with all you say about postage, but do you know that while I raise mushrooms, and have a grapery in my garret, with great success, I make my money by carriage building, and the postmaster and Congress have never yet given us a law by which I could send a buggy or a landau by mail, and I am a stickler for equality in all laws, including postage. My customers ride in the park to see the beauties of planting, and we don't see yet that the Philadelphia grand sachems have provided many flowers or trees. Till they do this, I confess I am against feeling strongly for monopoly. Ever yours, FREEZER."

[Our correspondent is right. By all means let us have "equality before the law." The post office authorities limit us to four pound packages,—and we suppose neither the post master nor any body else would want to exclude either a Buggy or a Landau, if it weighed less than four pounds! The horticulturist now, has to take his invoice to pieces, and send bit by bit in these little packages, and he is quite willing the charioteer should have this privilege also, and we presume he has. Try again, friend "Freezer," and take not off the pot lid before the water *boils*.—ED. G. M.]

DON'T GIVE IT UP SO.—*J. W. M.* says: "In answer to X, in your October number, you say, 'We doubt very much that any change will be made in that part of the law which affects us unless more is done.' Then, Mr. Editor, let's do more. I enclose a form of petition which will be sent to Congress from Boston, and I suggest that you print it and that your readers in all parts of the country copy it and get signatures and hand it to their Congressional representatives to be presented to Congress. What the servant needs is to know what his master wants, and then there is hope that he will do it."

To the Honorable Senate and House of Representatives in Congress assembled:

YOUR PETITIONERS RESPECTFULLY REPRESENT:

That there is great need of a convenient, reliable, rapid, regular and cheap mode of sending seeds, cuttings, bulbs, grafts, and small plants,—samples of merchandise, books and many other small articles, and that the Post Office Department alone can supply this need;—we therefore respectfully petition your honorable bodies to reduce the present rate of charge on such matter, one half, and to authorize the affixing of names, numbers or letters to all such articles so sent, as will enable the sender to designate them to the receiver.

And we also ask an enactment that will forbid the opening of any such package until it reaches its destination, when, if it prove to contain unlawful matter, it shall be subjected to letter postage.

[We had an idea that if there was self respect in the horticultural body, our remarks would have the effect of bringing some of it to light, and are glad to witness the above result.—ED. G. M.]

Horticultural Societies.

EDITORIAL NOTES.

THE GERMANTOWN, (PA.,) HORTICULTURAL SOCIETY.—This young local Society held its annual meeting in the last week of September, and was as in the past, quite a success. In the skill exhibited in growing plants,—one of the leading objects of a society's existence—there was marked progress. The collection of leaf Begonias exhibited by Miller & Hayes, are particularly worthy of notice in this connection. They were not in very large pots, but had fine leaves, and abundant foliage,—with the colors well brought out. Mr. Thomas Henning, gardener to Ellis Yarnall, Esq., had some remarkably well grown Coleus, so far as the making of specimen plants were concerned; but they were defective in color, which is one of the great charms of the Coleus. Mr. Newett, gardener to H. Pratt McKean, Esq., had some of his superb Lycopodiums, in the growth of which he particularly excels. In his collection we were reminded that the old Selaginella arborea is still among the best to grow. S. Lyalli is one of the best of the most recent ones. It is always a treat to visit the Germantown Horticultural Society—if for no other purpose than to see the old Begonia Evansiana, which the Germantown people have for so many generations taken care of, and which they know how to grow.

There was a sharp competition in floral ornaments and designs. The Germantown florists believe that in this respect they can beat the world, and of course this means close competition with one another in a friendly contest of this kind. The fruits and vegetables were excellent, but we noted nothing especial likely to interest our distant readers. The florists from the other ends of Philadelphia aided in the display. We noted Dreer, Mackenzie, Buist and Foust among the exhibitors. The latter prides himself, and justly, as an introducer of new plants. Here he had two excellent new Ferns, Davellia Mooreana, and Adiantum Peruvianum, also a plant as pretty as a fern, Paullinia thalictrifolia.

COLOGNE INTERNATIONAL HORTICULTURAL EXHIBITION.—This exhibition, to which we several times called attention some time ago, was a grand success. There were over *three thousand entries*. This gives an idea of the popularity of Horticulture in the old world, of which we can hardly form a conception.

THE FLORAL DEPARTMENT OF THE CINCINNATI EXPOSITION, to which we drew attention last year by its very liberal premiums, seems to have found a good return for its liberality. A Cincinnati paper says under date of September 24th: "The attendance at the Exposition to-day and evening is estimated by sales of tickets, at nearly 40,000, the attraction being the grand floral display. Three hundred square feet was

occupied by florists with beautiful designs in floral work and art flowers. The First grand premium of $400 for the best general display of floral work and art flowers was awarded to Thos. Knowlson of this city, his floral work being a number of agricultural implements made of beautiful flowers. Among the display was a fountain nearly eight feet high, and an eighteen light chandelier, a large bell and globe and other fancy articles.

For the best display of the greatest number of varieties of cut flowers, the first premium of $100 was awarded to James Vick, of Rochester, New York, whose display covered nearly one-third of the entire space."

An Onion Show.—An English seedsman offered premiums for onions of a kind he introduced known as the Banbury. The *Gardener's Chronicle* says of it: "Mr P. J. Perry, of the Banbury Nursery, held an exhibition of the above Onion at the Corn Exchange, Banbury, on September 9th. For the four prizes offered, which were given by the above firm, there were no less than ninety-six entries, to which add five not for competition and we have a grand total of 101 entries. Several of the lots were remarkable for symmetry, weight, and quality. Many of the specimens measured sixteen and seventeen inches in circumference, and weighed from one pound, to twenty-two ounces each. The Earl of Effingham sent a collection of eighteen varieties, especially good and of splendid quality, not for competition; and Mr. Munton staged twenty-four specimens, which comprised many very choice examples of high culture."

We suppose there must have been a fearful shedding of tears by the losing exhibitors, while no doubt the winning ones cried for joy.

ADDRESS OF PRESIDENT WILDER.

(*Concluded from page* 320.)

Nomenclature and Synonymy.

Allow me to call your attention for a moment to the importance of a correct nomenclature for our fruits. This was one of the objects for which this Society was instituted. This is still its manifest duty, and should not be neglected. Much has been effected in this respect by the unwearied labors of the Committee on our Catalogue, as well as by the writers of papers on the synonymy and nomenclature of particular varieties, which have been published in our proceedings. Besides these, we have the investigations of Manning, Downing, Thomas, Barry, Hovey, Warder, Berckmans, Elliott, and others who have devoted long lives to clearing up the confusion which existed in the nomenclature of our fruits, and whose efforts have, to a great extent, been crowned with success. We are aware of the difficulty of changing long-established names, which, though erroneous, have almost acquired a hereditary claim to use; but, as a proof that it is not impossible, we may mention the White Doyenne pear, which, when this Society was instituted, was known in New York as the Virgalieu, in Boston as the St. Michael, and in Philadelphia as the Butter pear, to say nothing of its thirty European synonyms, but now, through the persevering labors of pomologists, is known throughout this country, as well as in Europe, by one standard name. The report of our Committee on this subject, presented at our last session by the chairman, Mr. Thomas, is a step in the right direction, and should be followed up, particularly by such investigations of the history and synonymy of popular varieties as the elaborate papers presented by Dr. Howsley at the session of 1871. Let us all co-operate in these laudable efforts, and we shall ere long make the nomenclature of our fruits as correct as that of any of the other sciences.

The importance of a correct nomenclature will be appreciated by those who recollect the many efforts to procure the "true Beurre Spence pear," and the many disappointments from the reception of worthless varieties for it, before it was discovered that the pear which Van Mons extolled so highly under this name was no more nor less than the Flemish Beauty. Had we known that the variety so long sought was one which we already possessed, we should have been spared a world of trouble and expense and disappointment.

American Fruits.

And now, for a moment, permit me to call your attention to the consideration of the question, "How shall we obtain varieties of fruits which may be adapted to the various latitudes of our immense territory?"

The great loss sustained in the importation and trials of trees from foreign shores, and even from different quarters of our own country, which are not adapted to our own location, suggests the answer that new varieties must be produced from seed, and to the manor born, to remedy this evil.

The adaptation of plants to various climates, and their distribution over the earth, involves a study so profound that few have any definite knowledge on the subject. Why some are suited, by their constitution, to a wide extent of territory, and are able to adapt themselves to almost any altitude or latitude or temperature without material change, while others are confined to a narrow limit, and will not prosper elsewhere; or why a fruit may succeed in one location, and a few miles distant fail entirely; why some are aquatic, and some thrive in arid soils, while others are parasitic, are mysteries which mankind has not yet been able to solve. The human constitution will frequently endure the change of country and climate; but the extent to which plants can bear these changes is fixed by an immutable law; therefore, all attempts to acclimate such as are not naturally congenial will fail in the end, except it be within very narrow limits,—not, however, that a tree or plant may not sometimes endure greater degrees of cold or heat than it is subject to in its native climate; but no one should suppose that time will produce a physiological or constitutional change in them.

It is, however, sufficient for us to know, that we can produce from seed, fruits, which, by their constitution and habits, are capable of enduring the cold and heat, the drought and moisture, and other vicissitudes of the region we inhabit; but the idea that we can accustom a tree or plant to conditions not consistent with its laws of being, is a chimera of the imagination. The only acclimation that we can rely on for obtaining trees and plants of stronger constitution is the production of new varieties from seed hybridized by the hand of man, or naturally cross-fertilized by insects or the air. Whatever opinions may have been entertained, to this we must come at last, that, for the acquisition of hardy, valuable fruits, adapted to the various locations of our vast territory, we must depend mainly on the production from seed. Thus I have discoursed to you for many years,—thus have I promised to do while I live.

Much has already been accomplished by the production of new varieties of American fruits from seed, but how little compared with the results obtained in other lands by the art of hybridization in the vegetable kingdom. To this art we are mainly indebted for the numerous fine varieties of grains, vegetables, and flowers introduced in our own time, and the same success will reward similar efforts to produce new and valuable fruits suited to our own climes. Says Prof. Gray, in his admirable essay at our last session, "Most of our esteemed and important fruits have not so much been given to man, as made by him, and man's work in this respect is mainly to direct the course, or tendency, of nature." The success which has attended the American florist in the production of new and fine varieties of the camellia, the rose, and other plants, which rival the choicest varieties of the Old World, is indeed remarkable, and it will be far greater when the same scientific knowledge is applied to the production of native fruits.

The laws which govern the procreation of species by cross impregnation are now so well understood by those who have scientific knowledge as to leave no doubt of success. Thus, the farmer as well as the florist is producing results which, as to form, habit, color, proportion, and beauty, surprise the operator himself, when he sees how kindly nature co-operates with his efforts to bring forth the object of his desires. There may be disappointments,—these are the lot of humanity,—but the philosophical principle is correct, and the results of practice are now universally acknowledged; and although the improvement sought for many not be realized in every instance, experience has taught us that it will come at last. But my object is to encourage our cultivators in the belief that, by the sowing of the seeds of our best varieties, and by cross impregnation, there is a wide field open for improvement, and that all other attempts at acclimation are fruitless. And have you ever thought, my friends, of the many fine fruits which you might have raised by the sowing of seeds which you have carelessly thrown away? Not that I would discourage the planting and proving of the new varieties from other regions, holding fast such as are suited; and where they do not succeed in one location, it is possible they may be adapted to another. This is especially true with regard to the varieties of the strawberry. While one cultivator cannot grow the variety bearing my name, another declares he will grow no other; and thus with the Hovey's Seedling, which, after forty-two years of existence, has this year carried off the highest prize offered by the Massachusetts Horticultural Society for the strawberry.

Late-keeping Fruits.

The disposition now so generally manifested for the production of very early fruits is commendable so far as it tends to the extension of the

season, but when we take into account the very perishable character of these, it becomes a matter worthy of consideration whether our efforts might not be more profitably applied to the production of those which shall prolong the season of fruits into the late fall and winter months; for as population increases and civilization advances, so will these fruits be considered as among the necessities of food for all who have the means to purchase them. The demand for late fruits for exportation has now become general, and large quantities are sent not only to England, but in our ice ships to warmer climes, where they are more and more demanded for constant use. In view of these facts, it becomes a matter of importance to increase the number of our choice late-keeping fruits, not only for our own market, but for foreign demand.

Heretofore there has seemed a want of taste in the community for late pears, shown by the sudden falling off in the demand for this fruit immediately on the setting-in of cold weather, but it is my belief that a taste for them will grow—indeed is already growing up. Most of the very late varieties of pears which we now possess are of medium quality, and we think ourselves fortunate if we can ripen them to even a half-melting texture, and it should be our aim in the improvement of this fruit to produce varieties as fine in quality and texture as the autumn kinds, and possessing the property of keeping through the winter without the aid of special appliances. The want of taste for winter pears is owing, to a great extent, to the want of knowledge by the public generally, of the existence of fine varieties ripening at the season of the Beurre d'Anjou, Lawrence, Winter Nelis, and Dana's Hovey.

There is little fear of overstocking the market with very choice late-keeping apples or pears, for just in proportion as the refinements of life and cultivated taste are appreciated, so will these bounties of nature become, as in the beginning, first among the charms of Eden, first among the luxuries of life. I am happy to say that the bequest to this Society, which I have already mentioned, has distinct reference to the production of late varieties of fruit.

Insect Depredations.

But the non-adaptation of fruits to our several localities is not the only difficulty we have to contend with. When we reflect upon the alarming increase of noxious insects, and the loss of untold millions of the productions of our country by their ravages on our crops, it becomes a matter of grave interest that the pomologist should be ever ready to contend with this host of vile creation. These pests will probably continue to afflict mankind in the future as in the past, for their kingdom is established throughout the earth. "It extends," says Harris, "from the torrid zone to the utmost limits of polar vegetation, and from the lowest valley to the mountainous regions of perpetual snow." And as our friend, Dr. Hull, the President of the Illinois State Horticultural Society, has truly said, "just in proportion as you increase improved fruits, just in that proportion will fruit insects increase with you." The wonder, therefore, is not that they are permitted to exert their baneful influence on this fair world, but that mankind are so neglectful of efforts for their destruction.

The Almighty gave us dominion not only over the fish of the sea, the fowl of the air, and the cattle, but "over every creeping thing that creepeth upon the earth," and yet we allow them to become our masters. One thing is certain, our duty is to overcome them as we would any other evil, nor tire in our efforts, unless we are willing to admit that insects are more powerful than men. It is estimated by Prof. Riley, that the damage done by insects within the limits of our country is not less than three hundred millions of dollars annually, and that Napoleon, at the summit of his prosperity, never inflicted more damage on a nation than the lilliputian insect army inflicts on the United States; and well does he remark, "If an enemy were to cause a small part of the injury which results each year from the depredations of even one of our insect enemies, the whole country would resound with a clamor for the suppression of the invaders." We have learned how to conquer the potato beetle, the caterpillar and curculio, the canker and currant worms, the aphis and red spider, and the rose slug; we can prevent the depredations of the borer and the codling moth, and may we not yet hope to devise means to prevent the terrible scourge of the grasshopper in the West, and phylloxera on our vines. Indomitable perseverance is the price of reward in the acquisition of noble ends, and this is especially true in regard to the culture of fruits.

Accustomed, as we are, to the canker worm in Massachusetts, we as generally protect our orchards from its ravages as we do our fields from the invasion of cattle; the efforts of Ellwanger & Barry, Dr. Hull and others, are crowned with an annual crop of plums, by a little care, at the proper time, in shaking of the trees and picking up of the dropping fruit; the canker worm is prevented by the application of tar and oil, or printer's ink for a few weeks; the caterpillar by the use of the hand or brush for a few hours; and the borer by a few moment's examination; and these examples are illustrations of the principles which I would enforce, and of what may be done; and were we to fail in this, it is through neglect of the means which have been placed in our hands.

> "Thus God delights to teach this lesson ever,
> That our success depends on our endeavor."

The study of entomology, as teaching us the habits of insects, both useful and injurious, is of the highest importance, in connection with the culture of plants and fruits. And we therefore rejoice in the spirit of enterprise which has of late been awakened on this subject. Were we to be told that there was no method to prevent the depredations of insects, we should lie down in despair; but we do little better, while we do nothing to prevent them, and if men would give their minds to the subject, most of the evils of which we complain might be prevented.

Necrology.

While we rejoice in the prosperity, usefulness and example of this Society, let us remember with gratitude the services of those departed friends who have labored with us for its promotion, that their names may have a place in our records as benefactors of mankind. At our last session it was my sad duty to add to our necrological report the decease of three associates, who had held the office of Vice-President of this Society; and now, although Providence has spared the lives of others, who have held official position, I have to add the names of three more who have passed the dark river, over whose waves none return.

Hon. Joseph Sebastian Cabot, of Salem, Mass., died June 29th, 1874. Mr. Cabot was one of our oldest and most respected members, having occupied various official positions both in this Society and in the community in which he lived. He was a graduate of Harvard College, Mayor of Salem, President of the Asiatic Bank, and for several years President of the Massachusetts Horticultural Society. He was early devoted to horticultural pursuits, and for a long time particularly interested in fruit-culture, having produced the Cabot and other pears from seed. For many years he was a Vice-President of this Society, and, as Chairman of Committee on Rejected Fruits, made the report in 1858, whereby more than six hundred varieties were rejected as unworthy of general cultivation. Mr. Cabot discharged all the duties of life with marked ability and unimpeached integrity.

Mark Miller, of Des Moines, Iowa, died April 16th, 1874. He was born in Peterborough, N. H., and ever had a most grateful regard for his native State. He was ardently devoted to the cause of fruit culture in the West, and at the time of his death was chairman of the Fruit Committee for Iowa, which office he had held for many years. While living in Wisconsin, he was correspondent of *The Wisconsin Farmer*, and after his removal to Iowa, he edited and published *The Iowa Homestead*. In the latter years of his life he was editor of *The Western Pomologist*, which absorbed *The Western Gardener*, and at the time of his death was Western corresponding editor of *The Horticulturist*. He was modest and unassuming in his manners, eminently a working man, and deeply interested in the welfare of the American Pomological Society. Mr. Miller had been in ill health for several months, but by extraordinary effort he made up a large collection of apples, and placed them on our tables at Boston, as he had done at our session in Richmond, in 1869, where Iowa received the first prize for apples. Many will remember the enterprise and interest which he manifested in these collections, which received special commendation. His death was a severe loss both to Western pomology, and to this Society.

Hon. Matthias L. Dunlap, of Champaign, Illinois, who died on the 14th of February, 1875, was Chairman of the Fruit Committee for Illinois from 1858 to 1869. He was distinguished for great energy and enterprise, and was highly respected for his integrity. He was widely known throughout the North-west for the ability and devotion with which he sought to give instruction in agriculture, having commenced as a correspondent of *The Prairie Farmer*, and afterward edited *The Illinois Farmer*. Later he became still more widely known as the agricultural correspondent of *The Chicago Tribune*, over the signature of "Rural." He was deeply interested in rural improvement and the development of the West, and was respected and loved by all who knew him.

In this connection I think it proper also to allude to the recent death of a distinguished friend of our cause, Chevalier Andre Leroy, of Angers, France, which occurred on the 23d of last July, at the age of seventy-four years. Though living in a foreign land, he was known to many of us personally, and to a large circle of friends in the intercourse of trade. His nurseries were among the most extensive in Europe, and from them more fruit-trees have probably been sent to the United States than from any other establishment. His "Dictionnaire de Pomologie," in five royal octavo volumes, is a most elaborate work, and will cause him to be long remembered by the pomologists of the world. His desire to visit this country and witness its progress in pomology, was often expressed; and, in a letter to me, as late as last June, he remarks: "I am always astonished at the progress of pomology and horticulture in your country."

THE CENTENNIAL OF THE REPUBLIC.

It will be remembered that our Society has already accepted an invitation to participate in the Grand Centennial Celebration of our nation's independence at Philadelphia next year, for which we must now make preparations. It will be the most glorious epoch in modern history, being no less than a Centennial Celebration of the only great nation on earth, which will then have completed a century of free and independent political existence. On that occasion we shall meet not only the representatives of the States and Territories of this great republic, but the representatives of other nations from all quarters of the globe, to exchange cordial greetings on the triumphs of civilization and the blessings of freedom, which have made this nation the wonder and admiration of mankind. Here will be brought together, in friendly competition, the genius, skill, and industries; the products of the soil, the mines and the manufactories of nations, and amidst all, in the grand nave of the temple of agriculture, the fruits of this continent are to be placed, as jewels set by Pomona on the bosom of Ceres.

And now that we are in the midst of these days of Centennial Celebrations, I am reminded of our own Quarter-Centennial at Boston two years since, when the representatives of thirty States, Districts and Territories came up with their fruits to rejoice together in the progress and prosperity of our Society. It was an occasion long to be remembered by us of the East; nor shall I ever forget the hour when we received the welcome of Boston, in the Old Cradle of Liberty, whose hallowed walls had so often resounded to the call of patriotism and duty, nor when we stood up in that bower of flowers and beauty and grace, made glad with the thousand voices of friendly greeting. Pardon me, friends, for this digression; but when I reflect that it was my fortune to stand by the cradle of our Society at its birth, and that many of its godfathers were there to join in these festivities, I could but remember with gratitude that I had been permitted to witness the glory of this latter day, and in the fullness of joy, after twenty-five years of service, the feeling would arise, let me depart, I die content. But no, no, the better, second thought was, let me live on, let me live to witness the further development of our vast national resources, and the influence of those great principles of human right which have made this nation what it is.

CONCLUSION.

In all this progress of civilization, influence, and power, the American Pomological Society is to take a part. What a field of research and promise is open before us! What a vast enterprise to fill our ever-expanding area with fruits suited to our various climes! What a noble and benevolent work to furnish the luscious fruits of earth for future generations! This is our work; this the mission of our Society! Let us fulfil it! And let us console ourselves with the thought that, long after we shall have been gathered to our fathers, the results of our labors, like the dews of heaven, which continue to refresh the earth, shall be gratefully remembered by the millions that are to follow us. Work on, then, my brethren, work on, persevere to the end, and as surely as the sun shall shine and the rain descend, so surely shall your labors be crowned by a harvest of glorious fruits for mankind.

I hail with joy the steady onward progress of our National Society, not only for the contributions which it is making to the material wealth of our nation and the happiness of our fellowmen, but for the many indications which it gives of perpetual friendship between the numerous and distant States and Territories of our jurisdiction; a friendship which, we believe, shall grow stronger and stronger, dearer and dearer, by common memories of the past, common interests of the present, and common hopes of the future; a friendship which shall unite us in effort, in affection, and in destiny, now and forever.

The Gardener's Monthly,

DEVOTED TO

HORTICULTURE, ARBORICULTURE & RURAL AFFAIRS

EDITED BY THOMAS MEEHAN.

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Flower Garden and Pleasure Ground.

SEASONABLE HINTS.

We want just now, in view of what we have said the past year in reference to the finer kinds of evergreens, to insist on what we have frequently urged—the importance of planting places very thickly at first, in order both to produce an immediate effect, and also because the shelter which one another affords makes the trees grow with greater health and vigor, than when exposed singly to the force of wind and sun. At this season no better employment can be found than in thinning out these thick planted places. It will of course require much judgment; but one fond of trees, and the effects which they produce, will not be much at a loss. Sometimes it is hard to bring oneself to cut down a tree which one has watched grow for so many years; but it often must be done if we would preserve the symmetry and beauty of our places. When there is any question as to the proper tree to be taken away, the size of the place may help one to decide. A tree which will in time occupy much space can be more easily spared from a small place than one which will never transgress a limited space. Indeed, except for the purpose of rapid growth to nurse more valued trees, large growing things should not be tolerated in small places. The green grass, which is the charm of all gardens, soon departs when large trees are about.

Of course, this talk about thinning out, brings us to another great winter employment, that of pruning. There is no very great amount of science required for this, and yet some judgment is necessary. This is often done with little more reason than a boy has for whittling a chip—merely to have something to do. For notwithstanding the many papers that have been written "on the philosophy of pruning," the naked question, "What is the best time to prune trees?" is one with which the gardener is continually bored. The keen-edged gardeners give the cutting reply, "any time when your knife is sharp," but the more good natured say, "It depends on what you want to cut for." The street cutter "wants to keep the tree head low," and cuts down to make them branch lower; cutting in winter does not have this effect, so that unless one has some other object to combine with it, such as to clean the tree of bark scales or the larva of other insects, or the giving of employment to some half-starved tree carpenter, the work might as well be left undone. If you want a branch to push strongly at the point where you cut a part away, *prune in winter*. If your tree has branches crossing each other, or has half dead branches, or anything tending to spoil the form or symmetry of your tree, prune in winter; but as a rule the less pruning is done the healthier will be your trees, for it may be accepted as a rule in gardening that all pruning, whether in winter or summer, is a blow struck at the vitality of the plant.

Many kinds of trees that do not seem to thrive well, will be greatly improved next year by having a surface-dressing of manure or rich soil thrown about them. Evergreens are no exception. A singular notion used to prevail, that manure of any kind was injurious to evergreens, probably through noticing that they were usually found in poor, barren soil. Our best American

coniferæ growers, however, have long practiced manuring them and with the best results. Guano has been found particularly beneficial to the Spruce family, and will probably be found as good for the whole family of evergreens.

It would be well, at this season of leisure, to examine and decide on the course of improvements for the ensuing year.

COMMUNICATIONS.

PLAN FOR A SMALL GARDEN.

BY MRS. A. A. SAWYER, WISCASSET, MAINE.

(*Concluded from page* 324.)

No. 13—Fragrant honeysuckle, trained over an arbor forming an entrance to the garden.

No. 14—Rose John Hopper; May pink or violets.

No. 15—*Yucca filamentosa*, or palm lily; purple and white candytuft,

No. 16—*Dicentra spectabilis.*

No. 17—Clump of London Pride.

No. 18—Purple dahlia.

No. 19—Buff or straw colored dahlia.

No. 20—Group of salvias. They are very ornamental; buy or start in house. Transplant when the weather gets pretty warm, say about the tenth of June.

No. 21—Rose colored peony.

Nos. 22 and 23—Climbing roses; Queen of the Prairie, on trellis.

No. 24—White peony.

No. 25—Group of gladiolus.

No. 26—Double poppies, white fringed and scarlet, in masses.

No. 27—Dwarf hollyhocks.

No. 28—Crimson dahlia.

No. 29—White dahlia.

No. 30—Rose, General Jacqueminot.

No. 31—Climbing rose, Baltimore Belle; trained to trellis.

No. 32—Climbing rose, Russell's Cottage; trained to trellis.

No. 33—Garden heliotrope.

No. 34—Crimson peony.

No. 35—Group of everlasting flowers.

No. 36—Columbine; white, pink and purple.

No. 37—Chrysanthemums; white, buff and crimson.

No. 38—Fuchsias; white, purple and crimson—two of each kind.

No. 39—Tree peony.

No. 40—Lantanas; six plants.

No. 41—White dahlia.

No. 42—*Tigridia* (Mexican tiger flower).

No. 42—*Tritoma uvaria.*

No. 44—*Digitalis*, (Foxglove).

No. 45—Larkspurs; purple, pink and white.

No. 46—*Lobelia cardinalis.*

No. 47—Four o'clocks; all colors.

No. 48—White lily.

No. 49—Yellow lily.

No. 50—*Spirea Japonica.*

No. 51—Bed of pinks; *Dianthus* Heddewigii.

No. 52—Campanulas; purple and white.

No. 53—Marigolds; velvet, or *Tagetes signata pumila.*

No. 54—African Hibiscus, four or five plants.

No. 55—Fragrant Honeysuckle.

A.—Cannas; the ground covered with myrtle or ivy, or any running plant.

B.—White phlox, perennial; with roses Pius IX. and Auguste Mie, and between roses and in front of phlox have a pot or vase of amaryllis.

C.—In corner, morning glories; moss rose Princess Adelaide, roses Louis XIV, and white Scotch; with dwarf convolvulus between roses. If there is room a dahlia or two can be set out.

D.—Purple perennial phlox, ricinus, ornamental grasses, pink and white dahlias.

E. E. E. E.—Sweet peas, trained to trellises.

Tie up plants to stakes when necessary; keep every bed in neat condition, by removing weeds, cutting off old stalks and dead leaves, and wilted blossoms, if not wanted for seed.

Tie dahlias to stakes when set out; label as soon as they blossom, if the colors are not known before setting out. The tubers must be taken up by the first of November, and exposed to the air long enough to remove any excessive moisture, then pack in dry sand and put in a dry, cool cellar. Start in sawdust early in spring. *Soil must not be rich.* Roses require a rich soil; and in the spring cut off all old wood and weak last year's growth, and remove slugs, lice, and other insects, by washing with whale oil soap. Manure should be applied to the surface of the soil about the bushes, in November, to protect the roots, and they should be laid down and covered with earth or evergreen boughs. Honeysuckles, woodbines, wistarias, &c., should be taken from arbors, trellises, walls and pillars, and laid down and covered, in the same manner. Shrubs like Wiegelas, rose acacia, Japan quince, snow-balls, Mahonia and deutzias, can be tied up to represent small trees in the yard, by a little care in choosing evergreen boughs to do it with. Large shrubs, like syringas, need to be tied up, to prevent the snow from breaking the branches.

The soil and location of a garden are important things to be considered. If clayey subsoil, it should be thoroughly drained. If sandy loam, there is not so much need of draining. Good, rich manure should be thoroughly worked in, in the spring, and the beds leveled off, and soil freed from lumps, rocks, &c., as early as possible. A southerly exposure is preferable for a garden, and it should be protected on the north side by an evergreen hedge.

In planting seeds care must be taken not to plant the small ones too deep; just cover lightly with fine earth. Larger seeds can be sown one-quarter of an inch deep, and sweet peas four inches deep. Sow hardy seeds as early as first of May; half hardy, from middle of May to the first of June. In transplanting choose a cloudy day, and shade or cover the plants if the sun comes out warm and bright; disturb the roots as little as possible; water for a few days at sunset, if they wilt much, and care for them until they get established. I would sow seeds of pansies, sweet allysum, mignonette or violets in every bed, to cover the ground, and all plants grow just as well (and I think better) for having a few of these to keep the ground moist.

Edgings form another very important feature in a garden. Grass makes a neat edge if properly cared for, but it requires too much care to be very popular. Pansies, iris, daisies and violets make neat edgings, also some species of pinks, and they require but little care after they are set out. I have used house leeks for years, and every one that sees them admires them. They are hardy, grow rapidly, and retain their color (a pale green) the whole year, and they require so little care I can recommend them for any garden. The main walk or walks that are much used, should be straight or in easy curves, and four feet wide. The other walks can be as narrow as two feet. The best walks are made of small stone, oyster or clam shells covered with fine gravel and sifted coal ashes. They, like the garden, should be kept free from weeds and debris and present a smooth finished surface

In submitting this I have selected flowers of the most easy cultivation, and have tried to arrange them according to height and colors, and to give general directions for their care. Many more could have been selected, but I have made this plan with a view to the best show of flowers without great expense or care. It is one I think which any lady can take good care of, with a little assistance in the spring and fall.

SHELTER AT THE SEA SIDE AND ELSEWHERE.

BY JOHN JAY SMITH, PRESIDENT OF THE GERMANTOWN HORTICULTURAL SOCIETY.

If I am more particularly interested in any planting topics than others, it is perhaps in regard to what will grow on our long line of coast, in its sands and its heavy blows. On page 294 of the *Gardener's Monthly* I was glad, very glad, to see a confirmation of what I endeavored to teach in the *Horticulturist* when under my editorial charge, viz., that with a little shelter most trees suitable to the same inland latitude, would succeed at the side of the ocean; and here I would remark that much information, solid knowledge, contained in a brief paragraph, is lost absolutely *lost*, for want of elaboration or from the carelessness with which we read and lay down our periodicals. On page 294, you say, and the say should be carefully noted, that "an examination of both Atlantic City, and Cape May, the past year or two, shows us that any thing that grows inland, will do in these places, *provided* a few hardy things be set to break the heaviest of the wintry wind, or even if the force is broken by buildings—if the trees are set thick enough to help one another a little in a stiff storm."

Now, I hold that the pay we get for our periodical expenses lies in positive knowledge, and for this we cannot pay too much. The above quotation is fully sustained by my observations at Newport the past summer. I had mooted this in the *Horticulturist.* When its enthusiastic editor asked questions to be answered by correspondents, as to what trees will grow on the sea coast, I received and answered, and published many lists, and on the strength of the interest of the question was consulted by the Astors of New York, how to break up the wind influences. I and my correspondents went, as we thought, deeply and learnedly into the question, and we advised poplars and other wind breakers. Under their influence, Newport, as it was thought, began to be wooded; but this season I have carefully noticed the many very elegant places there planted without wind breakers, and I began a list of what trees would bear the sea air and heavy winds. What was my astonishment when I found the catalogue contained almost everything I was accustomed to plant near Philadelphia! You remark on the success of oaks;

and really at Newport the oaks are the great ornament. John Penn, grandson of the immortal founder of Pennsylvania, began a grand seat on the island of Portland on the Southern Coast of England, where there was not a single tree to be found; and nobody would believe trees could succeed, so powerful were the winds. At this moment, Pennsylvania Castle, on the most exposed point of the island, is embowered with the loveliest growth of trees, all of Mr. Penn's planting, and set out without regard to shelter.

On this subject I may remark on the smallness of shelter required, from an experience of my own, and only very recently, on a farm in Montgomery County, Pennsylvania, much and even terribly exposed to wind. I planted a mile or two of Norway Spruce imported from France, of two years growth only, and they were placed against a north post and rail fence, with but little hope of growth; but this trifling shelter has proved a perfect success; in three years they overtop the highest rail, and they are to me conclusive evidence of the value of even slight shelter.

[It is a pleasure to find our experience so ably seconded from so distinguished a source. It may yet be a question what is best to start the "shelter" with, and we would say it makes no difference as to what. If the things are planted thickly together they will shelter one another, and in time make a shelter for those which may be thinly planted behind them.—Ed. G. M.]

EDITORIAL NOTES.

Hardy Conifers.—Mr. Josiah Hoopes gives a few brief notes in the *Horticulturist* for October on some conifers. Some of the rarer ones are quite hardy,—but among the tender ones he ranks Abies Smithiana or Morinda, A. Webbiana, A. Pindrow, A. bracteata, A. Douglasii, Cunninghamia Sinensis, the Cephalotaxus family, the Torreyas, Sequoia gigantea, Cupressus Lawsoniana, Cryptomeria japonica, all the yews except Taxus cuspidata and T. canadensis, Juniperus oblonga pendula, J. japonica, J. sphœrica, J. drupacea, "etc." The Heath leaved arborvitæs, Thuja gigantea, Libocedrus decurrens, Cupressus Nutkaensis, Thujopsis dolabrata, the different varieties of Chinese arborvitæs, and Podocarpus japonica. All these he speaks of as being more or less injured last winter.

It ought to be stated whether or not these were exposed to the full sun, or full wind. It makes a great deal of difference. We doubt whether they were ever designed to be "hardy," especially when young, under the conditions we often see them placed. Naturally these trees spring up either among shrubbery or under growth, or else in thick masses, where they shelter one another. In our vicinity we know of many of the above named plants that were a little protected by large Norway Spruces and Hemlocks. We have in our mind, particularly as we write, some beautiful Morinda spruces, Cryptomeria, and others, that under these circumstances wintered as well as the spruces named, near them. Many of these things, when they get large and have their chief moisture collecting roots below the reach of ordinary frost, will stand full exposure, but it is not so with the young ones, and hardly to be expected. For water plants we must have water; for bog plants, peat,—for gregarious trees, shelter,—and so on through long lists. Differing from our good friend Hoopes, we have to regard all the list he names hardy, when the necessary conditions of their growth are supplied; and this is no more than all cultivated plants require. If the question was whether certain plants will resist wind and full exposure to all the elements, then we would grant that we have to fall back on a very few things, of which Larches and a few Pines are the leading representatives.

Sequoia gigantea.—We find the following in the *Gardener's Chronicle* and give it with the Editor's note. The trouble has always existed in the Eastern part of the United States, and of thousands of these mammoth trees planted out, there are not a dozen living now. It is not a question of soil or situation,—and we are quite sure our excellent cotemporary will find the disease of fungoid origin:

"*Wellingtonia gigantea branchlets dying off.*—A somewhat unusual occurrence in connection with the Wellingtonia (Sequoia) gigantea is taking place this season. Upon young trees many branchlets and the points of leading side branches are dying off, somewhat seriously. Some four trees I have planted at this place are doing so, notably a large specimen fifteen feet high, which I planted four years since, and which seems in all besides to be in the most robust health. I should not have drawn attention to the subject but that I have ascertained larger specimens some four miles distant have recently been subject to the same peculiarity. I therefore enclose examples, and ask whether this has been the case elsewhere? The examples sent are cut from the tree with a portion attached not subject to the injury, as will be seen.—*William Earley, Valentines.* [It is not an uncommon occurrence, and is generally caused by the roots having got into an uncongenial soil.—Eds.]"

Virginia Creeper.—The *Progressive Farmer*, of Cedar Rapids—a new and excellent monthly, by the way—has a good word for this—perhaps the most beautiful of hardy creepers.

Koelreuteria paniculata.—The *American Agriculturist* has the following in favor of a very deserving tree: "Koelreuteria paniculata, a tree which has every element of popularity except its name. If one wishes a medium-sized tree, fifteen to twenty-five feet, for a small place, one which shall be satisfactory in every respect, and unlike the trees which everybody else plants, what can be better than *Koelreuteria?*—It has every good quality of the Ailanthus without its faults; it is a shapely tree, eminently clean and free from insects; it has very dark green shining foliage, cut in a pleasing manner; it produces in July a profusion of spikes of bright yellow flowers; these are followed by a copious crop of large bladdery pods, which as autumn approaches, becomes handsomely tinged with red, and almost as showy at a distance as flowers. But the name! I have not much sympathy with this dislike to botanical names, but it exists, and if the name is an obstacle to making a meritorious tree better known, it must be bettered. *Koelreuteria* is closely related to our own beautiful Bladder-Nut, *Staphylea.* Then let us call this *The Chinese Bladder-Nut*, and ask the nurserymen to adopt the name in their catalogues. It grows readily from the seed, which in most seasons is produced abundantly, but my tree failed this year for the first time, which I attribute to the constant rains which prevailed during flowering time, and prevented fertilization; it also grows readily from root cuttings."

[The comparison with Ailanthus must cease before we take growth into consideration. In this part of the world it does not reach twenty feet in twenty years,—but for a small slow growing tree we endorse all the *Agriculturist* says of it. The name suggested will probably lead to confusion; as there are Staphyleas in China or Japan, and when they get into cultivation here will want their own name. The Japanese S. Bumalda is already in several American nurseries, and thus we have the Japanese Bladder-Nut at once. This part of the note we cannot therefore endorse.

After all, *Koelreuteria* is no harder a word than Ailanthus, Gladiolus, and lots of others which have become quite familiar,—and as *Koelreuteria*, the little tree is already very well known, and no other name is needed.—Ed. G. M.]

NEW PLANTS.

The Double English Blackberry.—We give the following from the London *Garden*, because we have noticed how well the plant behaves in this country as well as in England. It has quite a woody habit, and we believe is the only species which does not always have its stem die annually. In the *Phytologist*, a botanical magazine published many years ago, is a record of a specimen which had quite a large trunk, and rambled over trees like a grape vine. This however is not likely to occur in our severe winter climate:

"The *Gardener's Chronicle* directs attention to the double-flowered variety of Rubus discolor, and states that among hardy flowering shrubs few are more effective at the present time, with its very numerous narrow rose-pink petals. The foliage of this Bramble is very handsome, being of a dark green above, and light, almost glaucous green beneath. Trained up a stake, or allowed to ramble over other shrubs in the wilderness, it is very attractive, when covered with its long spikes of flowers. The same thing is sometimes called Rubus fruiticosus flore-roseo-pleno."

New Hardy Tree.—*Xanthoceras sorbifolia.* We had a notice of this when first introduced to us by the English papers. A recent number of the *Gardener's Chronicle* refers to it as being allied to the Koelreuteria paniculata.

Cypripedium japonicum.—The *Florist and Pomologist* for October has a full sized wood cut of this new hardy herbaceous plant. The flower resembles the Cypripedium acaule of our North American woods; but there are two flowers instead of one from the same scape,—and there are two leaves just above the ground on the short stem, instead of no stem, as in our plant.

Californian Lilies.—The London *Florist*

and Pomologist, has a beautiful colored plate, *L. Californicum*, *L. Humboldtii*, and *L. pardalinum*. They are rather larger on the average than our Eastern L. superbum and L. canadense, but all have characters very much in common. They are beautiful and well worthy of culture.

DIERVILLA FLORIBUNDA.—The London *Gardener's Magazine* refers to Diervilla floribunda as a hardy shrub, which is "as elegant as a Fuchsia and somewhat similarly colored." We do not know that this is in American collections yet; but it is worth looking after. It would be a good companion for Wiegela rosea, which indeed botanists tell us ought to be Diervilla, as there is hardly sufficient character for a separate genus.

THE MENTZELIAS.—As we cross what used to be called the Great American Plains to Colorado and Utah, there are few plants of these regions that interest us more than the different species of Mentzelia. They are rather coarse in habit, but the flowers are very beautiful. The London *Garden* refers as follows to three beautiful ones:

"M. ornata, (Torrey and Gray.) This may be popularly described as a robust Bartonia-like plant, two to four feet high, with sinuate-pinnatifid foliage, rough, like the whole plant, with short barbed hairs, each branch bearing several white flowers four to five inches in diameter, with ten spreading acute petals, and a large central tuft of stamens from two hundred to three hundred in number. It is probably a biennial plant, and expands its splendid sweet-scented flowers towards the close of the day. Though long since figured in the *Botanical Magazine* from dried specimens, under the name of Bartonia decapetala, it has not, I believe, been in actual cultivation. The seeds are of an oval flattened form, bordered by a narrow wing, and are about one-sixth of an inch in length. If sown early, seedlings might possibly flower the first season.

M. nuda, (Torrey and Gray.) Like the preceding, this species has a tall stem, rough from minute barbed pubescence, with lanceolate, or oblong-lanceolate, sessile toothed foliage, and large tenpetalled flowers, which differ from those of M. ornata in their yellowish color and rather smaller diameter, being usually about three inches in diameter. If sown early it will bloom the first season, but it will probably bloom in greater perfection when treated as a biennial, as the flower would then be produced in the long summer days, instead of the cooler and shorter ones of autumn.

M. multiflora, Nuttall. This species is readily distinguished from both the preceding by its dwarfer habit and golden-yellow color of the flowers, which features, notwithstanding their smaller size, may make it quite as acceptable in European gardens. In its scabrous whitish stems, lanceolate pinnatifid foliage, and winged seeds, it does not widely differ from M. nuda. Whether vespertine or diurnal is uncertain, but plants would probably flower the first year."

KNIPHOFIA MACOWANI.—Our readers are by this time well acquainted with Tritoma Uvaria. Its proper name is Kniphofia uvaria. The following relates to a much smaller growing species, and is from the *Gardener's Chronicle:*

"We are indebted to the kindness of Mr. Green, the Botanical Nursery, Holmesdale Road, Reigate, for the opportunity of figuring this charming addition to the genus Kniphofia. The plant was raised by Mr. Green from seed sent from South Africa to W. W. Saunders, Esq., by Mr. Macowan. It subsequently flowered in Mr. Green's nursery for the first time in England in September last, and on the following 7th of October, it was shown before the Floral Committee, and gained the highest award that body could make to it—a First-class Certificate. It has also been figured in the *Botanical Magazine*, tab. 6167, from whence we extract the following description, from the pen of Dr. Hooker:

'Root of stout fibers. Stem as thick as the thumb at the base, clothed with the rigid fibrous nerves of the old leaves. Leaves one to one and a half foot long, suberect, one third of an inch broad at the base, narrow subulate, strongly keeled, triangular at the the back, deeply grooved, margin strongly toothed, tip flattish. Scape as long as the leaves or longer, slender, cylindric, with one subulate bract or none. Raceme three to five inches long, cylindricovoid. Bracts one quarter of an inch long, ovate-lanceolate, acuminate, white, membranous. Flowers very shortly pedicelled, deflexed, yellowish passing into bright orange-red; tube nearly cylindric, rounded at the base, not contracted above the ovary, slightly narrowed from the lower third to the throat; segments one-twelfth of an inch long, rounded, spreading.'

As a low-growing plant for the front portion of a flower border, or for pot-culture, this dwarf-habited species of Kniphofia will prove to be an acquisition."

Greenhouse and House Gardening.

SEASONABLE HINTS.

Flower culture is so simple, and it is hard in the practical details to find anything new. Thus our monthly hints, though season by season in some respects, necessarily similar, are always progressing; and those who follow us regularly, can but note that no course of practical conduct in the garden is so perfect that something better cannot be taught.

So it is that we have never dared to lay down any absolute rule for gardening operations. We are content to give what we write the modest name of "hints," hoping the reader will receive them as such, and give to them some thought of his own before putting them in practice.

The growth of window plants is more simple than greenhouse plant growing. The looking after plenty of light being the first requisite. Many suppose that if plants in windows get light, that is enough; but there is nothing so good as sunlight. This is even of more consequence than heat. Flowers will generally be in greater proportion in a window at 55° than in a much higher temperature without the sunlight. Most of the old fashioned window plants are still among the best. For instance, Mignonette, Sweet Alyssum, Zonale Geraniums, Cupheas, Fuchsias, Violets, Roses, Plectranthus, Chinese Primroses, Lobelias, Oxalis, *Solanum semi-baccatum* or "Jerusalem cherry," (of which the dwarfer kind *S. capsicastrum*, is an improvement,) Catalonian Jasmines, Daphnes, Sweet Olive, Laurustinus, and where there is a little knowledge, Camellia and Azalea are still among the best. Some good and cheap plan of heating small windows of plants in winter is still a desideratum, though we suppose it will be found in an arrangement of oil lamps.

COMMUNICATIONS.

ÆSTHETICS IN CONSERVATORIES.

BY F. W. P.

Established and recognized styles of Architecture are a bequest transmitted to us from the past, and their application in a certain class of public buildings and institutions may be proper and perfectly in order, but for buildings of a specifically modern character, such as factories, railroad depots, photographic galleries, and above all, for plant houses, utterly unsuitable. The old masters and perfectors of the different, more or less, classical styles, only employed them in buildings of an official character, such as palaces, temples, forums, churches and town-halls, to render them expressive of the grave dignity of the purpose they were to serve, whilst dwelling houses, mere structures for defense, security and more or less comfort, varied in their style with climate, social condition and fancy of the inhabitants of the country. They ought always be constructed with tasteful solidity, so as to express the idea of privacy and comfort within, and security against disturbance and inconvenience from without, for they are our *Castles* in the broadest meaning of the word.

Plant houses or conservatories, as far as they are likewise intended to give security, in relation to plants might be called castles too, but rather air-castles, for they are cut out of and built in the air for the purpose of obtaining an artificial atmosphere with as much light as possibly can be secured. A certain flimsiness and airyness therefore will always be their characteristics and for this reason never being a beauty with enduring attractions, ought to be hidden from view by either a dense plantation or an attached substantial building. Conservatories, when built with due regard to their peculiar purpose do not admit of much indulgence in variety of style, because of material and the *uncompromising* demands of the future occupants of them. These imperative demands once satisfactorily complied with, there is very little room left for the constructor's fanciful attempts at structural embellishments, for every unnecessary reduction of light and space by way of heavy material, excessive height, arbitrary shaping and encumbering ornamentation, which only serve to make the structure more expensive and more hideous, and is moreover an unpardonable transgression upon the grounds legitimately belonging to the *Lords* of the province. Such queer structures of vile iron and common glass, often vauntingly called *Crystal Palaces*, judged from an æsthetic point of view, have to

be classed with the Chinese Pagoda and the Buddha temple, imposing perhaps on a Tartar's or a Hindoo's mind, but are certainly abortive attempts as productions of the beautiful in art. Wanting in the useful, too, what are they good for then?

Although plants may for a space of time be kept alive in ever so fanciful a building, styled conservatory, their health and appearance however will invariably be impaired, but their characteristics,—and this is important—which can only be made apparent, when accompanied by their natural associations, are in such contrivances killed right out, and the whole concern loses in its scientific as well as in its æsthetic value; thus missing its purpose altogether. A row of palms in big vats, a Victoria Regia in a mammoth washtub, or a Cactus in a flower pot, can never give a correct idea of what these grandees of the kingdom of flora really are.

We have collected, studied, and cultivated plants individually long enough, to know how to treat them successfully; let us therefore go on a step further and do under glass, as we have already done in our own parks and pleasure grounds, and arrange our collections of exotics in natural groups, and no longer put them up in rank and file, like soldiers, regardless of their nationality, custom, and habit. Leave that to the nurseryman, and the mere collector, with whom the plant itself is the object, but public institutions and Horticultural Societies especially, in order to make conservatories really both attractive and instructive, must do as our modern learned men and artists do, and *popularize* science and art, by presenting the results of botanical research and horticultural skill in a fitting manner with due regard to Æsthetics, as creditable to the ordained instructor as intelligible and instructive to the lay people at large.

ROOF GARDENING.

BY REV. E. P. POWELL.

Roof Gardening has in Chicago one very admirable illustration in the case of a hotel. On the roof of the first story is a court, opening outward to the South. Above this, on three sides, in a circular style, run three more stories. This court or roof is simply a garden. The tiles are set over with vases and these during summer are filled with gorgeous bloom. A hundred windows look out upon this loveliness; and from the second floor persons can walk out for a pleasant promenade. The designer and owner, Mr. Phinney, tells me the thought came to him while on shipboard crossing the Atlantic, and he hastened to put it into form. Of course the whole establishment becomes a family. The ordinary hotel barrenness is an impossibility. A gorgeous display of gilt and fresco is displaced by nature's adornment. That kind of refinement arises which can come only from a fusion of city and country life. Cottage hotels in the smaller cities, such as the Dwight House on the old Dickinson place at Binghampton, surrounded with parks, fountains, and flowers, are an easier possibility. Indeed it seems strange that they are not more general; but here is a garden home for the first time in America, embedded for the public in the heart of a vast city.

VANDA CŒRULEA.

BY MANSFIELD MILTON.

The Vanda is a most gorgeous genus of epiphytal orchids, found mostly in tropical Asia. The shape of the flowers, and the distinct markings of them, make them the most attractive epephytes in cultivation. One of the best, if not the very best, is Vanda cœrulea. The flowers are borne on erect racemes, and of azure blue color of the finest hue, the sepals and petals are almost transparent, having dark lines of blue running across each other, forming a beautiful network, the lip enhances the beauty of the flower considerably, it being of very dark blue color.

This Vanda does well in an intermediate house, grown in a basket with sphagnum and rough lumps of peat, requiring when growing plenty of water and a moist atmosphere. Avoid cold draughts as it feels very impatient of sudden checks, arising from injudicious airing.

EDITORIAL NOTES.

COWAN'S SYSTEM OF HEATING, is pronounced by Mr. Fish in the *Gardener's Chronicle* as a complete success. A large establishment formerly requiring sixteen boilers, is now warmed by two boilers heated by the waste heat of two limekilns. *Four miles* of hot water pipe are heated to a temperature of from 110° to 140°.

TOUGHENED GLASS.—This is made by dipping glass while hot into oily liquid. At the conclusion of a paper before the Society of Arts

recently: "Mr. Nursey experimented with toughened and untoughened glass articles, showing the infinitely greater resistance to the force of impact possessed by the former over the later. A square of ordinary plate glass, six inches by five inches by a quarter of an inch thick, was broken by a weight of four ounces falling on it from a height of twelve inches. The same weight was then dropped upon a square of toughened glass of similar dimensions from a height of ten feet, but without breaking the glass. A weight of eight ounces was then substituted with similar results. Mr. Nursey then threw the weight several times on the glass with great force without breaking it, but he ultimately smashed it with a hammer. Watch glasses, glass plates, colored and plain, were then put to the test by being thrown violently on the bare floor without damage. One plate was dropped from a height of five feet on to an iron grating and rebounded into the air intact."

SPRAYS FOR THE HAIR.—That natural flowers in the hair have a far more pleasing effect than artificial ones is almost too well known for me to draw attention to. They would be much oftener employed, I have no doubt, were they not apt to flag when not mounted properly, and so the general idea is that they last but a short time fresh when placed in the hair. If, however, a little care be taken with the mounting, they will look quite as fresh at the close as at the beginning of the evening. Blooms for this purpose should always be mounted on wires, and a little damp Moss bound in with the stems to keep them fresh; that is, if the flowers selected have short stems, such as Orchids, Camellias, &c.; but, if the stems be of moderate length, the end of the spray can be inserted in a little glass tube, such as is used for button-hole bouquets (the hook being removed), which can be easily concealed in the coils or braids of the hair. The shape of the sprays change, of course, according to those formed of artificial flowers; but I always like them best of rather a long form, and as light and graceful as possible. At this season, some of the best flowers for this purpose are obtainable; as, for example, Orchids, Camellias, Eucharis, Cyclamens, Hyacinth pips, Lily of the Valley, Roses, Spiræas, Stephanotis, Snowdrops, Azaleas, and many others which space will not allow me to enumerate. I saw two sprays a few days ago which I admired very much at the time, and I shall endeavor to describe them as they may be useful as a guide to some of your readers. One was composed of a Eucharis, pink Hyacinth pips, blooms of Stephanotis mounted singly, pink Heaths, Lily of the Valley, and foliage; the other of a white Camellia, scarlet Pelargonium pips, Snowdrops, and very small sprays of white Lilac, and Ferns. The flowers in these sprays, save the Eucharis, Lily of the Valley, and Pelargoniums, could not be obtained during the

A FLORAL WREATH FOR THE HAIR.

summer months; but there are many others then to take their places, such as Roses, Jasmine, Gardenias, Stephanotis, &c. Blooms of the scarlet Ixia, which are to be obtained during May, rank amongst the most effective of bright scarlet flowers for mounting for this purpose. Ferns, or any other foliage that is used for mixing through the flowers, should be cut from plants that have been grown in a cool house; but there are many leaves and fronds perfectly hardy which work in well in these arrangements.—A. HASSARD, in *Garden*.

BOUQUET MAKING.—The present season of the year gives better opportunity perhaps than any other for thoughtful practice in one of the most beautiful and interesting of the fine arts-the arrangement of a few cut flowers into a bouquet deserving the name. A well made bouquet is the little lyric poem, so to speak, of the thorough gardener. The greater and more lasting efforts of his talent, those set forth in the arrangement of his outdoor shrubs and plants, should deserve the name of his epic or his dramas; the fragrant little bunch of blossoms he calls his bouquet, culled with judgment, and arranged with due regard to the laws of harmony and common sense, should quite as well deserve to be looked upon as a sort of ode or sonnet, representing in miniature the ideas of the garden itself, though requiring a treatment of its own. Summer always provides for every one; it is difficult for a man to go astray in arranging cut flowers, when the full tide of June and July comes to wrap him around. Nature then almost speaks for herself as to what shall be done. The general rules and principles are nevertheless the same; and however wealthy the bouquet maker may be in material, and however easily things may in summer time seem to fall into their proper places, he should still go on educating his taste. Would that the world in general could or would learn the difference between a bouquet and a mere handful of flowers! However pretty individually, however sweet and shapely each one may be in itself, if taken at random, and simply tied together, flowers they are still, it is true—we cannot cancel the beauty of that little fact—but they are no more a bouquet than the run of the fingers, vaguely and wantonly, over the strings of a harp, is productive of music. There must be symmetry of general form, not mathematical symmetry, but such as we see in a Birch or a Chestnut,—for a bouquet may in general design be either light and tender, or massive and sumptuous; there must be accurate balance also of color, with plenty of white and green, and a nice concord of scents. The last named particular, though often one of the least regarded, or never thought of at all, is in reality of the most vital. The very name "bouquet" carries with it, indeed, this identical idea, being derived from certain ancient words which imply "perfection of odor." The dictionaries often assign it to the French term for a bush, but, excepting in connection with the arbitrary and exceptional term a "rose bush," the latter bit of etymology may be let go whither it pleases.

Sound the word, without thinking of the modern way of spelling, and we are at once reminded of its kindred term, *tokay* literally the wine of royal odor. These three essentials, general figure and arrangement, proper blending and counterpoise of colors, and a scientific adjustment of the qualities called perfume, stand accordingly side by side in regard to the *beau ideal* of our undertaking. A trifle judiciously thrown in, of some odor comparable with deep bass, or even with a good treble, will often as completely change the quality of a bouquet as a bit of scarlet where previously there was no accent.

This matter of the adjustment of odors is so important, not only in bouquet making, but in reference to conservatories, where the glass often shuts in things that simply slaughter one another, that we shall probably return to it at some future time. Meanwhile we simply name it, as a point never to be lost sight of by those who would be artistic in their every-day life, and who would prove and understand what is incontestably true, though not perhaps seen on the instant, namely, that the "common things" of the world are exactly those which can be devoted the most satisfactorily to the production of the purely beautiful. Colors require to be disposed, as to tone and contrast, after precisely the same principle as that which guides a lady of sense in the choice of apparel. One who is a curiosity in respect of dress must never be expected to produce a good bouquet, let her try till her fingers ache; and contrarywise, if we want a gem in the way of bouquet making, we may look with hope—well, certainly *not* to one dressed according to the "newest fashions" and within an inch of her life. All colors are good somewhere and at some time, though the best of the brilliant class may be utterly lost as to effect by mal-arrangement; while delicate ones may be made seem wan and worthless just for want of a little study of what constitutes a wise and friendly juxtaposition. Fancy, for instance, in the flowers of to-day, the effect of the sweet and tender yellow of the winter Jasmine alongside of a white; and, as a contrast, mark the effect of a bit of Maiden-hair Fern placed somewhat *en rapport* with a white Camellia, or of the timely introduction, amid pearly things, of a spray of the scarlet Euphorbia jacquiniæflora.

There are flowers that should *never* be used in bouquets. These, however, we may speak of another time; for although it must be a remarkable plant indeed for which a suitable place could not be found in the open garden, it is quite a different thing when we have to bring the garden rays, as it were, to a point. There is not a plant in existence that is unfitted to give a charm or a tinge of splendor to scenes receptive of it; and in a certain sense, there is scarcely a plant that may not be utilized as a decorative object. But the bouquet has limitations. In dealing with plants and flowers we are bound not only to treat them kindly, but to treat them justly and honestly, and as members of a community entitled to its rights as well as ourselves. They will be sure to repay our care and equity. The goodness of even the simplest nosegay is dependent exactly upon the amount of thought put into it, and of desire on the part of the artist to be as fair and faithful to the gifts of Flora as we are bound to be to all other things.—*The Garden.*

CHINESE PRIMROSES.—The *Gardener's Chronicle* says: "*Primulas* should have a shelf or two devoted to them in a house, and as near the roof as possible (providing they do not absolutely touch the glass), where the night temperature is kept as near 50° as may be, and where they will receive air during the day, and, still better, a little at night. In such a situation they will grow on and flower profusely through the winter without any disposition to damp, such as is usual in cold houses. The plant is a determined bloomer, and will throw up its flowers whilst there is life in it, but in the winter season, when it is the most useful, the temperature of an ordinary greenhouse in this country is a little lower than will keep it from damping. This necessitates its being kept drier at the roots than is favorable to its well-being. Grown in such a temperature and situation as above described, it will not become drawn, and water, especially of a manurial nature, can be given it in plenty without causing the plant to damp off at the collar. For producing flowers for cutting the semi-double sorts are far the best, standing when cut much longer than the single varieties, with the advantage of being better growers than the perfectly double forms.

SHAW'S FUMIGATOR.—Recently we noticed a useful contrivance of Mr. Shaw's for fumigating greenhouses, as advertised in our columns. Mr. Shaw now sends us another, intended for smaller work. It is so light, that any lady can hold one in her hand, and from the outside of a small frame, pit, or cabinet, fumigate the plants within.

NEW PLANTS.

HELIOTROPE SURPASSE GASCOI, is said by the *Florist and Pomologist*, to be the best now in English cultivation. It has seen corymbs six inches across.

LAPORTEA SCHOMBURGKII VERSICOLOR.—A very remarkable stove plant, obtained from the South Sea Islands, and sent to me from Australia by Dr. Schomburgk. It has thickish stems, which are quite fleshy while young, and bear large alternate deep green leaves, irregularly mottled with greyish green, and variegated with patches of creamy white, and having at their base deciduous herbaceous stipules. The petioles are fleshy, one and a half to two inches long, deep wine-purple, which color is continued along the midrib and the principal side veins. The leaves are elliptic-oblong oblique from being larger on one side of the midrib than on the other, indistinctly three-nerved, slightly rounded at the base, acuminate at the apex, and irregular on the margin, the irregularities being occasioned by slight depauperation of the white portions. Sometimes the creamy white marking covers the whole of the leaf surface on one side of the mid-vein.—*W. Bull.*

ADIANTUM SPECIOSUM.—A very elegant Fern, of semi-scandent habit, with large tripinnate fronds, which frequently attain a length of thirty-six inches, with a width of twenty-one inches, the pinnules of which are three quarters to one inch across, the lobes cuneate, aruncated, soriferous at the apex. The whole of the pinnules are covered with dense short hairs, giving the foliage a woolly feeling when touched. This beautiful plant is very distinct from any Adiantum we have previously sent out, and has the peculiarity of being deciduous. It formed one of

our collection of six new plants with which we won the first prize at the Exhibition of the Royal Horticultural Society, June 4th and 5th, 1873, and it has also received a first-class certificate from the Royal Botanic Society.—*Vietch.*

SELAGINELLA BRAUNII, of Baker, is a very desirable, perfectly hardy species, from the mountains of North India, &c. It is commonly met with under the name of S. Willdenowii, which is a very different species. M. Andre, writing of the S. Braunii in the *Illustration Horticole*, says it thrives exceedingly well in his garden, in sandy peat, on a north rockery, raising its handsome emerald green, elegantly cut fronds in fine contrast with the pale white of the rachis. With M. Pellier, at Le Mans, this plant flourishes marvellously in the open air, fully exposed to the sun. It has stood ten winters without injury, and it increases in vigor. Indeed, it is only in the open air in our climate that it developes its full beauty.

Fruit and Vegetable Gardening.

SEASONABLE HINTS.

Very little can be done now in this department, except by way of preparation for another year.

Manure can be placed on the ground wherever required, and Asparagus beds, if not already done, should have a slight covering of it. Bean poles, Pea-brush, and stakes of all kinds should be got now, the tool house gone over and put in order, and everything kept in good order and studiously in its place. When the season of operations commences, there will then be nothing to hold back the attention.

Where there can be heat of 60° commanded, Bush Beans can be usually grown in pots, and can be gathered in two months from time of sowing.

If there is abundance of leaves or manure at command, and small frames, beds may be put up for early spring salads, at the end of the month.

Radishes and Lettuces are, however, very impatient of too much heat; they will come on well if the temperature be kept at 45°. When it goes above that, the sashes should be lifted entirely off.

The same remarks apply to the Potato and the Early Horn Carrot.

Cauliflowers in frames require all the air possible. Never allow to be become dry; this is the cause of many failures by way of "buttoning off."

In the fruit garden, there is not much to be done besides thinning of branches where too thick, cutting out weak or exhausted ones, so as to give place to younger or stronger ones, —and, where there are scale insects on the bark, washing to get rid of them. When a tree is badly infested, the twiggy portions should be wholly cut away so as to more perfectly clean the balance.

COMMUNICATIONS.

RIVERS' PEACHES IN TEXAS.

BY W. FALCONER, BRENHAM, TEXAS.

Here at the Rosedale Nurseries, we find all the following kinds of Rivers' Peaches to be very heavy croppers and feel confident that with timely care and thinning they could be brought to great perfection. With the exception of Early Beatrice they are too soft for shipping. These notes however merely apply to what they have done with ourselves in Central Texas, and cannot be taken as a criterion of what they may do elsewhere—fruits being so variable even in neighboring communities, let alone States. I know Rivers, Sr. and Jr., and Sawbridgeworth too, and a better recommendation to a new fruit than "raised by Rivers" I would not wish for, but at the same time, what may be far excellent in the North or in Europe, may be ill fitted for Texas, and *vice versa*. As a rule, however, nearly all kinds of peaches do well here; indeed, Texas is one of the best peach growing States in the Union.

Early Beatrice is a very beautiful little fruit, suffused all over with red, and when fully ripe, the flesh is very melting and juicy. It is an enormous bearer; indeed it crops much too heavily for the good of the tree or the quality of the fruit, but I believe if early thinning were resorted to (and that we have no time here to do, where so much other work demands our presence) it would be greatly improved in size and quality. The fruit has the rare quality of hanging on the trees for ten days after it is fully colored, and marketable, but that is no advantage, as it then treads on Hale's, with us the largest and most salable peach of the two. The fruits are firm fleshed and stand carriage well, and we have never known them to rot on the trees or be attacked with worms. In 1873 it ripened here on May 15th, in 1874 on May 18th, and this year, 1875, on May 25th.

Early Louise is medium-sized, yellowish, with a red cheek; it is melting, very juicy and as sweet as honey. It does not crop nearly so heavily as Early Beatrice, and is too soft for shipping, but as a family peach it is delicious. It ripens during the last week in May.

Early Rivers is one of the most beautiful of early peaches, large and of a pale straw-color with a warm rosy cheek—just such a fruit as Eve could not resist. Its flesh is melting, juicy, and delicious, and in size and quality, it has few if any seasonable superiors as a family peach, but it is too soft to ship. It ripens at the same time as Early Louise—end of May.

Early Victoria before it ripens is one of the dirtiest looking little peaches I know of, but from ten days before, up till the time of its maturity, it undergoes quite a change, and gets moderately pretty—a rusty white with red cheek. Its quality is honey. Its size is medium, time of ripening early June, and although a fine family fruit, it is too soft for shipping.

Stanwick Early York is a pretty little peach, white, a good deal covered with red. It is a very heavy cropper but much too small to compete with such sorts as large Early York, Mountain Rose, and other fine kinds of the same season. It is not nearly so big as Troth's, nor yet so fine eating as the true Early York, and it is the most wormy little peach I know of. It drops badly in dry weather.

Rivers' Early York is not much unlike Stanwick Early York in size, color, or quality, but it is not nearly so bad with worms, and if anything, it is a trifle earlier—this sort being quite gone whilst a good third of the preceding still hang on the trees. Both ripen about the third week in June.

Prince of Wales is a beautiful creamy colored fruit highly colored with red, from medium to large in size, of excellent quality, and ripens about the end of July and first of August. It is a great cropper and with a little care in thinning, it would be a first class family peach. Owing to last summer's extreme drouth more than half the crop fell, but it was not alone in that, as many standard kinds as Wilson's Early, Druid Hill, Stump the World, and Ward's Late, were equally faulty.

We are also attesting the following: Rivers' peaches, and some of them we expect to fruit next year (1876): Dagmar, Dr. Hogg, Magdala, Merlin, Falcon, Condor, Alexandra Noblesse, Lady Palmerston, Princess of Wales, Sea Eagle, and Radclyffe.

THE MUSHROOM.

BY J. F. M. FARQUHAR, EAST PROVIDENCE, RHODE ISLAND.

Agaricus campestris. This delicious vegetable is so easily cultivated, that it seems to me strange why it is not more generally grown. I have raised fine crops for several years, and thinking that it may benefit some of your readers, I propose to explain my mode of cultivation. My Mushroom house is partitioned off from a furnace cellar; is partly underground, and dark. During the season of their growth, the heated furnace keeps the temperature about right without additional flues or piping, and I find that they may be grown in almost any place, light or dark, where the temperature during winter ranges about 50°. Early in October I prepare the manure I am to use. I procure a supply of fresh horse-droppings, clear of straw, and I have had the best crops of Mushrooms where I used the droppings of horses that have fed mostly on oats.

In order to keep the manure from getting wet, I place it under a shed daily as gathered, and turn frequently. During preparation, the temperature should not be allowed to rise over 125°, and may be kept in check by turning, and tramping. When the temperature begins to fall I mix the manure with good fresh loam at the proportion of one part loam to six parts of manure. This compost I place in my beds, which are about twelve inches deep, and pack it hard with a mallet to within two inches of the top. A thermometer inserted in the material soon marks the temperature as high as 120°, and within ten days, it will fall to 80°, when the spawn should be inserted. I am careful to get the best fresh spawn which I trowel in, in pieces about the size

of a pigeon's egg, eight inches apart all over; press them down, and even the surface of the beds. A week afterwards I cover the beds with one and a half inches of turfy loam, taking care, however, to leave a narrow space along the centre uncovered with loam, for a few days, to admit of evaporation from the compost.

The work is now finished by throwing over the beds a little hay. When it is necessary to moisten the bed, I use water at the temperature of 65°, in order not to chill it. I also sprinkle the floor to maintain a humid atmosphere. In from six to eight weeks the Mushrooms begin to show themselves when I remove the hay. In picking the crop I do not use a knife, but twist the Mushroom round, freeing it from its roots; I do not approve of cutting, as the stem that is left, in decaying frequently destroys the small Mushrooms near it. When the beds gets exhausted and the supply fails, I give a liberal application of water heated to 120°, in which I put a little salt. This so stimulates the bed that a second crop of Mushrooms, often as good as the first, is the result.

Some may think that it is not so easy a matter after all to raise a good crop of Mushrooms, if there are so many little things to attend to in their culture; but by attention to these *little things* I never fail of success, and I have purposely given all details for other's guidance.

I have grown fine Mushrooms in a forcing house where no bed was specially prepared for them. Last year I put some spawn between the rows of early Lettuce, and the Mushrooms did well. But I think that it is wise to bestow all the care needed to insure good crops of a vegetable so desirable as the Mushroom.

EDITORIAL NOTES.

PERPETUAL BEARING STRAWBERRIES.—A correspondent of the *Gardener's Chronicle* says: "One may ask the question, What is there to prevent our having, one of these days, perpetual Strawberries of the Sir Harry, Wilmot's Superb, Malakoff, La Constante, or other large and mouthful type? Perpetual Roses, in quantity, are of sufficiently recent date to justify our expectations of getting full sized perpetual Strawberries, especially as we have perpetual Strawberries to breed from. If our hybridisers were to set to work in earnest, we might surely hope they would be rewarded with something good. Or is there such a discrepancy and incompatibility of race between the Alpine Strawberry and all the species which have produced the late triumphs of horticulture, as to forbid any crossing or combination of their qualities?"

And after all if the perpetual bearing straw berries are to be no better than perpetual roses, they will not be hankered after greatly; that is of course by comparison; for the perpetual rose is good enough in itself,—but poor in comparison with the old fashioned June Rose.

RASPBERRY, NORTHUMBERLAND FILLBASKET.—The *Florist and Pomologist* has a word for this variety; and remarks, "it ought to be grown by every one." It is indeed a very fine kind, and was making way in America till superceded by Hornet, which much resembles it, and is perhaps a little better.

GUANO.—The English complain of the falling off in the use of Guano in their part of the world, —and chiefly because the article has of late years been of so poor a quality. Hobson, Hurtado & Co. send us a small potfull as a sample of what they sell, and we should judge by appearances it is good enough for any one.

RIVERS' EARLY PEACHES.—*See Frontispiece.* So much interest has been manifested in regard to these early Peaches, that we have chosen them for our "Chromo" which we present to our readers to bind in with the title page for the Annual Volume. We had the illustration made from specimens grown by Mr. Meyer in Delaware, and believe in many locations they would reach a larger size.

GRAPE GROWING AT CASTLE KENNEDY.—This fine place, belonging to the Earl of Stair, in the west of Scotland, has for years enjoyed a well-merited reputation for the size and excellency of its Grapes. At the first International Fruit Show at Edinburgh, Mr. Fowler showed some magnificent fruit. Muscats and Hamburgs of from twelve pounds, to fifteen pounds per bunch, White Nice seventeen pounds, and others in proprotion, were something to charm the eyes and gladden the hearts of grape growers. The bunches, too, were not only large, but the berries were also very fine and the finish perfect. Since then, Mr. Fowler has kept in the front rank among grape growers, though at the Fruit Show in Edinburg, in 1871, he allowed a pupil of his own—Mr. Johnson, of Glamis Castle—to run in and win most of the premier prizes. Last September, however, at the great International Fruit Show at Glasgow, Mr. Fowler again carried off many of the first prizes.—*The Garden.*

NEW FRUITS & VEGETABLES.

PROUTY'S SEEDLING STRAWBERRY.—Mr. Lewis Ellsworth says: "A cross between the Wilson's Albany, and Russel's Prolific. The plant is strong and vigorous; foliage large and abundant, and of deep green color; fruit-stalk long and strong; berries large, conical (some of the first being coxcombed), bright scarlet color, highly polished; flesh light colored, tender, and of most excellent flavor; calyx separating easily from the fruit.

As compared with the Wilson, the Prouty Seedling is a more profuse bearer; berries larger, more uniform in size, and superior in flavor; plant more hardy and vigorous, and resisting drought better. The yield in the same field, during the season of 1875, was more than double that of the Wilson. Commenced picking the two varieties the same day, June 19th. Finished picking the Wilson, July 14th. Finished picking the Prouty, July 25th. Difference, *eleven* days in favor of the Prouty. Nothwithstanding the large crop of 1875, the demand for this variety was so great that nearly the entire yield was sold upon the grounds where grown, at a price *one third* greater than could be realized for the Wilson in Chicago at the same time.

The Prouty's Seedling has been tested for *four* years,—the experiences of the present year, 1875, clearly proving its superiority over other varieties, and establishing its reliable bearing qualities and great market value. In beauty, vigor, hardiness, flavor, and profuseness of bearing, it is without an equal,—a single plant from a runner of 1874, produced this season more than a *quart* of perfect berries."

APPLE; THE PRINCE ALBERT is the subject of a colored plate in the October number of the *Florist and Pomologist.* "It is remarkable for its excellent culinary and abundant bearing qualities." Though the number of apples is now great the F. & P. regards this as an acquisition. Its season is not given.

QUERIES.

THE ALEXANDER PEACH.—Mr. Capps sends us a package of letters from parties who have fruited this peach and speak highly of it. These letters are from Hood River, Oregon,—New Castle, California,—Palmetto, Georgia,—Dorchester, Maryland,—Tyler, Texas,—and from Mr. Downing, whose letter we give in full below. There are also favorable notices from the *Prairie Farmer*, and the Dorchester, Md., *News.* Our own impressions of the Alexander have already been recorded, and we still believe it to be a very valuable acquisition.

NEWBURGH, *September 20th*, 1875.

MR. C. S. CAPPS:

DEAR SIR:—

Your kind favor was received when I was absent for a couple of days. In reply to your inquiries, I can only say that the buds of Alexander you kindly sent me, were put upon a young tree with buds of the Honeywell Peach within a few days of each other, or rather put on two young trees within four or five feet of each other—both fruited this season—each had on about a dozen peaches, and they were so near alike in all respects that I was not able to see any difference except there were no glands to the Honeywell Peach while the Alexander had glands. As near as I could judge the Alexander was at least ten days earlier, and probably two weeks earlier than Hale's Early. The Honeywell appeared to ripen two to four days before the Alexander, yet another season there might not be any difference. I find the first bearing of seedling fruits are not always to be relied upon. It takes three or four years before they are established as to time of ripening. They often ripen earlier when the tree is four or five years old than when two or three.

I had the Honeywell peach buds from Joseph Heighton, Earlville, Ohio, who says it was raised by John Honeywell, Randolph, Portage County, Ohio.

I consider the Alexander Peach of very good quality, especially for so early a variety, its handsome color is also in its favor, the only objection is its being a cling or partially so. It is said, and I am inclined to think that it loses a portion of its adherence to the stone, as the tree becomes older. It is claimed the Amsden's is three weeks earlier than Hale's Early, but this has yet to be proved, by growing side by side. I had a seedling peach sent me from Canada this season which the originator said was three weeks earlier than Hale's. In color, form, and flavor, it seemed much like Amsden's, Alexander, and Honeywell, and they are all no doubt seedlings of Hale's Early, and all have about the same tendency to adhere to the stone.

In New York market almost every one objects to Clingstones, and if we could get a perfectly

free stone and as early as the Alexander, it would be an acquisition. Very respectfully,

CHAS. DOWNING.

To this Mr. Capps has appended the following note:

"As regards to the Alexander being a Cling, please notice what Mr. Barrett, of Hood River, Oregon, says about the Hale's Early being a Cling with him last year—the Alexander is not a Cling with us, or at least adheres very little to the stone. We have had Hale's Early some years which adhered slightly to the seed. The other correspondents say nothing about its being a Cling."

THE COMET PEACH.—*Mr. D. O. Munson, of Falls Church, Va., of Oct. 18th*, writes: "I send by Express some peaches which have been sent to the Washington Market for two or three years, under the name of Comet, from the Eastern shore of Maryland. It is the best very late peach that has ever been sent to this market, bringing from four to five dollars per bushel. Do you know anything about its origin? It is from two to three weeks later than the Smock and Salway. I received some buds from Mr. Hanford, of Columbus, Ohio, of the same, but there seems to be a slight difference in the growth of the tree, which makes me think they are not the same, but the difference may be in the soil. I hope you will receive them in good condition, and shall be pleased to hear from you in relation to them."

[We have never seen this peach before. It is of an excellent character. The outline is very irregular,—the suture being very deep in the upper half, and almost disappearing below. The color is yellowish green, with slight red cheek, and the skin covered with very coarse down. Flesh white, pink towards the centre, very firm, somewhat juicy, free from the stone. The stone is rather long, and with sharp edges to the furrows. It was received on the 18th of October, in good condition.—ED. G. M.]

PLOWDEN PEACH.—*R. J. B.* asks: "Who has had it in bearing the past season? It is not Hale's Early, as the most casual look at the leaves will show. The difference in the glands also marks them; the latter having globose glands, while Plowden has reniform. The leaf of Plowden is a much better leaf; dark green, thick and glossy, though more lanceolate than most of the fine varieties; and on this account might be passed by as a common seedling, but for the refinement evident in the substance of the leaf."

[Mr. B. here meets the same difficulty we did on its first appearance, and which we noted at the time. But the leading fruit growers of Washington, on the spot, and with so much more material to guide them than we can possibly have, reported it to be identical with the Hale's Early,—and their judgment has been considered decisive.—ED. G. M.]

PRECOCIOUS PEACH.—*Mr. J. Lewis, Alvin, Vermillion Co., Ill.*, writes to a friend who sends us the letter: "I have a Peach tree, grown from seed planted last spring, which had two distinct fully developed blooms this summer. The tree is, in every respect, sound and was not broken in stock during fore part of season. Please explain cause of blooming."

[That a Peach in about three months from seed, should produce flowers, is so much out of rule, that we should not like to offer any opinion as to the cause thereof, without seeing the specimen in that condition. It might then be explained. It would be too much of a guess to do it here.—ED. G. M.]

LEAVES FOR GRAPE BORDERS.—A correspondent who has a very successful grapery in the Western part of the State, and whose Black Hamburgs are particularly fine, does not disturb his vine border, but covers it with a considerable thickness of decayed leaves. The grape roots run through this mass, and an attempt to lift a root through it is as if lifting a large mat. This accords with our own experiments of such surface treatment of grape borders.

WHITE NATIVE GRAPE.—"*A Subscriber* was told 'that there is a White Native Grape at Chemung, N. J.' Do you know any thing about it? Perhaps some of the readers of the *Monthly* know."

[White Fox Grapes are not uncommon. We have not met with or heard of white ones wild of any other class,—but there is no reason why there may not be.—ED. G. M.]

THE AMAZON RASPBERRY.—*Mr. D. O. Munson, Falls Church, Va.*, says: "I saw in the *Gardener's Monthly*, for November, a notice of the Amazon Raspberry. 1000 of them were sent to this neighborhood last spring and sold at seven dollars per hundred. I planted two hundred myself which proved to be nothing but the old Belle de Fontenay. I have some of that old variety in my grounds yet, which I have been trying to destroy for several years, and it was impossible to see the slightest difference in the fruit, or in the growth of plants. I have written to the party who sent them, and he thinks there is a difference but I *know* there is none."

Natural History and Science.

COMMUNICATIONS.

ABOUT SOME LILIES.

BY C. S. S., BROOKLINE, MASS.

In the London *Gardener's Chronicle* of August 21st, the following appears: "Mr. Anthony Waterer has flowered a new hybrid lily which we do not hesitate to designate as the finest and most beautiful of the lilies which have yet appeared in our gardens. Noble and captivating as is the Lilium auratum, this novelty equals it in the size, and far excels it in the exquisite coloring of its flowers. From its appearance, we may suppose it to be the result of a cross between the true Lilium speciosum and Lilium auratum, partaking most of the coloring and character of the former. Though the plant is young, and at present only carries a solitary flower to a stem, yet the flower is magnificent! Imagine a blossom of the genuine high-colored type of Lilium speciosum increased in size, so that the segments straightened out measure nearly 14 inches across, the petaline ones being 4 inches broad, and give this grand flower the coloring and rich spotting of the plant just referred to—white, suffused with rich rosy crimson, and having deep crimson spots freely distributed over the colored portion—and some idea may be formed of this splendid Lily, of which we propose shortly to offer an illustration. To these noble proportions, and this charming coloring, it may be added that the scent is delightful, more delicate than that of Lilium auratum, and much more approaching the sweetness of Lilium speciosum. We have seldom seen a more magnificent flower."

This notice refers to a hybrid lily, raised some years ago by Mr. Francis Parkman, of Boston, and for the past year president of the Massachusetts Horticultural Society.

This lily, for which I have suggested the name of *L. Parkmani*, has flowered for two or three years in Mr. Parkman's garden, but in the bulb increased slowly. Showing a certain want of vigor it was determined last year to send one of them to Mr. Waterer, with the hope that in the excellent peaty soil of the Krup Hill Nurseries it would grow more vigorously. Certainly a more magnificent flower I have never seen. But it is to be hoped, that further efforts will be made to hybridize *L. speciosum* with *L. auratum*, as it was from crossing these two, that Mr. Parkman produced the plant in question. *L. auratum* being the pollen parent, and the one to which, with the exception of the color of the segments, it bears the closest resemblance. The plant of *L. auratum* in Mr. Perkin's garden, an account of the cultivation of which appears in the May number of the *Gardener's Monthly*, has this year still further demonstrations, that for the most successful lily culture well drained sandy peat is essential. The plant which last year produced on three stems sixty-two flowers, has this year borne six stems and one hundred and fifteen flowers, and that too in spite of its having been taken up last autumn, and sent some miles to be exhibited. Surely more attention should be given to the cultivation of all the hardy lilies.

PICEA PARSONSIANA.

BY S. B. PARSONS.

In the September number of the *Gardener's Monthly* I noticed some remarks of E. Manning on the beauty of our Picea Parsonsiana and his doubt whether it is a variety of P. grandis. The seed from which this variety was grown, was received without name from California in the spring of 1853. In the autumn of 1855 Stuart Low, then in this country, bought all the young plants which we were willing to spare. A plant was also sent to Kew Gardens and to Mr. Barron, at Elvaston Castle.

Some years after our plant was introduced, seed was received in England the trees from which I saw in the spring of 1859 in the grounds of Waterer and Godfrey. These I recognised at once as our Picea although they had given it the name of lasiocarpa. We then wrote to Mr. Barron, whose opinion of Conifers ranked high and who was always supposed to speak *ex cathedra*. He wrote us that the true *lasiocarpa* was totally different from the plants of Waterer & Godfrey, that their plants were wrongly named, that our Picea was undoubtedly a new species unlike anything known in England in 1855, and that he should adhere to his nomenclature given at that time, which was *Picea Parsonsiana*. On examining our own plants, as well as those of Waterer & Godfrey, we found that the species sported very much and produced trees widely differing, but having a predominance of straight leaves. Finding among our own stock a variety which we did not find in England, with curling leaves, symmetrical form and a remarkable fern life aspect, we concluded to propagate that only, and let the straight leaved plants go. This curled form can be perpetuated only by grafting. From seed it sports as much as the Norway Spruce and the curled variety cannot be so obtained with certainty. This variety having been cultivated as *lasiocarpa* by Waterer & Godfrey, was distributed by them, and from this distribution came to us, without our knowledge of its source, the plants which Mr. Manning received under that name.

Mr. Bolander, formerly botanist of the California State survey, on a recent visit to our grounds, examined our plants and stated that they were all *grandis*, that the straight or flat leaf was the coast form, and the curled leaved variety, or our *P. Parsonsiana* was the mountain form. Mr. Fowler, of Castle Kennedy, writing in the *Gardener's Chronicle*, says that the *P. Lowii*, which he makes a synonym of *Parsonsiana* and *lasiocarpa*, was discovered by Wm. Lobb in California, and seed sent home in 1860. If therefore *Lowii* and *Parsonsiana* are identical, and if our plants were sent to Mr. Low in 1855, this seed from California came in 1860, it is clear that we are entitled to the name, however unwilling we may be to interfere with the rights of Mr. Low, for whose personal character and enterprise we have the highest respect.

Be that as it may, the tree remains and no description can do justice to its beauty. It is worthy of admiration at all seasons; but in June, when the new growth is crowned upon the old, when the delicate light steel green of the new shoot is contrasted with the rich darkness of the old and the leaves curl up over the branches till they almost meet, it is especially beautiful. My finest specimen near my house succumbed to the frosty pestilence of 1872. Lovers of trees would sit upon my piazza and, fascinated by its charms, gaze upon it as a connoisseur devours with his eyes a beautiful picture. Of all the disasters of that disastrous spring, none were more felt than the loss of this charming specimen.

REMEDY FOR RHUS POISON.

BY W. G. B.

In the last number of the *Gardener's Monthly* I noticed a recommendation of the infusion of Impatiens fulva, or snap-weed, as a remedy for poisoning by the poison vine, or poison ivy. Probably it would be about as effectual if used cold as an infusion of elm bark or flaxseed; it is bland, and without any medicinal properties calculated to produce any specific action on inflammation produced by acrid poisons. Yet the infusion, if applied *hot*, would doubtless be beneficial. Many remedies have been praised for their efficiency when their sole merits consisted in the temperature at which they were applied. Years ago I ascertained that the sole remedy required was hot water, a few applications of which will be found sufficient to effect a cure. If the hands or feet are poisoned, to hold them a few minutes in a vessel of hot water occasionally when the inflammation is troublesome will be sufficient; if other parts of the body suffer, the same remedy may be applied by the application of a towel in several folds, dipped in water as hot as it can be borne, and held to the part affected. The sooner it is applied after the poison acts, the more prompt will be the cure.

NUTRITION AND SEX IN PLANTS—A QUERY.

BY REV. L. J. TEMPLIN, UNION CITY, IND.

The theory that the sex in the productive organs of plants is controlled by nutrition, or by the vitality of the plant, seems to have been generally received as correct. And it is not with any view of calling in question the truth of that theory, nor of even expressing a doubt on the subject, that I write, but I wish to call attention to one or two facts, and in the light of the above theory, ask an explanation. This theory, or truth, if you please, teaches that the production of pistillate organs is the result of greater vigor, or of increased vitality in the plant, or in the part of the plant producing these organs, while the staminate organs follow a weakened vitality. Now one fact that I have not been able to reconcile to this theory, is the well known fact, that very great vigor in fruit trees is often followed by complete barrenness. On the other hand, it is a well established truth, that whatever endangers the life of the tree by reducing its vitality has a tendency to produce fruitfulness. The orchardist understands this principle, and when troubled with trees with too great vigor, he applies this knowledge in various ways to check this excessive vigor and throw the tree into bearing. This is done by bending the branches, by girdling, or ringing the trunk or branches, or by root pruning; in a word, by any process that will reduce the vigor, or weaken the vitality of the tree, he expects to throw it into fruit bearing—that is to cause the production of fertile, productive organs.

Another case I have in mind is, the frequent production of female flowers on the tassel of the suckers of Indian corn. In cases of excessive vigor, and in some varieties almost invariably these side branches are sent up from the surface of the ground or just below it. Now it is presumable that the main stalk will absorb the principal part of the nutriment and leave a very limited supply for the use of the sucker. And if there is a surplus to go anywhere to change the male to the female organs, it looks reasonable that this change should take place in the tassel of the main stalk. But this is very rarely the case, even when the pistillate organs fail to be developed, or are destroyed in the early growth of the plant, both of which often happen. Why should the female organs be developed on the male spike of the less vigorous, dependent side branch, growing in an inclined position and not on the tassel of the more vigorous, independent main stalk? These are the facts that I have not been able to reconcile with the claims of this new law. It is altogether likely that it is because I do not fully understand the law, or the facts, or both; but in either case the difficulty is, with me just as great as if it really existed in the facts of the case. Those who have given more attention to this subject, or studied it under more favorable circumstances, may be able to give a satisfactory explanation of these apparent difficulties. Any one who will take the trouble to explain these questions will confer a great favor on an honest searcher after truth in the Book of Nature.

[We have no wish to cut off discussion by any remarks of ours, but simply to direct it. First, Vigor in its popular sense must not be confounded with vital power. A youth while growing may exhibit great vigor,—but is far more subject to fevers and diseases than a mature man. In other words a human being, the first twenty years of its life, though exhibiting greater growth vigor, has less vital power than during the second twenty. Nutrition of course makes growth;—but it also makes vital power, and it is this peculiar phase of nutrition that is referred to when speaking of sexual laws.

Second, The ringing suggestion has nothing to do with the sexual argument because though it produces the female organs which result ultimately in fruitfulness, it produces equally the stamens and pollen necessary to fertilize them. Indeed if there is any argument at all it is in favor of sexual theory referred to,—for it has been noted that the petals, which are much more nearly allied to the male than the female organs, are larger and more brilliant on ringed than natural branches of the same tree.

Thirdly, The Indian corn observation favors the other side. We have to leave out the grossness of growth, as a sign of vital strength. No one that we know of, ever attempted an argument on this point. Vigor of growth is no sign of vital power. A union of parts, that are normally separate, is however a test of vital power. The ear of corn is made up of four two-ranked branchlets, uniting into one solid cob, and making an *eight rowed ear*. The superior vital power effects this union. The male, with a less combining power has the branchlets free, forming as we say a tassel. Now a sucker produces no distinct ear of corn,—it has not vital power enough for that. The little there is left goes in among the part usually distinctively male,—and hence we have female flowers, parts of ears, and often a partial attempt at combination, resulting in a sort of four or five parted ear, neither wholly male or wholly female, as the result. The part usually male, the tassel, has gained a little, to be sure, but it is only through the entire suppression of the female—the ordinary ear.

The cases of these suckers are in fact, weak attempts to form ears, in which the vitality being low, there is a failure, and many male instead of all female flowers result. The same illustration is often found in corn growing. We often

see plants so "poverty struck" as not to produce a single ear of corn—but the poorest plant will always yield a male panicle—a tassel, *i. e.* it takes a lighter grade of nutrition to produce female, than male flowers in corn.—Ed. G. M.]

EDITORIAL NOTES.

The Potato Fungus.—As already stated in our columns, the new potato fungus of England merely proves to be caused by the germination of a form of the old fungus not known to exist before. What this discovery is the *Gardener's Chronicle* thus clearly explains: "Meantime, as some of our correspondents to whom scientific terms are not familiar, and who are not accustomed to the study of microscopic fungi, are doubtful as to what Mr. Smith really has done, we will endeavor to put the matter into plainer language, though at the risk of sacrificing strict accuracy to clearness. The spawn of the potato fungus permeates tuber, haulm, and leaf in the form of extremely fine whitish threads. Through the pores of the leaves it sends up branches bearing buds of two different kinds—the one sort arranged in little joints, which separate, fall off, and grow, the other sort consisting of egg-shaped cases containing minute spores, which, when they escape from the burst case, move about in the way once supposed to be exclusively confined to the animal kingdom—hence the name 'zoospore.' These zoospores cease their vagrant habits in a little while and they too, grow. So far then we have the potato fungus propagated by two sorts of buds, which become detached, and reproduce the fungus just as the bulbils of the Tiger Lily grow into a new plant. But in addition to these—which we liken to buds because, unlike seeds they are not the result of reciprocal sexual agency—there are in some fungi, probably in all, true sexual organs analagous to the stamens and pistil of flowering plants. Now these sexual organs were known to exist in fungi closely allied to the potato fungus, but they had not been clearly seen in that particular species till Mr. Smith had the good fortune to discover them the other day. Montagne and Berkeley had both been on the right track, but it was Worthington Smith who successfully solved the mystery."

News.—Our Scientific Colleges are engaged in good works, but some of the Professors seem badly behind hand in their reading up. One has just discovered that evergreens may be pruned without injury and with positive gain in a transplanted one. Another has found a *new* evergreen, and for *introducing* which the Arnold arboretum is to be classed as a public benefactor—the *Abies Mensiezii.* How the good Professor Sargent must have smiled at this exceedingly liberal gift of credit on the part of his enthusiastic young friends. A set of volumes of the *Gardener's Monthly* or *Gardener's Chronicle*, would do no harm in these college libraries.

The Flora of Greenland.—The valleys and gorges of Disco, especially the Lyngmarken and the shores of Englesmanders Havn. in their gay summer clothing of mosses and wild flowers, furnish an excellent example of the flora of both North and South Greenland—of the plants which will become familiar to the explorers further north, and of the less hardy species which do not occur beyond this parallel. Of the 206 species which compose the Arctic Greenland flora, upwards of two thirds were collected by the officers of the expedition round Godhavn. The vegetation covers the ground in thick masses, forming turf on the level places, while it fills the chinks and crannies of the rocks and creeps over the surface of the stones, giving a very bright appearance to the near view of this land of Disco in summer. The prettiest thing of all and the most abundant is the Club Moss (Cassiope tetragona) with its graceful little white bellflowers, like miniature Lilies of the Valley. With it are generally the dwarf Willows and Birches, and the Vaccinium with its red flower and glossy little leaves. But for the plague of mosquitos those lovely mosses would form soft and most luxurious beds. The Alchemillas, the Angelicas, and Whortle-berries in the Lyngmarken, and the rich masses of Holy Fern in Englishman's Bay will not be seen further north. Quantities of red snow were also found on the heights above Godhavn, and specimens were carefully collected and preserved. Here, too, were the salad-supplying plants, the Sorrel and Scurvy Grass, and many others. The herbaria formed at Godhavn will doubtless be most useful to the explorers.—*Garden.*

Hygienic Properties of Plants and Plantations.—Mr. F. Barillet, speaking of the hygienic properties of parks and plantations, in a recent number of the *Revue Horticole*, gives the following interesting details:—The air vitiated by three persons is purified by a hectare (a hectare equals 2½ acres nearly) of forest. This

must be a very general statement, but, taking it as a basis, Mr. Barillet proceeds to tell us that the city of Paris within the fortifications comprises 7,802 hectares. If a third of this surface—that is, about 2,600 hectares—was covered with trees, the purification so effected would neutralize the vitiation caused by 7,800 inhabitants. This would be a slight matter for a population of 1,800,000 inhabitants, without reckoning domestic animals, factories, &c. To compensate for all this a forest of 600,000 hectares would be required. The area occupied by squares, public gardens, promenades, &c., in Paris, is only 7,522 hectares; hence, according to the foregoing calculations, more than 500,000 hectares would be required to compensate for the deterioration of the atmosphere caused by the respiration of man and animals, &c.

Weight and Number of Cells in Fungi.—The enormous number, smallness, and excessive lightness of the cells of which fungi are built up is almost incredible. A large Mushroom like the one described in *Gardener's Chronicle* for July 22d, 1871, page 937, and which weighed 4½ lbs., would require for its construction no less than one hundred and six billions, five hundred and ninty-six thousand millions (106,596,000,000,000) of cells. Each of these minute bladder-like bodies is furnished with a coat or cellwall, and contains within itself protoplasm, water, and other materials. These fungus cells are excessively small, and so inconceivably light in weight that in a species belonging to the same order as the Mushroom recently examined by me, I found that it required no less than one billion six hundred and twenty-four thousand three hundred and twenty millions (1,624,320,000,000) of cells to weigh one ounce troy. How I arrived at these results I hope to report in some detail, with other matters of interest, in an early number of the *Gardener's Chronicle.*—W. G. Smith, in *Gardener's Chronicle.*

Literature, Travels & Personal Notes.

EDITORIAL NOTES.

The Kentucky Horticultural Society holds its Annual Meeting in Louisville, Ky., December 14th, 15th, and 16th. Among other items the following papers are expected: "Importance of Producing New Seedlings," by Hon. M. P. Wilder; "Importance of Correct Nomenclature of Fruits," by Dr. Warder, of Ohio; "Blackberry Culture," by N. Ohmer, of Ohio; "The Curculio," by Dr. Hull, of Ills. "Fruit Growing as a Commercial Interest of Kentucky," by Gen. D. L. Adair, of Ky.; "Application of Fertilizers to Lands Intended for Small Fruits, and Best Rotation," by I. Fawcett, of Ind.; "Best Time and Manner of Setting Fruit Trees," by A. D. Webb, Bowling Green, Ky.; "Grape Culture," by T. S. Kennedy, Louisville, Ky.

A Bad Fellow.—The English papers note the fact of a murder being committed by a gardener in that country, and that it is exceptionally rare to find a gardener among the criminal classes. This murderer was a young man of but twenty-four years of age, a Neapolitan. He killed his employer, but under circumstances so exasperating, that his punishment, instead of being the usual extreme penalty, was put down to sixteen years' imprisonment.

Lilium Krameri, selling at good figures in England, proves to be the old Lilium japonicum.

Ancient Employment of Flowers.—In the classical authors there is no mention either of nursery gardens or of florists, nor is an allusion ever met with to a posy or a nosegay. The nearest approach to the latter is in the secondary, but rare, use of the word, "fasciculus;" while the nearest to the name of the florist—understanding, by his gentle craft, the production and the preparation of flowers for decorative purposes—is found in that of "Chaplet-maker," the special and most celebrated employment of flowers with the ancients being for crowns and garlands, the manufacture of which assimilated, in a certain measure, to the elegant arts practised by our modern bouquetistes. The practice of wearing chaplets wrought of flowers appears to date from the remotest antiquity, the particular occasions upon which these beautiful ornaments were resorted to being those of festivity and rejoicing. There is plenty of illustration of it in

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the monuments of primæval Egypt; and, as there is good reason to believe that Egypt itself derived some of its most celebrated usages from the East, in a day still earlier, the probability is that the chaplet is almost coeval with the history of civilization, which began where the sun rises —in the distant orient. In ancient Egypt the favorite flower was the Lotus, or "Rose of the Nile"—the Nymphæa Lotus of modern botany; though probably not that species alone, since, in some of the Egyptian paintings, the flower is colored blue. With the Egyptians, at the time when Thebes was the proud and magnificent "hundred-gated" city that Homer describes—say ten to twenty centuries B. C.—a soon as a guest arrived at the residence of any person of distinction, he was presented with a coronet formed exclusively of this exquisite flower, one of the blooms being so placed as to hang forward over the centre of the forehead. The same flower was employed in the religious services of the country, the chaplet form being most usual, as beautifully illustrated in the insignia of Isis—that famous goddess whose very name is a romance, and in reference to whose bounty to mankind the flowers were interwoven with ears of corn. Many other flowers seem to have received much notice with the Egyptians, and to have been employed with taste whenever ornament was needed, as declared by the drawings and the painted linen found in the sepulchres; but the greater portion of the figures are so conventionalised as to forbid identification—a circumstance not surprising, when every succeeding age has at times departed from nature no less widely: witness the "patterns" even of to-day.

From Egypt the love of garlands passed into Greece, in the principal cities of which country, or at all events in Athens, during the pride of its intellectual and social eminence, the manufacture of chaplets was a fixed occupation. Whatever encouragement may have been given to other kinds of handicraft, this one, with the educated Greeks and all who possessed a lively sense of beauty, was deservedly and universally in favor. In Athens, we are told by Aristophanes, there was an established flower-market, where the vendors quickly disposed of what supplies they brought from their gardens. In the same author we read also of the "Myrtle wreath market," where one of his characters, a woman, is represented as maintaining herself by plaiting chaplets of this renowed and delightful shrub. This would be B. C. 430. Theophrastus, also, B. C. 350, distinctly intimates that Roses, Gilliflowers, Violets, the Narcissus, and the Iris—whatever these names may signify—were cultivated extensively for sale. In the social customs of the people, it may be justly inferred that flowers were used with freedom. Brides, at all events, were crowned with flowers, but it was essential that they should be gathered by the bride herself, to purchase the bridal wreath being regarded as an ill omen. What would our brides of to-day, in England, think of their future. did a similar forecast attach to the dainty bouquets wrought so skilfully for their sovereign use? Specially employed for the chaplet worn by the bride was the shrub just named, the common broad-leaved Myrtle, which accounts, perhaps, for a separate market for Myrtle wreaths of different destiny, the fragrant evergreen in the abundance of its white bloom, with faintest shade of blush, being the emblem of love and chastity, and already consecrated to Aphrodite, representative herself, in the beginning, of the purest conception of the world's first principle.—*The Garden.*

THE SEMI-TROPICAL—A monthly magazine, published by C. W. Blew, Jacksonville, Fla. This is not only a horticultural and agricultural magazine, but also possesses a high literary character, that will make it welcome to persons of taste and culture. Harrison Reed is Editor. Vol. 1, No. 1, is now before us.

THE NURSERYMAN'S DIRECTORY AND REFERENCE BOOK.—We are in receipt of this work, embracing a list of the Nurserymen, Florists, Seedsmen, &c., of the United States, and British Provinces. D. W. Scott & Co., Publishers, Galena, Illinois, Price $5.00.

The lists are arranged alphabetically by States and Post Offices, and where there is more than one name under a P. O. address, the names are arranged alphabetically, thus making the book of easiest reference. In addition, there are copious indexes. Opposite each name and P. O. address, is given the business, with any specialities the party may be handling.

The work is useful to every person desiring business relations with these classes of business men, whether as buyer or seller.

GEOLOGICAL SURVEY OF INDIANA.—By E. T. Cox, State Geologist, and staff. Sixth Annual Report. A marked feature of this excellent volume is the attention it gives to the agricultural and horticultural capabilities of the districts surveyed. Indeed nothing goes unnoticed,

not merely the rocks and their records,—but the remains of the ancient races of man, fishes, plants,—everything that has connection with the soil is treated of. It is a model report, —but then Indiana has always been fortunate in her selections for these scientific works.

FLORAL LUXURIES OF THE ROMANS.—Towards the end of the Republic in Rome, to which already almost the whole of the then known world was subject, luxury was at its height. The riches extorted from the subjugated nations were squandered in the most foolish way. There was no knowing what undertakings a man with money might not begin. The poor nightingales must give up their tongues to furnish a *ragout* for a Roman gourmand. A Roman fine gentleman injured his standing if he set before his guests at the sea, sea fish, and in the interior of the country, fresh-water fish. At immense cost sea fish had to be provided here, and fresh-water fish there. Not less foolish was the custom of sleeping on rose leaves—the couches were heaped several feet high with rose leaves. Even Cicero must sleep on roses and violets. Propertius must even be buried in them, for in that case, as he sings, the earth would lie lightly on him. An effeminate Roman complains of the folded rose leaves on his couch hurting him. The Proprætor Verres in Sicily was carried about in a litter resting on cushions filled with rose leaves, and a bouquet of roses had to be carried before him. The supply of roses at Rome must at that time have been very great. Pæstum sent most, and after it Egypt, where the roses of Cyrrhene at that time were renowned. Great vessels came to Rome, which were only laden with roses. This rose mania, for by no other name can one call it, contributed not a little to raise the position of gardener in Rome.—*Karl Koch*

HISTORY OF THE ONION.—Very few members of the vegetable kingdom exist that can boast an older record than the Onion. Theophrastus alluded to it as follows: "There be divers sorts of Onions which have their syrnames of the places where they grow; some also lesser, others greater; some be round, and divers others long." This is ample proof that, even in his early days, a variety of sorts were grown, and in many places. Pliny adds the questionable information that "none grow wilde." The Onion is also spoken of in Holy Writ, where, in connection with the Leek and other vegetables, it is referred to as a luxury belonging to the Egyptians, at the earliest date we possess any history in regard to them. Though Theophrastus shows by his statement above that distinct sorts existed, we are inclined to believe that there were not more than two or three distinct types then. They derived, however, a variety of names from the various places where they were known to be grown freely. Old authors describe a kind known as "Ascalonitides," a name said by Gerarde to be "of a towne in Judæa, otherwise called Pompeiana." Singularly enough, however, the English name of this kind is given by this latter authority as "Scallions," and along with it is given an illustration and the following statement:—"This hath but small roots, growing many together; the leaves are like to Onions, but lesse. It seldom beares either stalke, floure, or seed. It is used to be eaten in sallads." Both Theophrastus and Pliny refer to this: the latter in the sixth chapter of his nineteenth book, where he says "the one serving for a sauce or to season meate with." Can it be then that in Pompeii of old, Chives, as we know them now, were used popularly.—*Gardener's Chronicle.*

THE MADDER PLANT.—Versmann states that the Madder plant has been cultivated in Holland for more than three hundred years; France (especially the neighborhood of Avignon) now produces about one-half of all the Madder consumed, to the value of about £750,000 per annum. Turkey and South Russia also supply considerable quantities of high quality. Some experiments in cultivating Madder in this country were made in Derbyshire some years ago, but with indifferent results, though the plant is quite hardy in England. The Dutch Madder will dye red, but not purple, and the color is not fast. Naples Madder dyes good red and purple, but the colors are not fast; that of Turkey dyes good red and purple, and is very fast. France supplies the market with two qualities, called "rosees," from their dyeing beautiful reds and pinks, and "paluds," which give a good purple, besides a fine red; this is the best French quality. The last name is derived from the fact that the plants are grown on marshy land.

THE LADY APPLE.—It has been asserted that this Apple was brought from Ponessus to Rome by Appius Claudius. Whether this be true or not, there can be no doubt it is of great antiquity, as all the oldest authors regard it as the production of an age prior to their own. Delechamp and Harduin are of opinion that it is the Petisia of Pliny; but J. Baptista Porta considers it to be the Appiana of that author, who

thus describes it, "Odor est his cotoneorum magnitudo quæ Claudianis, color rubens." From this description it is evident that two varieties are referred to, the Appiana and Claudiana. Such being the case, J. Baptista Porta says, "Duo sunt apud nos Mala, magnitudine et colore paria, et preciosa, quorum unum odorem servat cotoneorum, alterum minimi. Quod odore caret, vulgo dictum Melo rosa. Id roseo colore perfusum est, mira teneritudine et sapore, minime fugax, pomum magnitudine media, ut facile cum ceteris de principatu certet, nec indignum Claudii nomine. Hoc Claudianum dicerem." This Melo Rosa may possibly be the Pomme Rose or Gros Api, and if so, we may infer that the Api is the Appiana, and the Gros Api the Claudiana of Pliny. This, however, may be mere conjecture; but as the authority referred to was a native of Naples, and may be supposed to know something of the traditionary associations of the Roman fruit, I have deemed it advisable to record his opinion on the subject. According to Merlet the Api was first discovered as a wilding in the forest of Api in Britany.

Although mentioned by most of the early continental writers, the Api does not appear to have been known in this country till towards the end of the seventeeth century. It is first mentioned by Worlidge, who calls it "Pomme Appease, a curious apple, lately propagated; the fruit is small and pleasant, which the madames of France carry in their pockets by reason they yield no unpleasant scent." Lister, in his Journey to Paris, in 1698, speaking of this as being one of the Apples served up in the dessert, says, "Also the Pomme d'Apis, which is served here more for show than for use, being a small flat Apple, very beautiful, and very red on one side, and pale or white on the other, and may serve the ladies at their toilets as a pattern to paint by." De Quintinye calls it "Une Pomme des Damoiselles et de bonne compagnie."

Under the name of Lady Apple large quantities of the Api are annually imported to this country from the United States, where it is grown to a great extent, and produces a considerable return to the growers, as it always commands the highest price of any other fancy Apple in the market. In the winter months they may be seen encircled with various colored tissue papers adorning the windows of the fruiterers in Covent Garden Market.—*Journal of Horticulture.*

THE OLIVE IN PALESTINE.—The Olive has become inseparably connected with one of the earliest records of the human race, and repeated references are made in the Scriptures to its beauty. It probably needs an educated eye to appreciate the effect of its silver-like leaf, but it must be refreshing to ride through one of these groves when clothed with flowers, or when bowed down with fat and oily berries. Of all fruit-bearing trees the Olive is the most prodigal of its flowers, but not one in a hundred comes to maturity. The tree is of slow growth, and, except under peculiarly favorable circumstances, it bears no berries until the seventh year; nor is the crop worth much until the tree is ten or fifteen years old, then it is extremely profitable, and continues to yield fruit to extreme old age. There is little labor or care of any kind required, and, if long neglected, it will revive when the ground is dug or ploughed, and begin afresh to yield as before. Vineyards forsaken die out almost immediately, and Mulberry orchards neglected run rapidly to ruin, but not so the Olive. If the Olive bore every year its value would be incalculable; even with this deduction it is the most valuable species of property in the country. Large trees, in a good season, will yield from ten to fifteen gallons of oil, and an acre of them gives a crop worth at least one hundred dollars. The fruit is indispensable for the comfort, and even the existence, of the mass of the community. The berry, pickled, forms the general relish to the farmer's dry bread. When he goes to the fields at early dawn, or sets out on a journey, he has no other provision than Olives wrapped up in a quantity of paper-like leaves, and with this he is contented. Early in autumn the berries begin to drop of themselves, or are shaken off by the wind.

They are allowed to remain under the trees for some time, guarded by a watchman of the town. Then a proclamation is made by the Governor that all who have trees should go out and pick what has fallen. Previous to this not even the owners are allowed to gather Olives in the groves. The proclamation is repeated once or twice, according to the season. In November comes the final summons, when no Olives are safe unless the owner looks after them, for the watchmen are removed, and the orchards become alive with men, women, and children. The shaking of the Olive, which is always accompanied with much noise and merriment, is the severest operation of Syrian husbandry, particularly in the mountainous regions.—*Gardener's Chronicle.*

End of Volume