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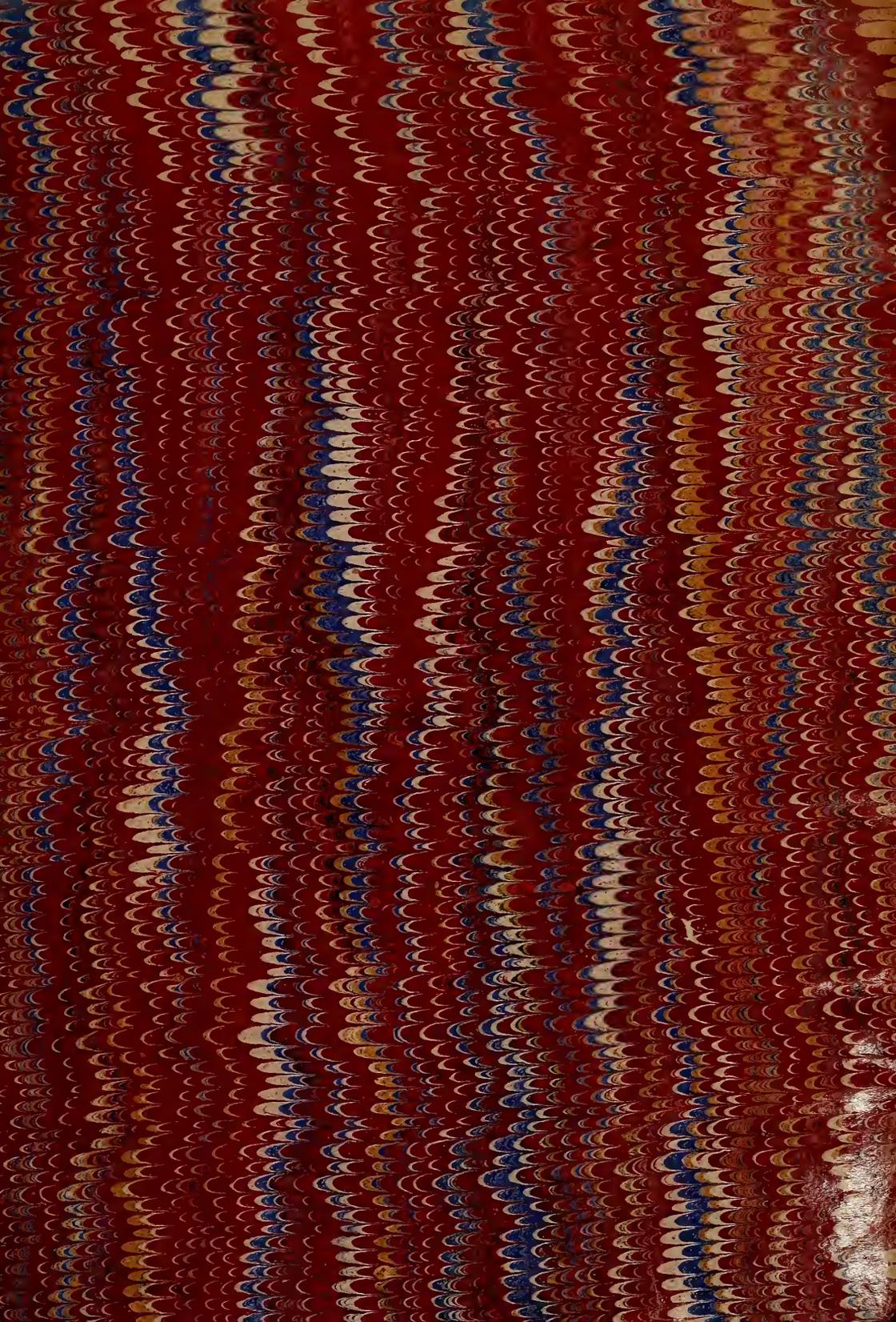
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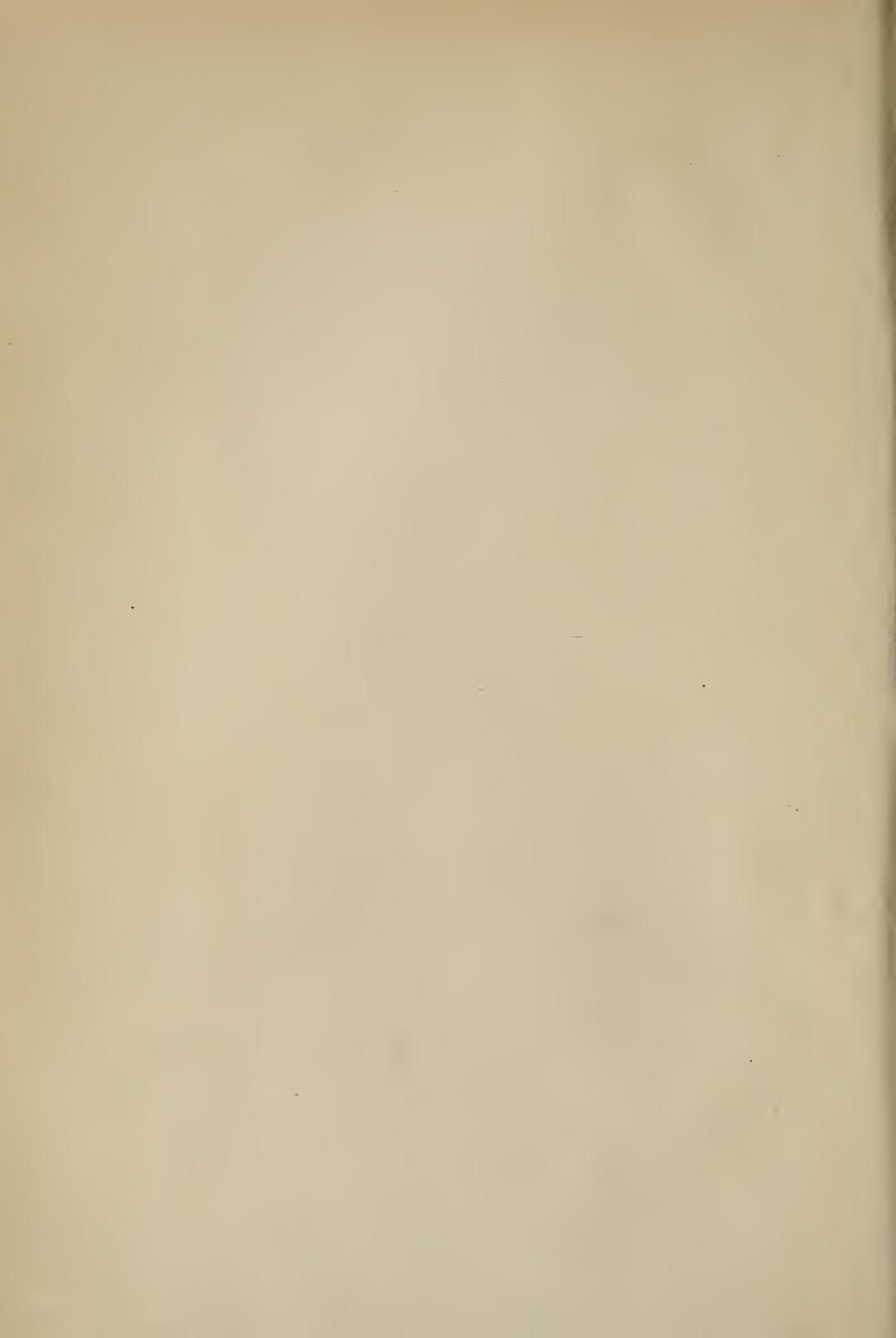
EXTRACT

From an Act prescribing Rules for the Government of the State Library, passed March 8th, 1861.

SECTION 11. The Librarian shall cause to be kept a register of all books issued and returned; and all books taken by the members of the Legislature, or its officers, shall be returned at the close of the session. If any person injure or fail to return any book taken from the Library, he shall forfeit and pay to the Librarian, for the benefit of the Library, three times the value thereof; and before the Controller shall issue his warrant in favor of any member or officer of the Legislature, or of this State, for his per diem, allowance, or salary, he shall be satisfied that such member or officer has returned all books taken out of the Library by him, and has settled all accounts for injuring such books or otherwise.

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California Horticulturist

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IV. 1896.

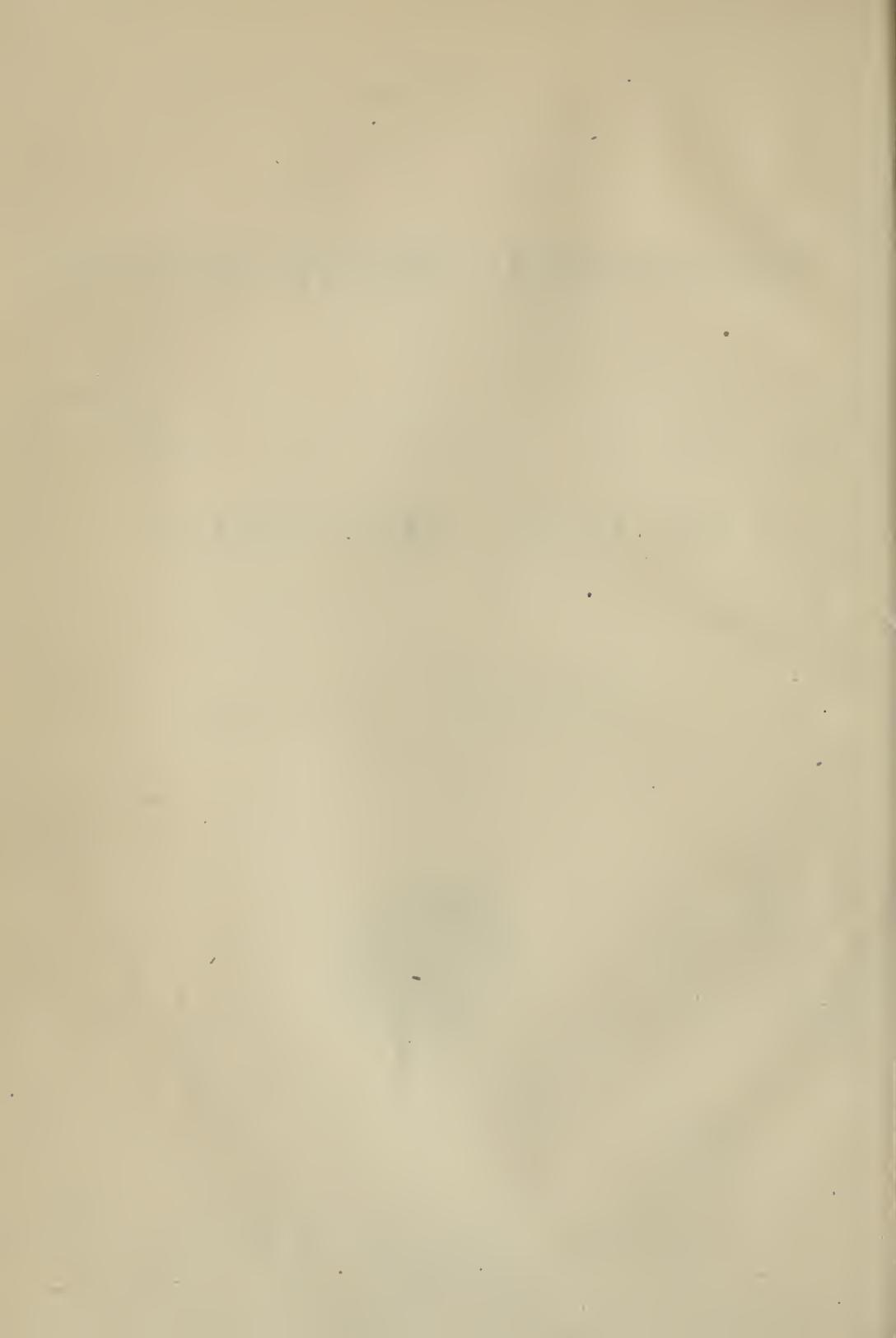
FLORAL MAGAZINE.

VOLUME IV.—1874.



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LILIIUM BLOOMERIANUM.

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. IV.

JANUARY, 1874.

No. 1.

MORE VARIETY IN OUR FLOWER GARDENS.

BY F. A. MILLER.

[Continued.]

In my last communication on this subject I enumerated certain trees and shrubs which we do not so frequently meet with as their merits entitle them to, and I will now say a few words in favor of flowering plants, which ought to be more generally cultivated in our gardens.

There is no doubt that Fuchsias and Pelargoniums will for the future be as popular with us as they have been in the past. They thrive admirably everywhere, and under any kind of treatment. Here in San Francisco they flower freely, both in summer and winter, and give a most cheerful appearance to our gardens. It is not surprising, therefore, that they are cultivated so extensively. I would, however, suggest that some of the newer varieties should be introduced, and some of the older and less meritorious kinds be discarded. Such sorts as Smith's Avalanche, Brilliant, Duchesse de Gerolstein, Extraordinary, General Grant, Lucretia Borgia, Lizzie Haxson, Wave of Life, Tower of London, Rappee, and

Talma are really magnificent Fuchsias, and can now be recommended as adapted to our soil and climate. They are far superior to most of the old sorts that have been introduced here during the past ten years.

Of Roses we can not have too many; they will always form the chief attractions in our gardens. However, there are many sorts cultivated which might be replaced by much better varieties of later introduction, and which can now be obtained of some of our larger nurseries. Some of the new Tea Roses are really excellent, and bloom freely throughout the winter season.

The Pink is also one of those popular flowers which are always admired, and give general satisfaction. Our gardens contain some splendid varieties, better, perhaps, than I have seen anywhere else.

The varieties of Verbenas generally cultivated are of poor quality, and I think that more attention should be paid to the introduction of better sorts. The large auricula-flowered varieties are of very excellent quality and habit, most of them deliciously fragrant, of brilliant colors, and with large yellow or white eyes. Some of our nurserymen keep on hand an assortment of the

best varieties, and every one has an opportunity of obtaining them. They are required in every garden, and as they flower abundantly with us, both in summer and winter, they should be considered important features in the borders. There are from twenty to twenty-five new varieties introduced of late, every one of which is a gem of its kind.

While Roses, Pinks, Pelargoniums, and Verbenas may form the leading features in our gardens, other plants are wanted to furnish contrast, variety, and completeness, without which our gardens can not give the recreation, enjoyment, and effect, for which they are created.

The plants which are particularly wanting here are flowering bulbs and roots of all kinds, which now are considered indispensable in the East and in Europe; and I would certainly urge their introduction into every garden, for several reasons. First of all, our climate is favorable to their growth; secondly, they can remain undisturbed in the ground for a number of years, (very few sorts excepted); thirdly, we can have most of them in bloom in winter as well as in summer; and fourthly, their qualities are most desirable for beauty of flowers, fragrance, and pleasing effect.

A few varieties of the *Gladiolus* we meet with here and there, mostly of the old scarlet sorts, which amount to very little, compared with the elegant spikes of exquisitely colored flowers produced by the newer varieties lately offered for sale. I plant some of them every month, and have the grand satisfaction of seeing them in bloom at all seasons of the year. The same method could be carried out in every garden with the same success, only on a smaller scale. From thirty to forty varieties can now be obtained at a small expense

in this market. If three of these were planted every month, their flowers would prove a continued ornament to the garden; and as bright flowers are generally very scarce during our winter months, they are particularly valuable then. As cut-flowers for vases and table bouquets, they are invaluable, as every bud will develop itself in perfection if placed in water.

Hyacinths ought to be grown much more extensively, and I would recommend early planting—the roots to remain in the ground undisturbed for several years.

The *Amaryllis* is a magnificent flowering bulb, and is rarely met with here. If grown in the garden, most of the varieties will flower abundantly.

The *Agapanthus umbellatus*, generally known as a greenhouse plant, is perfectly hardy here—at least in San Francisco and surroundings—and in the cooler districts of California its roots would not suffer in winter, even if the foliage should perish. Its charming clusters of blue flowers are very ornamental and most useful for bouquets. No garden should be without it.

The *Dielytra spectabilis*, (Bleeding Heart) is another exquisite bulbous root, and well known, although but very few plants are found in California. It is perfectly hardy, and succeeds well in our soil and climate. Once established, it forms large clumps of roots, and produces a profusion of flowers during spring and early summer. Its graceful racemes of heart-shaped pink flowers are most pleasing ornaments.

[To be continued.]

A PRETTY ANNUAL.—Though rarely met with in gardens, one of the most fragrant of annuals is the dwarf and curious *Schizopetalon Walkeri*. When sown in spring it blooms in June or

July, and its flowers are deliciously scented, even more so than Mignonette; a few flowers in a tumbler of water being sufficient to scent a room for several days. So says the *Garden*.

COLORS IN PLANTING.

In the modern American gardens, our latest and strongest aims now seem to be, to gain *color*, as well as beauty of forms in our plants. Subtropical gardening is exactly adapted to our climate; our brilliant skies and glorious sunny weather give a possibility and appropriateness to the use of high-colored foliage plants; and trees of rich hue become *mammoth paintings* on our lawns and in our flower gardens. In the *Garden*, a correspondent discussing this subject, says justly, *garden scenery is brightened immensely by means of color*. "The leaves of the new-born summer, the matured ones of autumn—how much they owe to delicate and multitudinous coloring! But for freshness of touch, that neither painting nor wood-coloring can reproduce, commend us to the bursting buds of April—the newly unrolled beauty of May leaves. Among these, what more beautiful than the Beech and the Purple-leaved Filbert? There are two more varieties of each, one larger and of more substance than the other. In fact, of the Beech there are many varieties, for the red reproduces itself from seed, and in a batch of seedlings there are tints of many degrees, ranging from dull greens to those of fiery glow. We have, however, never yet seen a seedling to equal in brilliancy the common variety, which is mostly increased by grafting it on the common Beech; and another with larger leaves, that keeps its color later in autumn. But Purple Filberts are easily

multiplied by means of suckers—a mode of increase not always to be depended upon in Purple Beeches on their own roots. Beeches seldom produce suckers, yet they occasionally throw little bunches from the surface roots, and I have seen these green on purple seedlings, and purple on grafted plants—rather a singular circumstance. The Filbert is also so fully purpled over and through, that we never remember to have seen it throw out a green sucker. It is most useful in shrubberies, contrasting admirably with such plants as Lilacs, Laburnums, Guelder Roses, Deutzias, etc. It seems actually to glow with the intensity of its coloring, and is to the fore and middle ground of shrubberies what the taller Beech is among other trees. The Beech has a soft fluffiness and semi-transparency about it that the Filbert, glorious as it is, lacks; and the richest coloring treat—a very feast of glowing magnificence—is spread around every far-reaching Purple Beech. One of the best modes of enjoying it to the full is to put the trees between the beholder and the sun, and look through the leaves toward him soon after he has risen, or a few hours before his setting. The purple is thus flooded with golden magnificence, and each leaf and branchlet is set off to admirable advantage. Purple Beeches are especially rich as foreground to masses of green Oaks, Elms, or other deciduous trees; or set against Larches, Birches, or Limes; the light foliage of these or the flowers of Service-trees—wild Crabs, Pears, Apples, etc.—give a deep tone to the glowing purple. Further, the young leaves especially contrast admirably with most conifers; though it must be admitted that the darker hues of the Purple Beech in autumn become too sombre accompaniments for most Pine-trees. The place for the Purple

Beech is the background of shrubberies, home plantations, belts, the park, and even the woods and forests; for the Purple Beech is not weakened by its color. It grows as fast, and forms timber neither better nor worse than any other Beech, and assuredly its more general use would give a glow to forest scenery that would add much to its beauty, and to the breaking of its dead monotony of color as well as form. Clumps of Purple Beech here and there would change the face of our landscapes and render them more agreeable, without their being one whit less profitable. What with our want of direct sunshine, and our dripping clouds, and leaden skies, we have often a deficiency of cheering color, and there could hardly be an easier and cheaper method of supplying this want than the planting of our copses with groups of Purple-leaved Filberts, and our woods with Purple Beeches.—*The Horticulturist*.

NEW SHRUBS.—The Dwarf Almond, *Amygdalus nana*, is a deciduous shrub of low growth, which, in the opinion of the florist and pomologist, should oftener find its way into ornamental shrubberies. It is, however, one of the old-fashioned things which seem to be overlooked nowadays. M. Carriere has recently described (*Rev. Hort.* 1872, 340) two new varieties, which he calls *A. n. microflora* and *A. n. campanuloides*. *Amygdalus nana microflora* is a branched bush with sub-erect ramifications, having the leaves like those of the type, oblong lanceolate, and the flowers small, spreading, with narrow petals, often more numerous than usual, thus showing a tendency to duplication, of a lovely rose, each marked at the top, exteriorly, with a deep spot.—*The Horticulturist*.

LILIUM BLOOMERIANUM.

BY A. KELLOGG., M. D.

We extract the following description of this Lily from the Proceedings of the California Academy of Sciences, of May 5th, 1873. The illustration accompanying this issue of the *HORTICULTURIST* is a faithful representation of this flower:

“Bulb purple, scales as in the original species, but bulb often compound, three to six inches in diameter. Stems one to five from a single or compound conglobate bulb; five to seven or eight feet high, sub-glabrous or slightly striguloid scabrous above, more or less purplish tinged; flowering at the summit only; three to eight blossoms on somewhat erect-spreading peduncles, three to six inches in length, bent down and shortly curved at an abrupt angle beneath the flower, rarely bracted, except at the base. Leaves in whorls of five to ten, sessile, lanceolate, four to four and a half inches long, three-fourths to one inch in breadth, five-nerved, glabrous above, lamina densely sub-discoid scabrous beneath, and scabrous along the mid-rib below, margins waved scabrous, tips and upper margins usually purplish tinged. Flowers stiffly nodding. Campanulate, sepals many-crested at the base chiefly on the inner series, three outer sepals plain above, at length more revolute than the inner series, claw one-fifth to one-sixth the blade; inner sepals somewhat broader, claws much shorter, one-ninth to one-tenth the blade, or longer than the mountain form; a double folded medium elevation marks the face, and a truncate slightly grooved ridge along the back the entire length; base reflexed, the upper two-thirds gently recurved and aspiring aloft; all the sepals at the margins above and apiculate tips papillose. Color light orange

ground, studded with ocellate blotches as if spattered with a dark purple pigment that had spread and tinged an aureola around the spots, the lower third or base being spotted with more numerous darker or nearly black and clean well-defined dots; stamens shorter than the style; the curved ascending style slightly streaked with broken purple lines, apex triangular-clavate, stigma undivided.

“There are two varieties of *L. Bloomerianum* found growing together in the interior; one with bold, distinct, and well defined dark dots and spots, with longer sepals more attenuated above; the other with ocellate or nipple-like blotches, being broader and of more continuously oblong form. The same distinction into masculine and feminine form is observed among these maritime Lilies. The Island Lily has slightly scabulose stems, and more discoidly-scabulose under surface to the leaves, and are always scabrous along the mid-rib beneath; whereas the Sierra Mountain Lilies are mostly glabrose—sometimes pubescent on both mid-rib and nerves, but never scabrous; they also sport more leaves in the whorls, etc.; these also are broader, hence the greater number of nerves; the numerous flowers are usually, if not always, alternately distributed on longer and more divaricate peduncles. The slightly purplish scales of those of the mountains become very remarkably purple on the islands. The enormous gregarious bulb, with its numerous stems, is a peculiar feature not observed in the thousands of specimens hitherto examined.

“Found by Mr. W. G. W. Harford, of U. S. Coast Survey, on Santa Rosa Island, growing on the west side of deep sheltered ravines, trending nearly north and south, hence, only where they get the *morning sun*; but are shad-

ed from the ardent meridian or post-meridian heat, which burns the leaves and kills them out on opposite exposures of the same locality. They are found growing in loose gravelly detritus of sweet freshly made soils, on the high and dry well-drained or leaching benches, or steeper declivities, where, thus sheltered, they thrive the best, mid fogs and fierce cold winds.

“We find no evidence of any proper description of this Lily. The catalogue refers to scores of new Lilies from this coast, among which is *L. Humboldtii*. It is proper to say, this has been kindly figured and sent to me by Max. Lichten, of Baden; but that drawing is certainly our *L. pardalinum*; so far as our translation of the remarks of the author enables us to judge—together with the excellent painting—there can be no doubt as to the correctness of this conclusion.”

NEW WEeping TREE FERN.—This is one of the most beautiful of all Tree Ferns. It is a native of South Africa—is rather difficult to import in good condition, as the trunks have to be brought some hundreds of miles down the country before they are shipped, and frequently suffer on the journey. In habit it is perhaps the most graceful of all Tree Ferns, its ample light-green feathery fronds sweeping elegantly downwards. It may be grown in an ordinary greenhouse or cool conservatory, and, when fully developed, forms a most attractive object. It grows freely in the usual compost, making fine pendant fronds from four to six feet long, and from two to two and a half feet in breadth in the widest part. The stout reddish purple mid-ribs are tubercled, and furnished at the base with a profuse quantity of slender chaffy scales. The trunk is dark-colored, and nearly a foot in diameter

in the widest parts, the imported specimens varying from five to ten feet in height.

SHRUBS FOR THE LAWN AND DOOR-YARD—CARE NECESSARY.

The art (for it is an art) of pruning and keeping shrubs in neat shape is yet to be learned by most of the ruralists of the country. We have known of cases of people so stupidly ignorant that they pruned *Spiræa*, *Deutzia*, and Dwarf Almond, before the spring growth commenced, and then wondered why they never got a blossom. They had not yet learned, or at least observed, that the blossoms are borne almost entirely upon last year's wood before the coming of the leaves. The best way of growing shrubs nowadays is in groups or well-planted masses, thus giving a mutual protection, and effective display. But, as *The Country Gentleman* observes:

"When they are grown as isolated plants in front door-yards, it is necessary to make them hold their heads up, and look trim and tidy. Every day we see examples of such bushes tied up in compact bunches, with a stake to secure greater uprightness; but towards April it is common to see stake and all dangling helplessly over. Then they are straightened by re-setting the stake, and by cropping the disheveled tops by barbarous pruning-shears or knife. This treatment is senseless. It directly defeats the main object, which we suppose to be the securing of a plant of neat figure, robed in luxuriant leaves, and brightened with well-expanded flowers. For it is obvious that not one of these crowded shoots can open its leaves to the light, and as they were similarly suffocated last summer, they have nothing laid up—no means nor substance from which to produce good

flowers this year, even if there were room to display them. Next summer they will, of course, be barren too, if the leaves are given no room to turn. But the bush will do something, so long as it has roots safe and sound, and as it can do nothing else well, it will go back to the primitive course of throwing up fresh sprouts from the ground, thus adding to and aggravating the crowded condition above. The right treatment in such a case is to use a strong, narrow knife, or saw, or sharp-pointed pruning shears, such as French gardeners use, or a suitable chisel and mallet, and cut out all the old exhausted shoots, and all the young ones that are weak or unripe, close at the surface wherever possible, or beneath it, for neatness' sake, leaving only those which have been first selected as the best placed. Separate these by tying or spreading, using a light hoop, if necessary, to secure a well-balanced and evenly distributed figure, with full room around each shoot for its flowering branchlets and leaves, and full access of light and free air throughout. If a stake seems needful, it will not look amiss; provided it is set erect and centrally, even although it may be thick and tall. In that position it may be even taller than the shoots. The shoots left to bloom should not be shortened further than to take out ill-turned, unsymmetrical branchlets, or slender ones incapable of bloom. If this care is supplemented by a trifling attention, in May or June, to pinch out the sprouts that will appear numerous then, leaving only the suitably placed few that are wanted to fill vacancies, or to renew good blooming canes, according to the nature of the plant, the fullest rewards of successful training will be attained. Some plants make a rank growth from the tops in August or September, and in their case

a pinching of the ends of wild or wanton shoots is advisable. Climbing Roses, Raspberries, Currants, Gooseberries, etc., class under the above rule of treatment. When shrubs are grouped in masses they are not tied up in any formal figure. Pendent branchlets or low growing sorts placed in front of erect ones hide the stems, and present to the sight only leaves and flowers, as in natural boscaje."

OLDEST WORKED WOOD IN THE WORLD.

—Probably the oldest timber in the world, which has been subjected to the use of man, is that which is found in the ancient temples of Egypt. It is found in connection with stone work which is known to be at least four thousand years old. The wood, and the only wood used in the construction of the temple, is in the form of ties, holding the end of one stone to another in its upper surface. When two blocks were laid in place, then it appears that an excavation about an inch deep was made in each block, into which an hour-glass-shaped tie was driven. It is therefore very difficult to force any stone from its position. The ties appear to have been the Tamarisk, or Shittim wood, of which the ark was constructed, a sacred tree in ancient Egypt, and now very rarely found in the valley of the Nile. These dove-tailed ties are just as sound now as on the day of their insertion. Although fuel is extremely scarce in that country, these bits of wood are not large enough to make it an object with the Arabs to heave off layer after layer of heavy stone for so small a prize. Had they been of bronze, half the old temples would have been destroyed ages ago, so precious would they have been for various purposes.—*Journal of the Farm.*

HOME TREES AND FLOWERS.

BY R. E. C. STEARNS.

If you are fortunate enough to possess a homestead, consider the importance of devoting a small portion of your time and money to the adornment of it. With a very small expenditure of the latter, and the judicious use of such leisure moments as may occasionally be spared from the hurry of business, the homestead grounds can be made to "blossom like the rose."

The ornamenting of the grounds surrounding a house is of as much importance as the embellishment of the interior, and both are alike worthy of consideration, and should never be neglected. Make the homestead, in-doors and out, the most attractive place within the reach of your children, and the boys will be less likely to become vicious, or the girls to go astray.

The beauty of a place depends not so much upon showy buildings as upon green shady trees and climbing vines. The roughest whitewashed cottage, surrounded by trees and flowers, presents a beautiful appearance, and the costly mansion without these looks desolate and unattractive. The reason why the houses and villages of New England are so pleasant is due to the numerous trees which surround them, and with which the streets are lined. Many an old farm-house, unattractive in itself, is rendered picturesque by some grand old Elm. All the expense incurred, all the labor expended, will repay you a hundred-fold.

Home! Trees! Flowers! A blessed trinity! Flowers! ever pleasing the eye with their diversity of form, and regaling the nostrils with delightful perfume! Flowers and trees! Who ever forgets the trees and flowers which grew about

the old homestead—"the cot where I was born?"

"It stood 'mid the shadow of green dark trees,
The cot that my childhood knew;
Around it the violets, the children of Spring,
And the early Roses grew."

Wherever you have a spare corner in your garden plant a tree; you will never regret it. You may live to enjoy its shade, and you will have done something to beautify the earth. If nothing more, the morning song of the bird that sings among the branches will be your benediction.

EUCALYPTUS GLOBULUS,

ITS USE IN IMPROVING THE SALUBRITY OF
MARSHY AND MALARIAL DISTRICTS.

The many very interesting accounts which have been published with regard to the *Eucalyptus globulus* do not seem to have exposed all of its values. And we find in *Comptes Rendus* of October 6th a note presented to the French Academy of Sciences by M. Gimbert, in which he describes another value equally as great as those with which all are so familiar. From reports received from various reliable sources, it seems to have been determined that in localities where the *Eucalyptus* flourishes there has been a complete disappearance of intermittent fevers. "A tree," says the author, "springing up with incredible rapidity, capable of absorbing from the soil ten times its weight of water in twenty-four hours, and giving to the atmosphere antiseptic camphorated emanations, should play a very important part in improving the health of malarious districts." It has the property of absorbing directly and rapidly the water of shallow marshes, thus preventing fermentations which are produced, and paralyzing the animal miasma proceeding from them which might arise from them: The predic-

tions with this regard, which were made in 1869, have in all cases been realized. The author furnishes a few of the numerous results, which are very interesting.

The English were the first to experiment in their sanitary plantations in Cape Colony, where they were eminently successful. Two or three years were found sufficient to change the climatic conditions, and the aspect of the malarious districts of their possessions.

Some years ago the Algerians took occasion to spread the *Eucalyptus* throughout the French possessions in Africa, and the following are some of the results obtained, as communicated by M. Trottier:

"About twenty miles from Alger, at Pondouk," he says, "I owned a property situated near the river Hamyze, the emanations from which produced intermittent fever among the farmers and their servants every year. In the spring of 1867 I planted upon this farm 13,000 plants of the *Eucalyptus globulus*. In July of that year, the season in which the fevers appear, the farmers were completely free from them. In the mean time the trees had scarcely attained a height of more than eight or ten feet. Since that time the settled population has been entirely free from fevers."

Fourteen thousand *Eucalyptus* trees were planted upon the farm of Ben Machydlin, in the vicinity of Constantine. It has for several years past been noted for its insalubrity, being surrounded with marshes throughout the entire year. The trouble entirely disappeared, and the soil became perfectly dry in five years. The atmosphere is constantly charged with aromatic vapors, the farmers are no longer troubled with disease, and their children are bright with health and vigor.

The operations of the manufactory of Gué in Constantine were rendered wholly impracticable during the summer on account of the pestilential emanations from the marshes with which it was surrounded. M. Saulier conceived and put into practice the idea of planting a large number of Eucalyptus trees in these marshes, and in three years about twelve and a half acres of the marshy soil were converted into a magnificent park. The water completely disappeared, and the health of the workmen has since been in good condition.

In consequence of the large grove of *Eucalyptus globulus* on the farm of Maison-Carrée, which is situated in a district in which the inhabitants formerly succumbed to the malaria, similar hygienic revolutions have taken place.

It is stated by land-owners in Cuba that there, also, the paludal and telluric diseases have disappeared from the malarial districts where the Eucalyptus has been cultivated.

According to Ramel, Australia is very healthy where the Eucalyptus flourishes, and unhealthy where the tree is not found.

On the banks of the Var, near the entrance of a railroad bridge, is situated a garrison-house, near which earth-works were thrown up to dam the river in order to build the bridge. The malaria arising from it made it necessary to change the guard each year. Two years ago, M. Villard, the engineer in charge of that section of the road, planted forty trees in the vicinity of the building, and since that time this post has been the most healthy in the country.

These evidences fully establish the fact that the *Eucalyptus globulus* has a good effect in preventing the spread of malarial diseases, and that it may serve decidedly practical purposes in this par-

ticular. Throughout our entire South and Southwest many valuable enterprises have been wholly impracticable from causes stated above; and if the examples thus set before us were followed throughout the South, there is no doubt that many of the dismal, swampy, and marshy districts, hitherto entirely worthless, may be transformed into beautiful, pleasant, and healthy sections.—*Monthly Report of the Department of Agriculture.*

A RAMPANT WISTERIA.—The foreign journals speak of a beautiful Wisteria—recently in full bloom—covering the front of a well known hotel near Slough, in England, and running around each end for some distance, making altogether a length of about 150 feet. It was planted against a strong iron support of the veranda, which support it long since lifted bodily from the ground, and broke in pieces with the seeming ease with which a man would break a lucifer match. A Laburnum grows against the building on one flank, and the contrast between the clusters of blue and yellow flowers is declared to be “perfectly charming.”

POTASH IN PLANTS.—A correspondent of the *Country Gentleman* gives the following table, showing the amount of potash contained in 1,000 lbs. of ashes made by burning different kinds of wood: pine, $\frac{1}{2}$ lb.; poplar, $\frac{3}{4}$ lb.; beech, $1\frac{1}{2}$ lb.; maple, 4 lb.; wheat-straw, 4 lbs.; corn-stalks, 17 lbs.; oak-leaves, 24 lbs.; stems of potatoes, 55 lbs.; wormwood, 72 lbs.; sunflower stalks, 19 lbs.; oak, $2\frac{1}{4}$ lbs.; beach bark, 6 lbs. The remaining portion of the ash, consisting of carbonate and phosphate of lime, iron, manganese, alumina, and silicia, is an excellent fertilizer.

UPON THE TERM "NATURAL," AS
APPLIED TO LANDSCAPE.

BY E. J. HOOPER.

[Continued from December Number.]

A landscape may be considered as natural—we will instance Napa Soda Springs, by way of example—when we find in it all those productions which we meet with in a forest, except its redundancies. All the indigenous plants must be there, though their condition may be improved by trimming and lopping off superfluities, thus reducing the dense forest to a less crowded entanglement than in the unadapted wilderness. The trees may be allowed wider spread, and the shrubbery may grow more independently outside of the thickest woods, instead of forming only a meagre skirting of undergrowth. The hand of man may assist the plants in obtaining their full development without excluding any species. The birds and other animals that are the true tenants of the wild-wood must be present and be preserved, as well as some domestic animals, whose appearance in moderate numbers is the best evidence that the harmony of Nature has not been too greatly disturbed. We find in the primitive forest an entangled and crowded growth that renders the charms of Nature unavailable to us, and many places inaccessible. A great entanglement obstructs our passage and interferes with the course of vegetation. Then, the removal of these impediments does, in truth, render Nature more natural, as a plant becomes more natural when removed from a dark cellar into the open air. So long as no species of plant is destroyed which would be found in the place if it had not been subject to culture, and so long as each plant and animal enjoys its native habitat and circumstances of growth, the landscape has not been

denaturalized by the removal of any excrescences.

The word *natural* is not sufficiently precise to be used in philosophical discussion. I should prefer a more specific term, which has not been generalized into unmeaningness by universal inappropriate use. The term should express a combination of all the properties and characteristics of a wild scene, divested of its inconveniences and of everything that interferes with the growth and development of all those plants which Nature is struggling to develop, from the minutest Moss, or Fern, or Lichen, to the tallest Pine, or the widest-spreading Oak. Just so far as we improve the development of the indigenous plants and animals, without deranging their natural proportions and relations to one another, so do we improve Nature without destroying her characteristics. Nature, when left to herself, admits of an excessive crowding of species, as was exemplified in the Springs above alluded to, before the improvements were made; and it is only in occasional situations that she is enabled to afford any one tree or other plant its full proportions.

It may be averred, that a scene is more natural in which everything has grown up with these imperfections; but we may with the same propriety contend that the dense and stived population of a crowded city—the Chinese quarters of San Francisco, for example—only half developed in their physical proportions, from the want of light and fresh air, are more natural than the well-developed inhabitants of the country, or the less crowded and better portions of the cities. It seems to me that we may *denaturalize* a place in the two following ways: Either by depriving it of some of the individual species and groups that belong to it, or by ar-

ranging them in an order that can only be attained by art. Nature has made certain groups to harmonize with one another, and to depend on each other; and if we too artfully disturb these relations, we do violence to her system. And though there may be certain noxious plants—the Poison-oak, for instance, pretty as it is—and sundry animals, which must for our own safety be extirpated, the offense we thereby commit against the order of Nature is a necessary deviation from a general principle.

Some of the English artists in landscape, and their followers, have omitted to take all these things into consideration, and have believed themselves pupils of Nature, when they have simply imitated her irregularities, in the arrangement of the different objects in their grounds, while they have omitted to copy her other graces or characteristics. It is true that Nature does not plant her herbs, trees, and shrubs in rows, or according to any mathematical lines or figures; but it does not follow that one who plants in the same irregular manner, produces a work that is modeled after Nature. As well might we call him a mathematician who places his figures in mathematical columns, while the figures have no relation to one another, and lead to no result. We must form our opinion of the character of any tract by the decision of Nature herself. If we find within it all those indigenous plants which would have been found there, had the grounds never been too greatly disturbed, and all the indigenous birds and animals accepting it as their home, then will we be justified in believing Nature to be truly the presiding goddess, receiving the homage of all her creatures.

The little solitary birds that flee the park and orchard, and reside only in

the woods where certain of their natural conditions still remain, will not inquire whether the planter has arranged his trees or shrubs in rows, or scattered them at random; but whether he has left the wild bushes, grasses, and vines in which they are accustomed to nestle, and the wild fruits and seeds that afford them sustenance. Howsoever geometrically the trees and shrubs may be arranged, if they are attended by the same groups and species that form their bedding and undergrowth in the wilderness, the tract thus arranged is more natural than a park consisting only of selected trees and lawn, without any undergrowth of native plants. In the one case, every natural circumstance is present, except the irregular planting; in the other case, every natural circumstance, except the irregular planting, is absent. Those improvers, therefore, who flatter themselves that they are copyists of Nature when they introduce the custom of irregular planting and of curved and straggling walks, while the surface is all smooth lawn and the walks neatly graveled, are as far from Nature as a lady florist, who, for the same reasons, scatters flower-pots in wild irregularity over her parlor carpet.

A straight wagon-road is frequently made by our farmers through a level piece of woodland, and is then left to Nature, who embroiders its sides with all the herbs and flowers that habitually inhabit such places. It never seems to me, when strolling through one of these rustic avenues, that it savors any less of Nature on account of its direct course; although, if very long, a walk in it is not so pleasant as in an irregular or winding avenue. Both are artificial, for Nature makes no paths at all, unless we except the tracks of wild animals. But the plants arranged in almost straight lines in the one case, and in

curvilinear lines in the other, are all equally natural, because they are in such case the spontaneous growth of Nature.

Those situations in which Nature has been subdued by man, and afterward allowed to resume her sceptre, are of all places the most delightful, when she has completely re-established her empire over them. Such, I am confident, is their influence upon the majority of sensitive minds; not that these have more sympathy with Nature than with humanity, but that they enjoy more happiness among the simple scenes of the natural world than among the ambitious works of art. Hence comes that serene pleasure that always attends us when we behold the rural deities resuming their habitation in grounds once despoiled by man, and making known their presence by knolls tufted with moss, by plats of wild flowers, by tangled bowers, and the voice of the solitary bird that flees the haunts of luxurious wealth and sings only to the children of the rural regions.

NOTE ON ADIANTUM FARLEYENSE AND BEGONIA SANGUINEA.—*Adiantum Farleyense* is a native of Trinidad; was found on the estate of Farley Hall, thereby its name; was sent to England by a ship from Barbadoes. My plant, now two feet high and two and a half feet wide, came from its native locality in Trinidad, and has not the least affinity to *A. tenerum*, which is not, I believe, found on the same island.

Begonia sanguinea takes its name from the blood-colored leaves. The flowers are pure white. Was introduced about forty years ago from Brazil. It is a very attractive window-plant, and should be in every collection, large or small.—*R. Buist, Sr., in Gardener's Monthly.*

THE CULTURE OF THE CINCHONA.

The importance of an enterprise looking to the growing of the Cinchona-tree in sections of the world other than South America, can not be overrated. It is a question equally interesting to the botanist, the pharmacist, and votary of economic science. In the last number of *Nature* there is an excellent account of the various efforts made to propagate this tree in India and Ceylon, from which we make the following brief summary:

The Dutch Government took the initiative steps, directing their efforts to the introduction of the tree in Java. The first Cinchona-trees sent out to that colony were specimens of the *C. calisaya* raised in Bolivia. In 1852 the Dutch government sent a Mr. Hasskarl on a mission to South America to procure plants and seeds. The collection made was divided into two parts, one-half being sent to Java direct, and the remainder to Amsterdam. In 1856, there were 260 plants on the island of Java. Many serious troubles attended the early efforts to raise the trees, arising from insects, wild animals, and badly chosen localities on the island. At last, in 1860, success crowned their labors, and in 1863 the total number of trees in Java numbered 1,150,180. It was found that the *C. calisaya* in Java was the best adapted for the locality, the *C. Pahudiana* containing much less of the alkaloid. The efforts of the British Government were commenced as early as 1839. In 1852 the East India Company sent to the British consular agents in South America for seeds of the various species, but it was not until 1859 that the matter was fully taken in hand. During this year Mr. Markham proposed a fourfold expedition to South America, and the plan being sanctioned

by the Secretary of State for India, the scheme was carried out. Expeditions were sent to Bolivia, Caravaya, to Cuerica and Loxa in Ecuador, and to New Grenada and to the Chimborazo districts. The illness and privation suffered by the searchers after these trees rendered the task a difficult one. At last a fair stock was collected, but most of the plants were killed during the Red Sea transit to India. Once in India, however, the few that survived thrived immediately. At Ootamacuna a station was established in 1860, and in 1861, 1,128 fine young Cinchona-trees were reported as alive. In 1863 the number was 248,166.

The efforts of the British Government have not been directed alone to acclimatize the Cinchona in India, for in Ceylon in 1863 they had 20,000 young trees.

In referring to India matters (Blue Book of 1870) in the Bengal and Madras Presidencies, no less than four millions and a half Cinchona-trees are reported.

Experiments with the Cinchona have been tried in the South of Europe, in the Caucasus, in the Brazils, Philippines, Australia, and Jamaica, but not of sufficient extent to have any significance.

Of all the fine species of trees, the following seems to be the results as to alkaloids: *C. calisaya*, only a small proportion realizes expectation in its yields of quinine; *C. Hasskarliana* (called a hybrid), which appears to be of little value in respect of alkaloids; *C. Pahudiana*, deficient in the same particulars, but producing a bark which finds a ready market for pharmaceutical purposes in England; *C. officinalis*, which, in British India, appears to be the most generally satisfactory; and *C. succirubra*, which, notwithstanding certain exceptional samples, has not turn-

ed out altogether well. — *Forest and Stream.*

CLIMBING-PLANTS FOR IN-DOOR DECORATIONS.—There is nothing which will do more to beautify and give a home appearance to a room, than a few nicely arranged climbers, properly trained over windows, picture frames and glasses. Many seem to have imbibed the idea that such plants require great art and skill in their production and proper treatment; but such is not the case, for no plants are more readily taken care of than these. My favorites are the Maurandias, and particularly the *M. Barclay* vine.

If raised from the seed, the sowing should not be later than the middle of June, but cuttings may be put into proper soil in August, which will make good plants for winter growth. Layers may sometimes be put down early in September, which, by plentiful watering, may make good plants. My best out-door specimen is now fourteen feet long, and will cover at least thirty square feet of surface. The colors vary with the variety, and are matters of taste. Next in order of favoritism comes the *Cobaea scandens*, or Mexican vine. There is some difficulty in starting the seeds of this plant in the open ground, though, with care, it can be done. From five seeds planted, this season, I have three fine plants for winter flowering. For filling pots for winter climbing vines, a mixture of equal parts of garden soil, sand, and leaf mold is best, and occasional waterings with liquid manure should be given. Some succeed very well with many of the varieties of Passiflora, or Passion Flower. The selection will depend upon taste as to color, but my favorite would be *P. cerulea*, or *P. permissa*. — *Journal of the Farm.*

LOUIS AGASSIZ:

THE INVESTIGATOR, THE TEACHER, THE PHILOSOPHER, AND THE BELIEVER.

Born in Motier, Switzerland, May 28th, 1807.

Died in Cambridge, Mass., December 14th, 1873.

THE FIFTIETH BIRTHDAY OF AGASSIZ,

MAY 28, 1857.

BY H. W. LONGFELLOW.

It was fifty years ago

In the pleasant month of May,

In the beautiful Pays de Vaud,

A child in its cradle lay.

And Nature, the old nurse, took

The child upon her knee,

Saying: "Here is a story-book

Thy father has written for thee."

"Come, wander with me," she said,

Into regions yet untrod;

And read what is still unread

In the manuscripts of God."

And he wandered away and away

With Nature, the dear old nurse,

Who sang to him night and day

The rhymes of the universe.

And whenever the way seemed long,

Or his heart began to fail,

She would sing a more wonderful song,

Or tell a more marvelous tale.

So she keeps him still a child,

And will not let him go,

Though at times his heart beats wild

For the beautiful Pays de Vaud.

Though at times he hears in his dreams

The Ranz des Vaches of old,

And the rush of the mountain streams

From glaciers clear and cold;

And the mother at home says, "Hark!

For his voice I listen and yearn;

It is growing late and dark,

And my boy does not return!"

CULTIVATION OF DATURA ARBOREA.

The *Datura arborea*, sometimes called *Brugmansia*, is a rapid grower, with large foliage. There are several varieties. The one generally found in our greenhouses is called *Datura Knightii*; it has interesting double white funnel-shaped flowers, and very fragrant, which it bears profusely. The bloom is, however, of rather short duration; still they are worthy of a place in every greenhouse. Can be stowed away under the stage, or in any odd, dark corner during the winter months. They can be propagated from eyes. The whole of the last season's wood can be used as you would a grape vine, that is, with half an inch of wood to each bud, which can be placed in small pots, or a number in shallow pans or boxes, as most convenient to the cultivator. If a gentle bottom heat is available they will root much quicker. They must be kept moist, but not wet. The young plants will do well during the winter, if a temperature of from 50° to 55° can be maintained. Early in the spring they may be potted into four-inch pots, and started into growth in the hothouse; they will soon make rapid growth if assisted with bottom heat. From the time they are first potted, they must be constantly attended to in that respect. As soon as the roots have reached the sides of the pot, shift into larger size ones till they have reached fifteen or eighteen inches; large plants are required. If you wish to grow dwarf standards, put stakes to them, taking care to keep the stem perfectly upright, then the side shoots must be pinched off, leaving three or four at the top. When the plant has attained the height you wish—from two to three feet is a convenient height, and looks well—pinch out the top. After this is done,

the three or four side shoots not rubbed off will grow fast, and are the foundation of the head. These shoots can each have their terminal bud pinched out in the same way as you did the top of the plant. After they are three or four inches long they will then throw out several shoots each, and quickly form a head. If any cross-growing shoots show themselves, cut them clean away, or any other shoots that would tend to crowd the plant. The main shoots must not be stopped after this, but allowed to grow till they produce flower-buds; they had then better be removed to the coolest part of the house for a few days, previous to their removal to the greenhouse or conservatory, where they will continue to flower for a long time, filling the house with their powerful fragrance. They grow best in a compost loam, (sod cut from an old pasture); Jersey peat, and cow-dung, about two parts of the first and equal parts of the latter. If sod from a pasture is cut and laid by until it is well rotted, it is then enriched with vegetable matter, and will then grow anything. Plants of a succulent nature, like the *Datura*, will grow better if a portion of the peat and cow-dung, or leaf mold is added. If the plants are to be placed on the lawn, or any other conspicuous place about the grounds, protect them as much as possible from the wind, which, as the foliage is large and brittle, is very liable to be broken. They may be planted out about the time the ordinary bedding subjects are put in their summer quarters, taking care to support them with stout stakes and neatly tied. They can either be plunged in their pots, or turned out.

Before frost appears, they must of course be taken up with a ball of earth, and packed closely under the stage (if room is an object) upon the ground,

keeping them without water; and after they have dropped their leaves, they may be pruned, top and root, then potted in fresh soil prepared as stated, slightly watered, placed in the back part of the hothouse or greenhouse until the buds commence to grow, then at once remove the light.

In pruning the head cut in rather close to the stem, that is within two or three buds; you can then select the best placed ones that will make the handsomest head, cutting the others entirely away. All they will require this season is to stop any shoots that show a tendency to become more vigorous than their fellows.

The *Acarus tellarius*, or Red Spider, is the greatest pest, and care must be taken to frequently syringe the plants, more particularly the under-side of the leaves. They can not exist where syringing is well attended to. Water is death to the Red Spider.—*Thos. F. Webb in the Gardener's Monthly.*

VICIA STATIVA—(Common Vetch, or Tare), 17th class and 4th order of Linnaeus; *Diadelphia decandra*—a valuable herbage plant. Some consider the winter variety a distinct species, but Prof. Martin proved by cultivating both, that they were not even very distinct varieties. The winter variety is sown in September and October, and the summer at different periods, from February to June. For successive cuttings, the soil requires to be in good condition; otherwise they will produce but a poor crop of herbage. On a good soil they will yield ten or twelve tons per acre, which is found to be excellent for milch cows and working stock. The crop is seldom left to ripen its seeds, except when the seeds are wanted; the only use made of them is for sowing or feeding pigeons.

There are from thirty-eight to one hundred species in this genus, and some of them highly esteemed by European farmers. SUBSCRIBER.

ELZÆGNUS PARVIFOLIUS.

This plant (Silver Thorn) is destined, in all probability, to play an important part in the rural affairs of the United States. No one but at once grants the gravity of the fence question. It is admitted, that if the whole farm land of the Union were to be called on at once to renew the timber fences, the best part of our farmers would become bankrupt. A cheap live fence, and one easily managed, would be one of the greatest blessings to the people of this nation.

So far, the best thing has been the Osage Orange. This is the best chiefly because the seed can be easily procured, and because the plants are very easily and rapidly raised from the seed. These are great advantages; but the disadvantages are its tree-like character, which requires much skillful labor to keep it down to proper dimensions; and also that it only produces thorns on its young growth. Wood once formed never gets thornier; and should perchance naked places occur, it is almost impossible to fill these places in. As a sort of sop to this disposition, plashing and other patching schemes have been adopted, all of which are tolerably successful in the hands of intelligent men who are not afraid to work. The fact, however, is patent as we travel through the country, that nine-tenths of the Osage Orange hedges planted in this country have become nuisances to everybody that has any relation to them.

Heretofore few plants which are but naturally shrubs, grow fast enough to make a protective hedge within a reasonable time, or if they do, are deficient

in some other element of a good hedge. This *Elæagnus* seems to be nearer our idea of a good hedge plant than anything we have seen. Some years ago a small quantity was set out for trial on the grounds of the Experimental Garden at Washington; and when the writer saw it, in company with Mr. Wm. Saunders, he was informed that it had proved entirely satisfactory in every respect.

It does not grow more than a few inches high the first year from seed; but these small seedlings dibbled out in the hedge-row, grow as rapidly as Osage Orange transplanted the first season.

We saw, recently, a line half a mile long set out last spring, mere threads then, most of which are two feet high, and thick and bushy now. They look very harmless the first year, having no thorns; but there are large numbers of short branches, from a quarter of an inch to two inches in length, and these become *sharp spines* the next year. The older the plants the spinier they become—an excellent feature in a first-class hedge plant. The second and third years branches are produced from three to five feet long, thus soon reaching a good hedge height. But the plant rarely shows any disposition to go above six or eight feet high, when the plants are massed together. When they reach this height, they grow by sending strong shoots out from the stems near the ground, thus perpetually self-thickening—another excellent feature. If pruned, they make a first-class hedge; if totally neglected, they are still protective, and not the useless eyesore of an Osage Orange. Plants three or four years old seed, so that in a few years with any moderate encouragement, plants in abundance could be obtained.

Besides its protective value, it has a very beautiful appearance; the under

side of the leaf, as well as the young growing branches, are silvery, whence its common name. South of the Potomac it would probably be an evergreen. In Pennsylvania it holds its leaves to Christmas. The flowers are greenish-white, not showy, but resemble in fragrance the celebrated English Hawthorn. The berries which succeed are of a mottled red. How much cold it will stand before it becomes injured, is not known to the writer. It has remained uninjured in the slightest degree in one situation, when the last year's shoots of the Osage Orange and Honey Locust have been destroyed, and when the thermometer has been 14° below zero. It will probably endure much more.

It is called, in European catalogues, *E. reflexus*, and some other names, but De Candolle adopts Wallich's name, *E. parvifolius*. It is a native of the Himalaya Mountains.—*The Gardener's Monthly*.

THE OSAGE ORANGE.—The *Maclura aurantiaca* has become a familiar shrub in most parts of the United States, from its general use as a hedge-plant; but it is now proposed to utilize the Osage Orange for other purposes. A decoction of the wood is said to yield a beautiful and very permanent yellow dye; and this decoction, carefully evaporated, forms a bright yellow extract called aurantine, which may be used in imparting its color to fabrics. In addition to this coloring-matter, the wood of the Osage Orange is rich in tannin. Experiments made in Texas represent that hides are tanned quicker with the wood of this tree than with oak-bark. The seeds yield a bland, limpid oil, resembling olive-oil, and which may, in general use, be substituted for it.—*Report of Department of Agriculture*.

ROSES—AMERICAN CULTURE.—The Rose never wearies us; we enjoy every mention of it; and though not a new beauty, yet its beauty never wears out. Read what *The American Rural Home* says about planting *Rose-beds*:

“The Rose likes a virgin soil, and the nearer the composition of our Rose-beds approximates to that, the greater will our success be likely to be. Hence decayed sods, and leaf-mould from the woods when it has been sweetened by the sun, are good fertilizers. The old-fashioned way of scattering Roses about the lawn is not the best way. Their culture, thus isolated, is apt to be neglected, and grass works in and chokes them; besides, the effect is not equal to where they they are grouped in a round or oblong bed, highest in the centre. Suppose that we decide to plant a bed of Hybrid Perpetuals. In the centre we would want a white Rose, or a cluster of white Roses, according to the size of the bed. Madame Alfred de Rougemont is one of the finest whites. Portland Blanche is another fine one. Next we could have a row of flesh color and light pink. Caroline de Sansal is one of the finest of the former, and Sydonie of the latter. Auguste Mie (rosy pink) would pretty nearly correspond with this shade. The next row should be still deeper—rose or deep rose. Of this shade, we have Baronne Prevost, Victor Verdier, and Madame Victor Verdier. In the next row we could have rosy crimson, rosy lilac, rosy carmine, and vermilion. Among those of these shades, Anne de Diesbach, General Washington, John Hopper, L. Reine, Mad. Fremion, Maurice Bernardin, and William Griffith, rank the highest. On the outside we could have the deepest shades, as deep red, crimson, and velvety. Dr. Arnal, Françoise Arago, Giant of Battles, General

Jacqueminot, Jules Margottin, Pius the Ninth, Prince Camille de Rohan, and Triomphe de l'Exposition would fill the outer ring. We do not say that this order should be strictly adhered to, but we think the highest effect would be produced by having white in the centre, and gradually shading deeper to the circumference. All that we have named are first-class Roses, and our readers may be assured that in selecting from them they will get no inferior Rose.”

SESAMUM ORIENTALE.—Bean or oily grain, *didynamia angiosperma*, 14th class and order 2d of Linnæus; *Pedalineæ* of Jussieu; two to four species, a native of the East Indies, etc. These plants were introduced into Jamaica by the Jews, and are now cultivated in most parts of that island. They are called Vanglo or Oil Plant, and the seeds are used in broths by many of the Europeans, but the Jews make them into cakes. Many of the oriental nations look upon the seed as a hearty and wholesome food, and press an oil from them similar to the oil of Almonds. It has also been manufactured into a salad oil.

S. Indicum is closely related to *Martynia* of the gardens. The seeds are small and yellowish, and contain a great deal of oil. Mr. Gordon, of Staten Island, has tried it; it grows about two feet high, but in tropical climates it grows to five or six feet; the oil is of excellent quality, and is used for the same purpose, as Olive oil.

SUBSCRIBER.

THE HEALTHFULNESS OF LEMONS.—When people feel the need of an acid, if they would let vinegar alone, and use Lemons or Apples, they would feel as well satisfied, and receive no injury. A suggestion may not come amiss as to a

good plan, when Lemons are cheap in the market, to make good Lemon syrup.

Press your hand on the Lemon and roll it back and forth briskly on the table to make it squeeze more easily; then press the juice into a bowl or tumbler—never into a tin; strain out all the seeds, as they give a bad taste. Remove all the pulp from the peels, and boil in water—a pint for a dozen pulps, to extract the acid. A few minutes boiling is enough; then strain the water with the juice of the Lemons; put a pound of white sugar to a pint of the juice; boil ten minutes, bottle it, and your lemonade is ready. Put a tablespoonful or two of this Lemon syrup in a glass of water, and have a cooling, healthful drink.—*Farmers' Union*.

CURIOSITIES OF THE SEA BOTTOM.

Forest and Stream has a communication from Commodore Beardslee, commanding the steamer *Blue Light*, assisted by Professor Verrill, of Yale College, from which we copy the following passages:

Cape Cod is a dividing line upon our coast. South of it one class of creatures are found in profusion, but the quohog clam (the *Calista convexa*), certain star-fishes and worms, and the oyster, have not existed, or, having existed, have become extinct north of this line, except in a very few localities. A live *Calista convexa* (a species of clam), brought up in Casco Bay, upset at once the opinion held till then that it was extinct so far north. Quohog shells in plenty we find in the ancient Indian shell mounds, which dot every slope of the island, showing that once they existed in plenty. Now but one little bay—a mere cove at the head of Casco Bay—furnishes this creature, which,

south of Cape Cod, is but the common plentiful clam. Oyster shells, of a size to which a Saddle Rock is but a pigmy, lie thickly planted six feet below the present bottom of Portland harbor. They too, however, are extinct.

In that great convulsion of nature that was so sweeping in its effects not a living oyster was left to fulfill a mission. It seems a sad mistake up here, where oysters could be eaten every day in the year, and the nightly blanket renders superfluous the mosquito bar. But the ocean is still well filled, and with fruits and flowers, with vegetables and plants, masons and well-diggers, robbers and cannibals, and each bearing in a greater or less degree a resemblance either in appearance or habits, to the creature or object above water that it is named for. Away down in the dark depths, animal life utilizes every inch of ground, and no square foot above the surface can equal in number or variety of forms the same space at the bottom of the sea. Strange, odd, horrible creatures, with none or many eyes, with speckled bodies, and long, slimy, clinging arms, changing at once their form and size at will, and, like the genii of the Arabian Tales, from a mere starting-point extend themselves almost indefinitely in size. Beautiful creatures, too, as the anemones and dahlias, at first frightened and jarred as we see them in the dredge, mere masses of pink or purple flesh, covered with a tough skin; left to themselves in a cool, dark place, they protrude, from an opening in their bodies, clusters of gay-colored and gracefully-moving antennæ, which in some branch like coral, in others bear close resemblance to the stamens and petals of flowers. Down here the animal kingdom takes from the floral tribe the duty of embellishing. Living, breathing, food-devouring flowers, and the

kitchen garden, too, and orchard, are not unrepresented. Sea cucumbers, (*Penlacta frondosa*), sea peaches (*Cynthia pyriformis*), sea pears (*Boltenia clavata*), and apples are found in plenty, the former so close a simile of the fruit, both in color and form, that it could be mistaken the one for the other.

The flowers, beautiful as they are, are but brigands; those graceful petals wave but to entice and grasp a victim, which, when seized, is pressed close to its mouth, and then, even if larger than its captor, is swallowed whole.

The process of swallowing whole a morsel larger than the swallower is rather an unusual proceeding among animals, and of course an unusual method has to be adopted. The anemone does it in this way: holding tightly its prey, it gradually protrudes its stomach from its mouth, and turning it inside out, envelopes its dinner, and then lies quietly awaiting the death and digestion. It rejects such portions as are not suitable, and stows away its stomach for future use. What a blessing some men would esteem this faculty to be!

The sea cucumber is another curious creature; first found it is a small, compact "gherkin;" left to itself, it will swell and develop to an immense cucumber, quite large enough to make a boat of, if the sea urchins had the same habits as did those urchins of whom I was once one.

NEW SHRUB.—One of the finest and most remarkable hardy shrubs recently introduced into England is *Elæagnus longipes*. It comes from Japan. It is of medium size; the flowers are produced in great profusion, and are succeeded by berries, orange in color, oblong in form, speckled with brownish scales.

Editorial Portfolio.

OUR CITY PARK.

ITS AVAILABILITY FOR PRACTICAL PURPOSES.

As California is destined in the near future to become a great agricultural State, and even now is assuming her place in the front rank of cereal-growing countries, it is of the utmost importance that we should lay a sure and solid foundation upon which to rear this agricultural superstructure, so that it may, when once established, remain forever. The question might be asked, as very likely it will, how is this to be done? I answer, by knowledge—knowledge born of science and experience, practical and theoretical; that which springs from the mental labor of the student, as well as from the manual toil of the husbandman. A short time ago, when "book farming," as it is termed, first sprung into existence, it was an object of ridicule with many, and no sarcasm was too bitter, or wit too sharp, to be launched at it. Time, that great equalizer of all things, has somewhat changed the relation between theoretical and practical farming.

Mr. Mecchi, a perfumer of London, has given to all England that admirable system of sewerage farming, which is increasing her agricultural products four-fold. In our country the writings of Bridgeman and Downing have brought orchard and market gardening to a high state of perfection. In Australia the researches of Dr. Muller have added largely to the agricultural wealth of that country. Agricultural and horticultural magazines and papers, all over the world, have done good work in the dissemination of knowledge in their respective departments; and the labor, though often unrequited, is now bearing golden fruit.

But, with all this, another power should be brought into the field, and co-operate with those already occupying it; and this is, the State and city governments. In many countries this is done; and our own General Government has for many years been doing good service in the publication of the monthly and yearly agricultural reports. Still, in addition to this, each State should do something for the unfolding of her special agricultural resources—something that could be received alike by all her people and made of actual use. Her natural products, such as timber, grasses, and various useful plants, more especially, should receive proper care and attention. Reckless waste and extravagant use should be controlled, and the people within her borders taught the necessity of moderation in use and the great value of replacement. Cities should use their public parks as botanical gardens, and thus show the natural productions of the whole State. By this means the newly arrived agriculturist, with but a slight knowledge of Botany, might gather information in respect to the climate and soil of the different parts of the State.

In this article, which is but the outline of what could be written on the subject, I desire to speak of *our* Park. San Francisco is now engaged in establishing a park which will be of great value to her as a pleasure and health-giving spot, and can also, if rightly managed, be made of still greater value, as an index to the Botany of the Pacific coast. It has often been said that Botany is a mere ornamental study, and one of no great practical value. This is far from true. Botany is really an index to the character of climate and soil, and, therefore, is of great importance to agriculturists. The intelligent farmer, with a slight knowledge of this

science, is enabled to judge of far-off countries and their adaptability for settlement.

In view of these facts, we should endeavor to so make known our resources and products, that all may see and understand their true value. In furtherance of this object a scientific man should be chosen as superintendent of the Park—one at the same time capable of imparting this knowledge to the people, who are more especially engaged in the kindred branches of Agriculture and Horticulture. Reports should be made from time to time by him of his observations in these branches. Under such management the Park would be no greater burden than at present, no pleasure would be lessened, while it would of necessity prove of great value to the State at large.

C. A. STIVERS, M. D.

The request of "A Subscriber" for a list of plants adapted to a northern shady situation, will be complied with in the February number.

WOODWARD'S GARDENS.—Notwithstanding the inclemency of the weather at the present season, these grounds and conservatories are in fine order, and the plants in a growing condition—demanding, however, a large amount of additional attention. Considerable additions have been made to the aviaries, many valuable birds having been recently purchased. In other departments the work of renovation and improvement is progressing vigorously. Preparations are being made for a series of novel and interesting balloon ascensions; and every exertion is being used by the proprietor to render the approaching season gratifying and satisfactory to the public.

NOTICES OF SOCIETIES.

FRUIT-GROWERS' SOCIETY OF PENNSYLVANIA.—This Society will hold its annual meeting this season at Mechanicsburg, Cumberland County, on the 21st, 22d, and 23d of June, 1874. The practical details of fruit culture are generally fully discussed, and the meetings usually very fully attended. Mechanicsburg is on the railroad leading from Harrisburg to Chambersburg, and very easy of access. In one of the most successful fruit regions of the State, there is no doubt much useful information will be elicited by the meeting.

FAVORS RECEIVED.

It gives us pleasure to acknowledge the receipt of the *Monthly Report of the Department of Agriculture* for November. It is replete with valuable statistics and general information.

The OVERLAND MONTHLY, for January, is decidedly the best number yet published of this really first-class magazine. "Abrasions of the Northwest Coast," "California Indians," "Summering in the Sierra," "New Zealand," "Seeking the Golden Fleece," are specially interesting.

No. 6 of the *Flower Garden* is at hand. This quarterly periodical combines the magazine with a copious catalogue and price-list. It is published by Beach, Son & Co., 76 Fulton Street, Brooklyn, N. Y. Terms, \$1 per year.

DURING a recent passage from Havre to San Francisco, it became needful to economize in the use of fresh water. Bread mixed with sea-water was found not only to be better, but also to keep longer. It was made use of for a long period without resulting in a single case of sickness aboard.

FLORAL REVIEW.

BY F. A. MILLER.

That our gardens have a much brighter appearance during the winter months than those of our Eastern friends, is well known to every one; nevertheless flowers are rather scarce with us at this time, and our florists can not readily satisfy the demand. I would suggest that our amateurs, therefore, pay more attention to winter flowering plants, for the very reason that flowers are much more appreciated when they are less plentiful. While some shrubs and plants flower much better with us during winter than summer—for instance, the Laurustinus, Polygala, Veronica, Stevia, Chrysanthemum, Violet, Pansy, Diosma, and Erica—others may be had in bloom at this time by proper treatment—such as Roses, Stocks, Gladiolus, Lilies, Pinks, etc. To accomplish this, let some Roses rest during the months of July and August by keeping them dry, and then irrigate freely in September and October, occasionally working up the ground around them. This treatment will force out young wood and buds, which will come to perfection during the winter months, as the frost in our milder regions is not heavy enough to injure them. This can not be done with all the varieties of Roses which we cultivate. The best for that purpose are most of the Tea Roses, the Bengal (or China) Roses, and some of the Bourbons; a few of the Perpetuals, such as General Jacqueminot and Géant de Batailles, may also be successfully treated in this way.

Gladiolus and Lily roots will produce their flowers in winter, if planted in September and October. Stocks will also do as well, if the seed is planted late; and Pinks are sure to bloom throughout the winter months, if the

soil around them is well manured and worked up in September. Add to those already named the Pelargoniums, Heliotropes, Fuchsias, Abutilons, *Sollya heterophylla*, Hydrangea, Ageratum, and others, which bloom as freely in winter as summer with us, and I see no reason why our gardens should not look cheerful and bright at this time.

During the holidays just past, 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 sea-

son. This is mostly due to the large expense incurred 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.

The weather for the past month has been very unfavorable for greenhouse plants, and little could be done in the open air on account of continual storm and rain, from the effects of which we suffer more in California than from severe cold. During such weather it is very important that plants in general be kept dry. This can not be well done unless the houses are artificially heated; and I believe we will have to come to this, if we wish to succeed in the cultivation of certain choice and more delicate house-plants. A very small heating apparatus will be sufficient to keep up the proper temperature in this climate, and to relieve us of the loss caused by "damping off" on account of superfluous moisture. Several parties here are now making preparations for heating apparatus, which experiments, I hope, will lead to some successful mode of heating houses.

There is yet time to plant the Hyacinth and Narcissus. For winter flowering they are indispensable. Bulbs and flowering roots have been imported plentifully this season, and many varieties are in the market, which heretofore have been very scarce, or could not be obtained.

In the open ground, Snowdrops, Crocuses, Ranunculus, Tulips, Anemones, Dielytrias, and Pæonies should be planted at once.

The planting of trees, shrubs, and hardy herbaceous plants should not be delayed. An occasional rain during the winter season will help them very much, and will double their growth next spring and summer.

REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPER.

I have hitherto written of the various fruits, their conditions, and merits—except the different nuts, as found in our markets. I shall now say a few words concerning the latter productions. It is not usual for us to see all the varieties of nuts displayed in our market stalls, yet in plentiful seasons they can be purchased at some of them. The choicest nuts are usually sold in our fine groceries, fruit-stores, and at our confectioneries.

And first, with regard to Almonds. The part eaten is the kernel of the dry pit or shell of the Sweet Almond, some of which have shells so soft that they are easily crushed by the fingers. These are known as the Sultana, but more usually called Soft or Upper-shell, and Ladies' Thin-shell; the thick-shell are known as the Jordan or Hard-shell. They are now being much cultivated all over our State, especially in the southern parts of it, and with much success. Large supplies are also brought here from the south of Europe. The fresh or new nuts usually arrive in our winter months, when they are found very tender and sweet, with much of the "nutty flavor;" while the old nuts are hard, dry, and with but little of this excellent flavor.

Those excellent nuts, the Black Walnuts, when ripe, with the husk off, are round and very rough, and black on the

exterior. They are not plentiful here, but may be had during January and February, and will keep for many months. The ripe kernel is very large, sweet and wholesome, particularly when eaten with a little salt. The immature fruit, while in the green, tender, outside shell, and before the internal shell has become hard, (which it usually does in the months of June and July, according to location), makes the Walnut cat-sup, or is used for pickling.

Brazil-nuts are natives of South America, and are of a dark-brown color, being rough-shelled and three-cornered, with a large white kernel, having the flavor of the Hazel-nut, and are very oily. The season for the new nuts is from April to June.

Butternuts, White Walnuts, or Oil-nuts, are a species of the Walnut, resembling, when young, the Black Walnut, but elongated and smaller. When ripe they are of an oval, oblong form, not quite so large nor so rough as the Black Walnut, and are of a different flavor, with an agreeable taste, and rich in oil. When green and soft, they are excellent for pickling. They ripen in the month of August. In the Eastern States these nuts are known as Oil-nuts, and in southern Ohio and other sections, as the White Walnut.

The Cashew-nuts are natives of the Indies, but are sometimes brought here. The nut or fruit is in size like an apple, some being of a white, red, or yellow color; and like the Cherry, they taste sweet and pleasant, but sometimes are sharp and astringent. The kidney-shaped seed grows on its summit, and when roasted, is superior to the Almond.

Of Chestnuts there are but two kinds represented here—the common American Chestnut and the large Spanish Chestnut. Great quantities of the latter are sold roasted, in a hot state, along

some of our public streets. The common Chestnut, however, is the best flavored, especially when fresh, and is excellent, either raw, roasted, or boiled. Their season commences in the beginning of September and continues good throughout the winter.

The Chincapin-nut, or Dwarf Chestnut, is a small variety of the Chestnut, growing on smaller trees, and is considered about the same quality. It is seldom seen here, but is quite plentiful in the markets of Baltimore and Philadelphia, and is known by some as the Dwarf Chestnut.

The Cocconut is the best flavored of all the foreign kinds. They come from the islands of the Pacific, and from Baracoa, Brazil, and other places. The white kernel, although hard, woody, and tough, in its fresh state, is said to be very nutritious; and though in its unprepared state not very digestible, yet, when grated, it makes excellent puddings, pies, cakes, and is used in candies, etc. It contains a white liquid called milk, which is sweet and nourishing. The nuts should never be purchased except when this milk is heard to shake within them. The Cocoa-nut tree furnishes food, raiment, milk, oil, toddy, cups, bowls, cordage, brushes, mats—in fact, it is difficult to say what it does not furnish to the Indian.

“The Indian nut alone

Is clothing, meat, and trencher, drink and pan,
Boat, cable, sail, and needle—all in one.”

Filberts are said to be an improved variety of the common Hazel-nut, but a great deal larger. The best kind is called the Red Filbert, known by its crimson skin; and also another, called the large Spanish Filbert. They are found in the East throughout the year, but the new nuts are received from October to January.

The Ground-nuts, Chufas, or Earth-

Almonds, are small oval tubers. Having the name of nut applied to them is the reason why they are placed under this head. They are hardly ever seen in our market, no doubt in consequence of their smallness, although they are considered esculent, nutritious, and worthy of culture, which improves them in size. They are ready for use at the end of the summer months. When roasted, their taste is much like boiled Chestnuts; they are white, mealy, and well flavored, and when dried, their taste is somewhat similar to the Almond. In some parts of Europe they are used for making an *orgeat*, which, with water, makes a milky drink, much used in Spain and other hot climates where they are known.

Hazel-nuts, or Wild Filberts, are much of the shape, form, and color of the Filbert, but are smaller, thicker shelled, and better flavored. They grow on bushes alongside the borders of the woods and the fences, in clusters of frizzled husks; and when they begin to open, or show the end of the nut, they are fit to eat. They usually appear in July or August.

Of Hickory-nuts there are several varieties, which are often found mixed together, and it requires some knowledge of them to select the best. The choice nuts are generally known under the name of Shell-barks, or Shag-barks. These grow on the shaggy-bodied trees, having a thin shell, a very well-tasted full kernel, of a good size, and they ripen in September and October. Mocker-nuts, or Thick-shelled Hickories, are usually a larger and rounder nut, but with a very thick shell, while the kernel is small but sweet. There is also a smaller thick-shelled nut which some call the White-heart Hickory, but probably it is the same grown in a poorer soil.

Pig-nut Hickories, which are smaller,

fig-shaped nuts, have a kernel with a bitterish taste, though sometimes they are found pretty sweet. This tree produces the toughest wood of all the kinds.

For the want of space we must defer our descriptions of the remainder of the nut family to our next report.

A small lot of fine Oranges received during the last of December from Putah Creek, Solano County, found quick sales at \$1.50 per dozen. It is a singular fact that, although some hundreds of miles farther north, Solano comes into market with some fruits a month ahead of Los Angeles. A new variety of fruit, not heretofore cultivated in this county, has thus come to market—a consignment of 350 Oranges from the ranch of J. R. Wolfskill. They were exceedingly fine specimens, large and fully ripened. They obtained nearly double the price of those which first arrived from Los Angeles. Thus Solano fruit-growers may be encouraged and induced thereby to plant Orange groves.

On the 26th of December new Potatoes were quoted at 6c. per pound; Cabbage-sprouts retailed at 12½c. per pound; Savoy Cabbage, 10@15c. each; Artichokes, \$1 per dozen; Jerusalem Artichokes, 8c. per pound; Horse-radish, 25c. per pound; Parsley and Watercress, 20c. per dozen bunches. The various kinds of Lettuce ranged from 25 to 37½c. per dozen bunches; Kale, 50c. per dozen; Tomatoes, nearly given out. Ripe Tomatoes were not to be had at any price, and the green vegetable was quoted at 8c. per pound; extra fine quality of the same description, 25c.; cultivated Mushrooms from the gardens of Stockton, 25c. per pound.

The wholesale market price of Pine-apples during the last week of December was exceedingly high, but there was no corresponding response in the

price of the same descriptions of fruit by retailers, choice lots being offered at \$1 each. Lady Apples, imported from Oregon for the holidays, brought 15 cts. per pound. Other kinds of Apples ranged from 5 to 8 cts. per pound. Oranges, on the 26th of December, became more abundant at the prices of the week before. Lemons were a trifle easier, inferior being obtainable at 75 cts. and choice at \$1.25 per dozen. As usual during the holiday season, there was a very poor display of fruits, varieties being few and the quality inferior, though better and more various than could be found in the East at the same season. With the exception of those already mentioned, there was no change in supply or prices of other descriptions, compared with our last report in the December number of the HORTICULTURIST.

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BEST TIME TO CUT TIMBER.—Dr. Hartig, who has made numerous experiments to determine the point, states that March and April are the best months in which to cut timber for building purposes, as it then contains its lowest per cent. of moisture, which he states to be forty-seven per cent. During the three previous months it has fifty-one per cent., and the three following ones, forty-eight. He further states that properly seasoned timber should not contain more than from twenty to twenty-five per cent. of moisture, and never less than ten per cent. If the moisture is removed to a still greater extent, the wood loses strength and becomes brittle. An English authority states that if trees are felled as soon as they are in full leaf, and allowed to remain undisturbed until the leaves dry up and fall off, the timber will be found well seasoned, the leaves having exhausted all the moisture.

NEW AND RARE PLANTS.

E. Verdier, the celebrated Rose-grower of Paris, sends to *The Gardener's Monthly* the following list and descriptions of the best new Roses of the past year:

HYBRID PERPETUALS, (*Hybrid remontants.*)

Antoine Castel.—Tree vigorous with strong erect shoots of a reddish tint, numerous dark spines, foliage with three to five leaflets round and leathery, very little serrated, and a pale green color. Flowers of medium size, very double; color bright rose or light cerise, shaded with a dark hue, and white stripes. Similar in growth as Prince Kotehoubey.

Ernest Herger.—Tree very vigorous with reddish shoots and numerous short straight pink spines. Leaves with five dark-green leaflets with purple points. Flowers large, full, of a deep bright purple.

Francis Courtin.—Tree very vigorous with strong erect dark-green shoots and numerous straight reddish spines; leaves with five leaflets, very large, of dark-green color, and but little serrated. Flowers large, full, fine cup-shape, frequently three top together, rarely solitary; outer petals large, reflexed and imbricated, color purplish cerise, outside rose with white stripes; very fragrant; a free and abundant bloomer and of the highest merit.

John Harrison.—Tree vigorous with erect reddish shoots, long and pointed spines; leaves with five leaflets deeply serrated. Flowers very large, full, of fine cup-shape; color dark brilliant crimson strongly shaded with a velvety blackish hue; very effective variety.

Madame Laison Lierval.—Tree vigorous with very strong light-green shoots; very few elongated slightly reflexed brownish spines. Leaves light-green,

with five to seven leaflets deeply serrated. Flowers very large, very full and of fine form; color fine carmine with brilliant centre; calyx surrounded with very long sepals. A very free and continuous bloomer; seedling of Victor Verdier:

Miller Hayes.—Tree vigorous with erect reddish shoots and a few short brownish spines; leaves with three to five light-green leaflets and red leaf-stalks; flowers large, full, and of fine cup-shape, generally solitary, sometimes two or three together; thick petals, color crimson with bright centre and shaded dazzling velvety red. First-rate variety; seedling of Chas. Lefevre.

Pauline Talabot.—Tree vigorous with erect light-green shoots, and very rare short, straight reddish spines; large light-green leaves with three to five leaflets deeply serrated; flowers large, full, and of fine form; color dark dazzling rose or reddish carmine. A very free bloomer, and altogether of great merit.

President Hardy.—Tree vigorous with erect reddish shoots and irregular rosy spines; leaves light green with three to five leaflets deeply serrated; flowers large, full, and of fine globular form, and from four to eight together; color purplish carmine.

Theodore Bucheter.—Tree vigorous with erect reddish shoots, numerous brown irregular spines; leaves with five leaflets, deeply serrated, dark green; flowers large, full, and of fine form, purplish velvety violet with fiery centre.

Thomas Mills.—Tree very vigorous, erect, somewhat reflexed light-green shoots, irregular short nearly straight rosy spines. Leaves with five leaflets, large, acuminate, of a dark green, and finely serrated. Flowers extra-large, full, and of fine cup-shape; color

dazzling bright rosy carmine with whitish stripes; very free bloomer, and altogether of the greatest merit.

DOUBLE CINERARIAS.—Among the most striking novelties of the past year are Double Cinerarias. These have occasionally appeared in the hands of English florists; but they have never succeeded in fixing them so as to produce a distinct race. The more patient Germans have, however, done the thing at last, and Haoge & Schmidt, the seedsmen of Erfurt, Prussia, announce that they will distribute the seeds this season. They are represented to be as double as the common Pomponé Chrysanthemums, and to embrace most of the colors already known in single ones. We can imagine nothing more beautiful than such a set of improved Cinerarias will be, and we can not but regard the introduction of such novelties as these, after so many years of persevering attempts, as among the grandest floral triumphs of the age.—*Gardener's Monthly.*

LIGHT seems to have no effect on the respiration of *Elodea canadensis*, the absorption being the same in the light as in the dark, but it differs from yeast in that during the diurnal respiration it gives off free oxygen. If a large quantity of the plant be immersed in a tolerably small quantity of water, and submitted to direct sunlight for an hour or two, numerous bubbles of gas will be liberated, and a supersaturated liquid will be obtained which may contain as much as twenty cubic centimeters (7.88 English inches nearly) of oxygen per litre, (1.76 English pints). The manner of absorption is the same for both plants, but in case of the *Elodea* the absorption is about ten times less.

Editorial Gleanings.

HOW ARIZONA LOST HER FORESTS.—A legend of the Utes, for which I am indebted to the perusal of Major Powell's MS. notes, explains the cause of the absence of woods in northern Arizona. It is not long, and there is something so inexpressibly novel in its movement, as well as in the fact of our drawing a new mythology and fresh imagery from the very heart of the continent, that I give it as it is remembered. It is called "The origin of fire," and tells how once upon a time a bright spark fell from the point of a reed, upon the ground, and the nightingale picked it up in its beak and found it was fire. And the mighty chief of the Utes asked what it was, and the nightingale said it was fire. And the chief asked if there were any more in the world, and the nightingale said, that far off in the south was a people dancing ever about a great fire, with songs and shouts. So the mighty chief of the Utes made ready, and put on a fine cap, with long eagle feathers upon it, and started for the people of the South. And, as he went, he stationed nimble runners of his tribe all the way from the land of the Utes to the Fire People, at intervals of a mile. And, journeying, he came, after many days, to the Fire People, dancing with songs and shouts about a great fire. And he mingled with them, but they saw he was a stranger, and looked askant at him. But he danced and sung and shouted with them, and suddenly stooping, thrust the end of his eagle plumes in the fire, and they blazed up mightily. And the Fire People would have caught him, but he leaped over their heads and ran to the first man of his tribe, and falling exhausted, handed him the blazing torch of plumes and told him to run. And he ran and fell

exhausted by the second man, handing him the plumes. And so they ran, each man catching the fire plumes from the hand of the runner, until the last man brought it to the land of the Utes. And they were so rejoiced, they put the torch to the roots of a mighty tree on the edge of the forest, and shouted as it burned. But a great wind sprung up and carried the fire into the forest, and it spread in every direction, and all the woods were destroyed. And the people of the Utes prayed long and loud to the god Tawotz, and at length he sent a mighty rain, which quenched the fire. But a turtle sat upon a spark of fire and kept it alive during the rain. And this was the origin of fire.

Old and New, for December.

THE DAHLIA.

A correspondent of the *Garden* explains the true origin of the Dahlia, first mentioned by Hernandez, in his *History of Mexico*, in 1651. But the first scientific description of the plant was given by the Abbé Cavanilles, from a specimen which flowered in Madrid, in 1790; and the Abbé named the plant after his friend, Andrew Dahl, the Swedish botanist. The Dahlia was sent to the Royal Gardens in Madrid, from the Royal Gardens in Mexico. It first flowered in Madrid in 1789, and was introduced by the Marchioness of Bute into England, in the same year.

But that plant soon perished; and the Dahlia did not reappear until 1803, when the old single variety, *Coccinea*, was flowered by Frazer, at Chelsea. Meanwhile, Cavanilles had sent the three varieties known in Madrid, to Paris, in 1802, and between that time and 1814, many varieties were raised. Humboldt sent home seed from Mexico, in 1804; and from this source the

numerous varieties since obtained have been principally derived.

A PRETTY WINDOW PLANT.—One of the best window plants, capable, as it appears, of resisting almost any hardships to which plants in such circumstances are subjected, is the *Aspidistra lurida*. This plant, and its variegated variety, is grown largely in France and Belgium, in windows, corridors, etc., and might with advantage be employed here for like purposes.—*Gardener's Chronicle*.

FANCY PRICES FOR PLANTS.—At a recent sale of rare plants by Messrs. Backhouse, of York, England, the *Country Gentleman* says: "A mass of the *Oncidium tigrinum*, consisting of about thirty bulbs, sold for \$150. Smaller plants or masses brought \$15 to \$60. A strong plant of *Oncidium macranthum* was sold for \$45, and other plants, all of the same species, from \$17 to \$37.

PROFITS OF GARDENING.—The results of gardening in the "Garden of Retreat for the Insane," at Utica, New York, were published by Dr. Brigham. The land was good and yearly manured, and the product was as follows on one and a fourth acres of land: 1,100 heads of Lettuce, (large), 1,400 heads of Cabbage, 700 bunches Radish, 250 bunches Asparagus, 300 bunches Rhubarb, 14 bushels of Peas in the pod, 40 bushels of Beans, 419 dozen Sweet Corn (three plantings), 715 dozen Summer Squash, 45 dozen Squash Peppers, 756 dozen Cucumbers, 7 barrels Cucumber Pickles, 147 bushels Beets, 29 bushels Carrots, 26 bushels Parsnips, 120 bushels Onions, 180 bushels Turnips, 35 bushels Early Potatoes, 40 bushels Tomatoes; Winter Squash, — wagon loads; 500 heads Celery—all worth \$621 in Utica

market, but supplied 130 persons in the Institution with what they could consume, and only one man to do all the labor.—*Gardening for the South.*

EXCELLENT GLUE.—According to the statement of a foreign chemist, an excellent paste may be prepared as follows: Four parts, by weight, of glue are soaked for several hours in fifteen parts of water, and then slowly warmed until a perfectly clear solution is formed. This solution is then diluted with sixty-five parts of boiling water, and thoroughly stirred. In the meantime thirty parts of starch are stirred into 200 parts of cold water, so as to form a thin milky liquid, free from lumps. Into this is poured the solution of glue, stirring continually and heating. When cold, ten drops of carbolic acid are added. The paste made in this way is said to possess extraordinary adhesive power, joining leather, paper, pasteboard, etc. By keeping it in closed vessels, so that the water can not evaporate, it may be preserved for years. Where no great strength is desired, ordinary flour or starch paste is used, a little carbolic acid being added to prevent souring.

SIMPLE ORNAMENTS.—A pretty mantel ornament may be obtained by suspending an acorn by a piece of thread tied around it, within half an inch of the surface of some water contained in a vase, tumbler, or saucer, and allowing it to remain undisturbed for several weeks. It will soon burst open, and small roots will seek the water; a straight and tapering stem, with beautiful glossy green leaves, will shoot upward, and present a very pleasing appearance. Chestnut trees may be grown in the same manner, but their leaves are not so beauti-

ful as those of the oak. The water should be changed once a month, taking care to supply water of the same warmth; bits of charcoal added to it will prevent the water from souring. If the leaves turn yellow, add one drop of ammonia into the utensil which holds the water, and they will renew their luxuriance.

Another pretty ornament is made by wetting a sponge and sprinkling it with canary, hemp, and grass seeds. The sponge should be refreshed with water daily, so as to be kept moist. In a few days the seeds germinate, and the sponge will soon be covered with a mass of green foliage.—*Scientific American.*

GUANO-WATER FOR PLANTS.—The *Farmer and Gardener*, in reply to a correspondent, says: "All guanos are not alike in soluble proportions; hence a pound of phospho-guano will go as far as two pounds of many other brands. We use about one gallon of the former to a barrel of water. Let it remain three or four days, stirring the mixture daily. When using we add an equal quantity of water, thus taking one gallon of phospho-guano to two barrels of water. Guano-water must only be applied to plants when in full growth, and not when they are at rest, as is the case during our warmest portion of the summer."

THE IRIS.—It is the fate of many good plants to get set aside for novelties not near so good. The Iris has been one of these unfortunates. The varieties are very numerous, and there is no flower capable of giving more interest than a collection of these. They flower as the Hyacinth goes out, and are excellent plants to go together with them.—*Gardener's Monthly.*

ASTERS AS DECORATIVE PLANTS.—The *Florist and Pomologist* says that the perennial Asters, sometimes termed *Autumn Daisies*, furnish some most valuable decorative plants for the open ground during autumn. *Aster amellus* is one of the best of them, bearing plenty of flowering stems numerous branched at the top, the flowers violet-blue; neat clumps of this dotted about shrubby borders, or at the back of mixed beds, form most welcome masses of a very acceptable hue of color in our gardens, right up to November. A violet-colored variety of *A. amellus*, named *bessarabicus*, is a good decorative plant also.

CUTTING BLOSSOMS.—Lovers of flowers must remember that one blossom allowed to mature or "go to seed" injures the plant more than a dozen new buds. Cut your flowers then, all of them, before they begin to fade. Adorn your rooms with them; put them on your tables; send bouquets to your friends who have no flowers; or exchange favors with those who have. You will surely find that the more you cut off the more you will have. All Roses after they have ceased to bloom should be cut back, that the strength of the root may go to forming new roots for next year. On bushes not a seed should be allowed to mature.

POWER OF INSECTS.—Most of our readers have no doubt noticed the extraordinary power of insects, but Abbe Plessis seems to have been the first to measure and record this power. He attached a light box to a large horned beetle, and gradually loaded it with a weight of two and one-half pounds, and yet the insect moved it steadily over a smooth board. On comparing the load with the power, he found the former to

be 315 times the latter. At the same rate a common farm-horse should draw one hundred and eighty-one tons.—*Journal of the Farm*.

A PRETTY FLORAL CONTRAST.—A correspondent of *The Gardener's Chronicle* describes a pretty scene of climbing vines in a conservatory: "One of the prettiest floral sights that I have seen for a long time, is the result of allowing *Tacsonia Van-Volxemi*, *Clematis Jackmanni*, and *Mandevillea suaveolens* to grow together at their own sweet will. They were all in full bloom, and the plants having grown up the different rafters of a conservatory and met at the top of the house, the result was certainly a very striking contrast."

WOOD OF THE OSAGE ORANGE.—A correspondent, who has been experimenting with the wood of the Osage Orange, informs us that it takes a fine polish, and is very durable. The wood grown in Texas is found to be durable in all situations, and none more so than in fence posts. It is largely used for wagon wheels, and the wheels made of it are said never to require a second hooping. In Pennsylvania it is of slow growth, but farther south it finds a congenial climate and grows rapidly. If seed is to be sowed, the trees should be planted in clumps, in order that fertilization may be perfect.—*Journal of the Farm*.

SAVING FUCHSIA SEED.—Mr. Cannell, the great Fuchsia-grower, says: "When the seed-pods are thoroughly ripened, partly dry them in the sun, after which cut them in halves and quarters with a moderately sharp knife, and minutely examine each part; the old self-colored

varieties produce seed very freely, but the choice kinds very sparingly, particularly the light varieties. An abundance of hollow seed will be found, but good plump seed is about half the size of that of the pansy, and easily distinguished and picked out."

ORNAMENTAL HEDGES.—Edwin Marsh, nearly a mile west of Agawam Centre, has a very handsome hedge of White Pine. This tree was placed by Downing at the head of beautiful evergreens. Planted near it is a well-trimmed Hemlock hedge, and on the grounds of Mr. Goddard, opposite, a very beautiful hedge of the American Arborvitæ. On account of its brighter, 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 England Homestead.*

HIDE-BOUND TREES.—Trees that have long stems exposed to hot suns or drying wind, become what gardeners call "hide-bound." That is, the old bark becomes indurated—can not expand—and the tree suffers much in consequence. Such an evil is usually indicated by gray lichens, which feed on the decaying bark. In these cases a washing of weak lye or of lime-water is very useful; indeed, where the bark is healthy, it is beneficial thus to wash the trees, as many eggs of insects are thereby destroyed.

MOTH PREVENTIVE.—The following recipe for keeping moths out of clothing is a favorite in some families: Mix half a pint of alcohol, the same quantity of spirits of turpentine, and two ounces of camphor. Keep in a stone bottle, and shake before using. The clothes or furs should be wrapped in

linen, and crumpled pieces of blotting paper, dipped in the liquid, should be placed in the box with them, so that it smells strong. This requires renewing about once a year.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING DEC. 31ST, 1873.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office).

BAROMETER.

Mean height at 9 A. M.....	30.10 in.
do 12 M.....	30.10
do 3 P. M.....	30.09
do 6 P. M.....	30.08
Greatest height, on the 17th and 25th at 9 A. M....	30.32
Least height, on the 4th at 6 P. M.....	29.67

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.....	47°
do 12 M.....	51°
do 3 P. M.....	50°
do 6 P. M.....	48°
Greatest height, on the 5th at 12 M. and 31st, 3 P. M.	58°
Least height, on the 3rd at 9 A. M.....	37°

SELF-REGISTERING THERMOMETER.

Mean height during the night.....	43°
Greatest height, on nights of 30th and 31st.....	50°
Least height, on night of 12th.....	35°

WINDS.

North and north-east on 5 days; south and south-east on 14 days; south-west on 6 days; east on 4 days; west on 2 days.

WEATHER.

Clear on 3 days; variable on 7 days; cloudy on 21 days; rain on 20 days.

RAIN GAUGE.

December 1st.....	0.04 inches.
.. 3d.....	1.89 "
.. 4th.....	1.11 "
.. 5th.....	0.27 "
.. 6th.....	0.36 "
.. 7th.....	0.39 "
.. 8th.....	0.30 "
.. 9th.....	0.97 "
.. 10th.....	0.01 "
.. 13th.....	0.28 "
.. 14th.....	0.22 "
.. 15th.....	0.08 "
.. 16th.....	0.44 "
.. 18th.....	0.02 "
.. 19th.....	0.41 "
.. 21st.....	0.32 "
.. 28th.....	0.01 "
.. 27th.....	0.42 "
.. 29th.....	0.98 "
.. 30th.....	1.60 "
Total.....	10.12 "
Total rain of the season up to date.....	12.29 "

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THE

California Horticulturist

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VOL. IV.

FEBRUARY, 1874.

No. 2.

CINERARIA.

BY F. A. MILLER.

But few flowering plants are more useful and give better satisfaction, than the Cineraria. One of its excellent qualities is, that it may be had in bloom at all times, in and out of doors, if properly managed. Another meritorious point is, that it furnishes a profusion of flowers of all shades of color, except yellow.

Cinerarias are raised from the seed, which grows readily, if planted in a pot or box filled with light and porous soil. The seed should be covered very lightly, and the pot or box placed in a warm, sunny place. During cold nights it is well to protect the young plants by covering them with a pane of glass. The plants begin to flower in about seven or eight months from the time the seed is sown; and by paying a little more attention to this fact, we may have them in bloom whenever the flowers are most desirable. If the seed is planted every three or four months, we can have them in bloom throughout the year. This applies to their cultivation in pots in the house. If treated as house-plants, they should be thrown out after they

have done flowering, and young plants should take their place. It is true that by shaking the soil from the old plants, and dividing and replanting them in new soil and smaller pots, good flowering plants can be obtained; but this process is much more laborious and less satisfactory than the raising of new plants from the seed, except when it is desirable to cultivate a certain variety in particular. The soil for these plants should be rich, light, and porous, and be one-third well decomposed manure, one-third sand, and one-third loam, to which may be added a little bone-dust and charcoal, which is all that is needed.

Cinerarias are also very useful as garden plants, where they assume the character of perennials in this mild climate. I have seen them in bloom constantly, through summer and winter, for three or four years, and showing no lack of luxuriant growth. There is no other garden plant of which we can say so much, except, perhaps, the monthly blooming Pinks. At our garden we plant out all the old plants, which have done flowering and could not be disposed of, in the borders, and treat them the same as other hardy herbaceous plants, and they give us a large amount

of flowers throughout the year. This facility of growth and blooming should make the Cineraria one of the most popular plants on this coast.

If cultivated in the house, Cinerarias are very much subject to "damping off," and to the ravages of the "green fly." This can be prevented by giving plenty of fresh air, and by frequent fumigation with tobacco smoke. Watering overhead also has a very bad effect, and is apt to produce rot in the leaves and stems.

The extremely bright and pleasing colors of the Cineraria make it a most desirable flowering plant for the house as well as for the garden, and a fair trial is sure to bear me out in all that I have said in its favor.

In Germany, a great novelty has been produced in the way of a "double Cineraria." I have not yet seen the flower. In fact, the seed of this new acquisition has only recently been offered for sale for the first time. If this new variety proves to be what its originators claim for it, it is certainly a most valuable addition to flowering plants.

CAUSES OF THE ROTTING OF FRUIT.—According to Decaisne, the rotting of fruit is produced by two microscopic fungi, which develop in moist, confined air; namely, *Mucor mucedo* and *Penicillium glaucum*, infinitely minute germs of which are continually floating in the atmosphere, and which attack more especially any injured or abraded portion of the surface. If now, the fruit be wrapped up in cotton, or with soft tissue paper, or, still better, with waxed paper or tin foil, the introduction of these germs will be prevented, and the fruit can be kept for a long time without any appreciable change.

RHODODENDRONS.

HARDY VARIETIES. RHODODENDRON CATAWBIENSIS.

Among the evergreen plants used for garden, lawn and other decorative situations, where one, six, or a larger number are to be used, commend us to the grand old Rhododendron. The king of the city garden, the pride of the village green, the pet flower of every ten by twelve grass plat, and, grandest of all, the flowering climax of every well-stocked, elegantly decorated park.

This magnificent flower is so well known, or should be to all lovers of beautiful plants, that a familiar description of the same would scarcely seem necessary. Yet such is not the case. There are many persons, ladies and gentlemen, too, of good taste, who delight in a well-stocked garden, who have never seen a Rhododendron in full bloom. Said a lady to me one day, "I saw a very beautiful flower in full bloom in front of a gentleman's house in New Jersey the other afternoon. I wish I knew what it was. It had bright glossy leaves, grew about three feet high, and had about ten short limbs, all covered with an orange shaped leaf, that looked like a leaf made from wax. From the middle of the bunches of green leaves there sprung a large pink colored flower as large as my hand, and O! so beautiful. I do much wish I knew its name. I want to purchase one, as I never saw a more beautiful plant."

This very natural exclamation of the lady would probably find a response in very many hearts when looking upon this plant for the first time. This would be the case with any one who could spend an hour in the garden of Messrs. Hovey, near Boston. There your eyes would be delighted with specimens of this beautiful flower twelve feet in

height, and in its season of blossom all covered with flowers.

We have been told that familiarity breeds contempt. Not so with the Rhododendron. Beautiful! indeed, the more we become acquainted with the rare qualities of this valued plant of the garden the more we love its bright shining leaves, its rich and enduring flowers, and well may the term of a "thing of beauty" be applied to it. Magnificent is a well-fitting title for the *Rhododendron Catawbiensis*. While there are many varieties of this flowering shrub which, with care, can be cultivated to perfection upon the lawn and beneath the shelter of the deepening woody borders of our gardens, we can recommend for hardy culture the *Catawbiensis* as perfectly reliable. Plant this kind and you will have a reliable plant. And a "sure thing" in the garden is a matter of much consideration to all our lady friends who love these beautiful flowers. This article upon the Rhododendron was written at the express solicitation of two of our lady friends, who know something about garden flowers.

The *R. Ponticum*, and many of the hardy varieties—hybrids—will grow well beneath the shady sides of woods, but we feel that all who do not tolerably understand their cultivation had better confine themselves to the culture of one or two of the perfectly hardy species. There are thirty varieties of the *Catawbiensis*—all hardy; from these they can choose their plants and go to work on a half-dozen or a dozen with a good degree of confidence in ultimate success.

Like the Azaleas, the Rhododendron does pretty well in ordinary garden soil, but is greatly improved in size and beauty of color by a skillful adaptation as near as possible to its natural soil and situations. Make them as much at

home in their new home, by a judicious combination of soils, as they were before they were lifted, and your work is done.

There is not a more superb plant than the Rhododendron cultivated, and our earnest plea is for our pet plant. It can be planted in pots if you desire it, and you can keep it in the greenhouse in the winter and bring it out in the spring to beautify the plat or garden. Amateurs and others desirous of trying their hand with three or five of these plants, can obtain perfectly hardy varieties from any of our seedsmen.

If we could have but one "garden pet," our choice would be the Rhododendron. It is hardy, vigorous of constitution, not liable to insect attacks, possesses beauty and symmetry of growth, and when in flower it pays you a hundred times over for the care you bestow upon it. We have often felt surprise at the lack of appreciation this flower seemed to command, and were thus led seriously to consider why it was thus sparsely cultivated. Perhaps a prominent reason may be found in the fact that considerable care and attention is required to make an appropriate bed, soil, and situation for the growth of this plant.

In hopes of giving our lady friends and, incidentally, others a few reliable hints as to how to prepare a bed for the Rhododendron, I will tell them just how I made one for myself last week, and they are at liberty to improve upon my plan as much as they please. If our friends have patience sufficient to induce them to make such a bed as we describe, and sufficient faith in our experience, they will have as good a show of Rhododendrons as any of their neighbors.

First, this plant, to thrive well, requires a deep, well-prepared soil. Be-

longing to the family *Ericaceæ*, its rootlets are exceedingly delicate, and are always found very fine. Now, whenever you find these delicate rootlets dry, from any cause whatever, you may throw your plant away at once, for however green its leaves may appear your plant is dead.

On what are called the most "unseemly places" you can make your plant bed, as I did mine. The hillside upon which I have prepared a bed for the next spring planting faces the south-east. I first determined the size which I designed for my bed. This I staked out in outline, which I think a good plan, using sharpened sticks six inches long. The bed is of an oval form, in the longest measurement ten feet, in breadth, or shortest, five to six feet. Carefully cutting the sod with a sod cutter, I removed all the same from the top of the bed. This being done, I removed the earthy loam and placed it outside the excavation for future use. Then I removed the gravel to the depth of four feet; this gravel you will need to make the side of the lower embankment of your bed, for I made the upper side of my bed four feet below the level of the sod in its original form. From this level, to be determined by the circumstances of the case, by those who follow these suggestions, I, in making my bed, made a level bed, or plateau. This was the foundation, or pit, of my bed. Now comes the filling-up process. On a side hill like the one in question you will not often need much artificial drainage. You will, as I did, prepare for a too rapid drainage, which is death to your plant, by covering the whole bottom of your pit with pine needles, or oak leaves, or fine meadow hay, to the depth of from one to two feet. Now pass back again into the pit your loam, and your leaves are fixed, and should be

trodden down to make what you have already placed there about six inches deep from the bottom. Now you are ready to place the old sod soil—the soil that should compose the bed, and that which I used was a mixture of one part peat, or well rotted leaf mold, one part of rich loam, and one part sharp sand. Let these be most thoroughly mixed, and let lay in a heap three or six days; then fill up all the space left of your bed, level with the former brow of the hill, and outwardly forming a level at the top of the embankment of some two or three feet, which should be sodded to prevent the earth of your bed from sliding down hill. Now you can, after doing this, leave your bed over the winter, and in April, on some bright warm day, spade the whole over preparatory to planting out your Rhododendrons.

You can always procure good plants from reliable nurserymen. If you want the cheapest of plants there are always humbugs enough to cheat you out of your money. Having obtained what you believe to be good plants, set them say from one foot to fourteen inches distant in rows lengthwise of your bed, or, a general rule adopted by some landscape gardeners is, "so that they shade the ground by their foliage just touching each other." This is as good a rule, perhaps, as can be given, and I adopt it whenever I set out grounds. If possible to obtain, I prefer to mulch, say two inches in depth, over the plants as soon as set out, with ground tan-bark, always easily obtained, and there can be nothing better.

Now let your bed alone, unless the summer should be extremely dry. Two copious waterings with the water-pot or hose will be all-sufficient, and nine chances out of ten you will not need any water. Because why? You have set out your bed as you should have

done, and they will probably live and thrive.

As a protection from frost and cold in winter, we use boughs of cedar, hemlock, or pine, the ends well sharpened, and a crow-bar to make holes to receive them, and the boughs firmly set about the bed is sufficient to shelter them from the coldest weather. More of these plants are killed from sunshine in winter than from the intense cold. *Protect them well from the winter sun.*

In the course of time, as your plants grow in size, you will of course make new beds by removing from the old bed every other plant year by year, until you have left one or two very large plants, whose value, singly, would pay a large percentage of time, care, and the money expended.—*Forest and Stream.*

OUR FLANNELS.—The value of flannel next the skin cannot be overrated. It is invaluable to persons of both sexes, and all ages, in all countries, in all climates, at every season of the year, for the sick and the well—in brief, I can not conceive of any circumstances in which flannel next the skin is not a comfort and a source of health. It should not be changed from thick to thin before the settled hot weather of the summer, which in our Northern States is not much before the middle of June, and often not before the first of July. And the flannels for the summer must not be three-quarters cotton, but they must be all woolen, if you would have the best protection.

In the British army and navy they make the wearing of flannel a point of discipline. During the hot season the ship's doctor makes a daily examination of the men at unexpected hours, to make sure that they have not left off their flannels.—*Dio Lewis in To-Day.*

INCREASED DEMAND FOR CALIFORNIA TREES AND PLANTS IN EUROPE.

The business of collecting seeds of trees and plants indigenous to the Pacific Coast has expanded at a surprising rate, during the last three years, in response to orders from Europe, and at certain seasons of the year furnishes remuneration, through arduous labor, for hundreds of people. One firm in San Francisco, who are special dealers in tree and shrub seeds, have their representatives in Oregon, Washington Territory, California, Nevada, and even in the heart of Arizona, from whom are received valuable consignments of seeds at stated periods, generally in the fall and winter months. The mountain tree seeds of this coast, especially those of California, are deservedly popular abroad, on account of the beauty of the trees and the comparative ease and rapidity with which they grow and mature. The procurement of these seeds is always attended with a great deal of hard work and not a little hazardous adventure. The gatherer must possess a certain amount of botanical knowledge, both theoretical and practical, as well as a fair share of vim and muscle. His calling often brings him to the very summit of lofty and rugged mountains, where no other footstep, save his own and those of his associates, are known; along giddy trails, across mountain torrents, over treacherous snow-banks, on the verge of leaning crags inaccessible to anyone but an experienced mountain climber; in fact, wherever the Fir, Spruce, Pine, and Cedar abound, he must go, in order to secure his harvest of seeds. These venturesome men of the mountains seldom come within the actual confines of civilization, and more rarely reach the bustling cities, or even the large towns. They learn to love

the grand old mountains they roam about, and after a few years have no desire to take up a permanent residence at any point near the sea-level. It was the good fortune of the writer to meet one of these men of the mountains, an intelligent and adventurous young fellow, a few days since, and hear from his own lips accounts of his various expeditions after seeds. With his father and several brothers, he removed to the valley of the Yosemite in 1867, and still makes his home there. It was during that year that the flood occurred which caused the only material change in the appearance of the valley that has been known since its discovery by the whites. Up to that time the bed of the valley was covered by a beautiful greensward that stretched as a carpet from end to end. The heavy fall of snow, melting in the spring, came booming down the canyon, in the form of a broad sheet of water, bringing with it particles of disintegrated rock, and a *debris* that cut up and covered the grass and left the bed comparatively barren. Regarding the collection of seeds, the mountaineer said that his party, numbering four or five white men and fifteen Indians, who were provided with thirty horses and mules, made its excursions in the fall, generally occupying three weeks for the round trip, though at times protracting the absence to a couple of months. The cones are cut from the trees with pruning-knives attached to long poles. The pastoral suggestiveness of these implements, which greatly resemble in appearance the shepherd's crook, is dissipated by the sight of sundry bowie-knives and revolvers distributed about the persons of the bearers, and the ponderous Kentucky rifles, in hand or slung across the packs upon the animals. One of these trips netted five hundred sacks of cones. After the cones are gathered,

they are often exposed to the sun for three weeks, or a month, according to their condition, though at times they ripen in a few days. The ripening of the cones to a nicety requires considerable botanical knowledge on the part of the operator. If he makes a mistake in his calculations, and fails to remove the seeds at the proper time, he will find them worthless. And here a question of honor arises. He could send the seeds to market and sell them as being healthy without fear of immediate detection. But eventually the fraud would be detected. A few years ago, certain persons, either through ignorance or indifference, palmed off a lot of inferior California seeds that never matured, and thereby worked a serious injury to the business. Some time elapsed before confidence could be restored among the seed dealers abroad, on account of the swindle, and of course the then growing demand abated. Under favorable circumstances, the trade has brightened up, as already stated, and orders are now pouring in thick and fast. The mountaineer expatiated upon this point at great length, and evinced an irrepressible enthusiasm in his calling. The party of which he is a member ranges from the Big-tree Grove, in Mariposa, to the eastern base of the Sierra Nevada Mountains, at altitudes from 4,000 to 13,000 feet above the level of the sea.

The Pacific Coast is constantly yielding up botanical treasures, and attracting the attention of the scientific world. The *parterres* of lovely flowers upon our hills and mountains are not appreciated until one has been abroad, and visited the gardens of Europe. In England, and in several countries on the continent, wild flowers from this State, where they are found in boundless profusion, are cultivated under glass, and nurtured

as botanical novelties. There are seventeen species of the Lupine in California, indigenous to the soil, and other wild flowers in proportion. Among the California plants held in high esteem by the Europeans, is the *Ceanothus*, or, "The Beauty of the Sierra," a charming flower, found in the mountains, as its name would imply, and also on the hills to the west of the city. The California Pitcher-plant, differing materially from the Pitcher-plant of the Eastern States, is also prized abroad as a novelty. Its leaves are in the form of tubes, and will hold water. Another popular plant is the *Scoliopus Bigelowii*, a plant discovered by the Mexican Boundary Commission, and named in honor of one of its members. This is a great botanical curiosity. It grows to the height of eighteen inches, has large green leaves, spotted with maroon, and bears purple flowers.

Among the tree seeds in demand among the Europeans are those of the *Sequoia gigantea*, or *Wellingtonia gigantea*, in compliment to the late Duke of Wellington, which is best known as the Big Tree of California. The English naturalist Lobb is supposed by many to have first met with the tree near the source of the Stanislaus River, in Calaveras County, though other writers attribute its discovery to Douglass in 1831; but perhaps the most probable statement is the one generally believed in California, and is, that a company of miners on a prospecting tour came accidentally upon the Calaveras group. In 1865 Mr. Sonntag sold two pounds of the seeds of this tree in one of the German States, at the rate of \$125 per pound. Other favorites are, the *Pinus flexilis*, a hardy tree, found at the height of 13,000 feet; the *Pinus insignis*, a lovely grass-green Pine; the *Cupressus macrocarpa*, an evergreen; the *Thuja*

gigantea, the gigantic Arbor Vitæ, alias *Libocedrus decurrens*, a noble tree, with a straight and very robust stem; in color the foliage is a remarkably bright green, and the branches are long, flat, and frond-like; and many other Firs, Pines, Cedars, Cypresses, etc. The need of a good work on the Botany of the Pacific Coast has long been felt; and in this connection, we are pleased to learn that Professor Brewer, of Yale College, who was associated with Clarence King during the geological survey, is writing a book devoted exclusively to this subject.—*S. F. Bulletin*.

FRUITS—ON WHAT DO THEIR QUALITIES DEPEND?

BY E. J. HOOPER.

I am aware that this is a question which no person can answer, involving as it does so many considerations, and so many debatable points, which await a vast amount of inquiry before they can be determinately answered. Such, however, constitute no solid ground for avoiding an investigation. Our Horticultural and Pomological Societies in this State, conferring as they certainly do great benefits on the public, are not in the habit, at their meetings, of doing as much good in this respect as they undoubtedly might. They do not seem to be in the habit of appointing committees whose duty should be, among other things, to judge of the correct nomenclature, character, qualities, etc., of those fruits which are, or ought to be, brought before them for such purposes. If they would attend to this more than they do, they would be rendering the State valuable service. No man, however experienced, but would have his mind enlarged by attentively perusing the statistical and other in-

formation that such reports would contain. I verily had thought that I knew all about the Winter Nelis Pear, a great favorite of mine for years, as it should also be of the public in general, but I could not but feel that I had acquired interesting information in comparing the various conditions, both above and below ground, which certain exhibitors at the late Horticultural Fair of last fall in this city furnished me. Added to this, there was the verifying of my own opinions as founded upon my own experience. I do hope that those cultivators who continue to exhibit at our agricultural fairs, or attend regular meetings, whether monthly or weekly, will get into the habit of carefully reporting a few of the main conditions, as well as the correct names, under which some of their fruits are produced, and that the horticultural committees will report the same to the people. No man can put such information to better use than really good orchardists, gardeners, and fruitists—men experienced in such things. There is no spoiling such men with crude notions; and after carefully digesting the reports, the above named committees are in a capital position to sum up the evidence, and, as Burns says, "prent it."

On what conditions, then, does the quality of fruits depend? Let me first state what conditions are inimical to quality in the average of fruits. The ripening may be too much hurried; again, ripening in some cases is arrested through low temperatures, as, for instance, in the climate of San Francisco, and other lands near the ocean; also, excess of root moisture; humidity in the air, (generally rather uncommon in California); by gross and succulent growths; or by deficiency of light through neglected pruning, etc.; or stagnant air through the want of a due circulation;

and lastly, by the attacks of insects.

Now, these remarks, although applying, in some cases, almost exclusively to the *preservation* of in-door fruits, I intend to offer in such a shape as shall be common to out-of-door productions.

A forced or hurried ripening, whether occasioned in-doors or out, is generally antagonistic to high qualities. This may be particularly observed in Peaches and Melons, and is doubtless the reason why fine-looking fruits at our exhibition tables sometimes do not possess those high qualities which their appearance and kind promise. We also know, that in hot climates and locations, many of our fruits become vapid and worthless; but Nature has provided special kinds and adapted them to the climate and aspect. It is here necessary to observe, that an over-slow or retarded ripening is, in some cases, prejudicial; and this is perhaps most manifest in some of our Pears, which, if kept much beyond their natural ripening period, sometimes assume the character of petrifications.

Excess of root moisture is to be avoided. Thorough drainage and a cautious use of irrigation are the means within our reach to avert this evil. Fruit-bearing plants are apt, like many of the animal creation, to prove gluttonous, especially when there is a heavy draw on the system; and in the ripening process, where very high flavor is desired, we do not need so much water. It is the high and perfect elaboration and assimilation of the stores of the plants that is to be desired. Nevertheless, it may be laid down as an axiom in fruit-ripening, that the foliage must be in a perfectly healthy condition when the fruit is ripening, or undergoing that change which forms a crisis in its history. Thus we find, that if melons—it matters not of what kind—have decay-

ing foliage when the fruit is turning for ripeness, the flavor is sure to be deficient, and the eye part becomes spongy. It therefore becomes necessary, with all thin-foliaged fruits, (which of course are liable to sudden and profuse perspirations), to keep up as much moisture at the root as will sustain a healthy foliage. Too much air moisture is of course not desirable; but we can seldom complain of this in our climate.

We will now come to succulent growth, which, in most cases, is a foe to intensity of flavor. The Peach is at once a good instance. How is it that we seldom obtain such large and fine Peaches from young and gross trees as we do from those arrived at maturity? Simply because the growth at extreme points being so exuberant, much of the collateral and subordinate wood is robbed for the sake of this great impulse. Pinching these robbers, therefore, by equalizing the sap, causes the inferior portions to receive a more regular supply. In short, these remarks apply to almost every kind of fruit, especially to those of rapid and impulsive growth. Thus, we know that it is a common practice to stop or pinch vines, Melons, Cucumbers, etc., all of which are of rapid growth.

Deficiency of light is the next consideration as concerns flavor and quality. It is well known that both flavor and color in fruits and vegetables can only be obtained through the influence of a liberal amount of solar light. We have very little, however, to complain of in this our sunny clime. But, at any rate, it becomes us to avail ourselves of every cultural means, and not to place the plant or tree in such a position as not to receive with facility whatever light occurs. But not only is flavor in fruits dependent on a liberal amount of light;

their size and general character are also particularly concerned. Who has not noticed the inferior character of fruits, such as Apples, Pears, and other ordinary fruits, in the interior of badly pruned or neglected trees?

Freedom from insects is indispensable to flavor in fruits. Happily, we are not greatly troubled in California in this particular. Yet I learn that the apple-worm has been discovered in some parts of the country, and we shall be likely soon to import other noxious insects with trees, grafts, seeds, etc.

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JUTE IN PAPER-MAKING.—The use of Jute as a paper material will greatly increase the commercial value of this valuable fibre. The *Dundee Advertiser*, (Scotland), on its appearance printed on Jute paper, after apologizing for its transparency and thinness, says:

“A remarkable fact is, that it is the product of Mr. Watson’s second experiment, and if we can attain to such a result on only a second trial there need be no fear with respect to further experiments. The thinness and transparency will easily be remedied, as there is nothing to prevent paper made from Jute being of any degree of thickness and opaqueness. It may be explained that this sample is made almost entirely from old Jute bagging. We propose to have samples made entirely from Jute fibre. To some extent Jute bagging and waste have been used by paper makers for several years, mixed with other materials; and when we mention that nearly 50,000,000 Jute bags were exported last year—the demand for home requirements being also very large—it will be seen how large a quantity of manufactured Jute there is to work upon, especially as bagging is only one class of the goods made from this material.”

FORESTRY.

An "International Congress of Land and Forest Culturists," held at Vienna in September, presided over by the Austrian Minister of Agriculture, passed resolutions petitioning the Austrian government to take measures for inaugurating international treaties with other European states, intended to secure birds useful in agriculture; another series declaring the lack of scientific basis for land and forest culture, and the necessity of official publications of exact statistical comparative data illustrating the status and progress of each country in these departments of industry; and a third, relative to the necessity of action toward forest preservation, as follows:

"1. We recognize the fact that, in order to effectually check the continually increasing devastation of the forests which is being carried on, international agreements are needed, especially in relation to the preservation and proper cultivation (for the end in view) of those forests lying at the sources and along the courses of the rivers, since it is known that, through their irrational destruction, the results are great decrease of the volume of water, causing detriment to trade and commerce, the filling up of the river's bed with sand, caving in of the banks, and inundations of agricultural lands along its course.

"2. We further recognize it to be the mutual duty of all civilized lands to preserve and to cultivate all such forests as are of vital importance for the well-being—agricultural and otherwise—of the land, such as those on sandy coasts, on the sides and crowns as well as on the steep declivities of mountains, on sea-coasts and other exposed places, and that international principles should be laid down, to which the owners of such

protecting or 'guardian forests' be subject, thus to preserve the land from damage.

3. We recognize further that we have not at present a sufficient knowledge of the evils (disturbances in nature) which are caused by the devastation of the forests, and therefore that the efforts of legislators should be directed to causing exact data to be gathered relating thereto."

It was stated, in the course of the proceedings, that the Rhine, the Oder, the Elbe, and other European rivers, have lower water-marks than formerly; at Altenbruch, in Hanover, ten Hamburg feet lower in 1857 than a half century before; that part of the kingdom of Wurtemberg had been reduced to comparative barrenness by the felling of trees; that droughts were increasing in severity in Hungary, a fact popularly attributed to the deforestation of the country.

The case of the region near Trieste, on the Adriatic, was particularly referred to. It was stated that five hundred years ago a heavy forest covered that region, which was destroyed by the Venetians for the purpose of securing pile-timbers and lumber for commerce, and that after the trees were felled the unprotected soil was washed away by storms, and the whole face of the country became a dreary waste. In August last we passed through that region, and noted it was one of the most desolate views presented by any country. The surface far away from the coast was completely covered with ledges and rough boulders, was almost destitute of soil, and the heat radiated from the rocks was intolerable. In parts of this broad belt some millions of Olive-trees have been planted by the Austrian government, the soil for the purpose being transported in baskets in some places.

It is stated that the rains, which twenty-five years ago ceased to fall here, are again appearing to refresh the scene.

Similar statements are made relative to local ameliorations by forest planting on the coasts of Germany, in Upper Egypt, and at Ismaila, and in other countries. — *Monthly Report of the Department of Agriculture.*

FIGUS ELASTICA—CAOUTCHOUC—GUM-ELASTIC OR INDIA-RUBBER TREE.

BY THE EDITOR.

This tree belongs to class 33, order 2, *Polygamia Dicecia* of Linnæus, and *Vasculares Dicotyledonæ Urticæ* of Jussieu. It is a handsome evergreen, and is a native of the East Indies. It is by no means difficult to propagate, for which purpose cuttings of the ripe wood are necessary. These should be about two inches in length with a pair of leaves to each; the stem should be split down the centre, and the cuttings laid on the greenhouse shelf for a few hours to wilt. They should then be planted separately in pots filled with light sandy soil, the cutting to be plunged to the depth of an inch and secured by one of the leaves to a small stick to prevent its becoming loose. The pot should be placed in a warm corner of the greenhouse. The *Ficus elastica* is valuable for in-door decoration and for conservatories during the summer season, but requires rather more than the ordinary greenhouse temperature to keep it in health during the winter months, at which time it is essential that the plants be kept rather dry. A very handsome specimen of this interesting tree adorns the conservatories at Woodward's Gardens, San Francisco, which collection is replete with choice typical plants that

render it a most valuable field of study for the botanical student.

Caoutchouc is found associated with various essential oils and resinous matters in the milky juice of the plants, and is procured from sundry species of *Ficus*, as *Ficus elastica*, *F. radula*, *F. elliptica*, and *F. prinoides*, by wounding the plants. A kind of caoutchouc, called gutta percha, imported from Singapore and Borneo, is procured from *Isinandria Gutta*, one of the *Sapotaceæ*. Balata gum is also an elastic gum, obtained from the *Mimusops belata*, which is indigenous to British Guiana, where it attains large dimensions. This gum is of an intermediate character between India-rubber and gutta percha, as it possesses the elasticity without the intractibility of the India-rubber, and the ductility without the brittleness of pure gutta percha. It is employed as an insulating medium for telegraphic purposes. Many of the *Euphorbiaceæ*, *Asclepidaceæ*, *Apocynaceæ*, *Artocarpaceæ*, and *Papayaceæ* contain caoutchouc or gum-elastic. The principal supply, however, of this gum is obtained from *Siphonia Brasiliensis*, which is a common tree in the forests of Para, Brazil.

The genus *Siphonia* belongs to the *Euphorbiaceæ*, and consists of some half dozen species, of which one is the *S. elastica*, a native of French Guiana, and the remainder of the Amazon and Rio Negro districts of Brazil. They are called Seringa-trees by the Brazilians, from the Portugese word *seringa*—a syringe, for the making of which article the caoutchouc was first used. The generic name derived from the Greek, *siphon*, has reference to the same use. The species are trees varying from twenty-five to seventy, or upwards of a hundred feet in height, and all contain a milky juice in more or less abundance, though they do not all yield caoutchouc

of good quality, that from some species being brittle. Their leaves consist of three entire leaflets radiating from the top of a long stalk, and are clustered towards the end of the branches; and their flowers are borne in loosely branched panicles, with numerous little branchlets consisting of a few male flowers and a female at the top; both sexes have a bell-shaped five-toothed or five-parted calyx, and no corolla, the males containing a central stamen-column bearing five or ten anthers in one or two series or whorls some distance below the apex, and the females a three-celled ovary bearing a more or less three-lobed stigma with or without a short style. Their fruit is a rather large capsule, composed of three one-seeded pieces, which split in halves when ripe. The raw seeds are poisonous to man and to quadrupeds, but macaws eat them greedily, and they are excellent bait for fish; long boiling, however, deprives them of their poison, and renders them very palatable.

As we said before, the bulk of the caoutchouc exported from Para, whence the chief supply is derived, is obtained from *S. Brasiliensis*, which is the one common in the forests of the province of Para; but that brought down to Para from the upper Amazon and Rio Negro is divided from *S. lutea* and *S. brevifolia*. These three species are slender smooth-stemmed trees averaging one hundred feet in height. The Para species, however, yields the greatest abundance of caoutchouc. Europeans first became acquainted with caoutchouc in the early part of last century, and its botanical history was made known by M. de la Condamine in 1736; but it is only within the last forty or fifty years that it has become such an important article in our manufactures and commerce. It exists in the tree in the form of a thin white

milk, and is obtained by making incisions in the trunk, from which it exudes and is collected in little earthen vessels, and afterward converted into the black homogeneous elastic mass familiar to us as India-rubber, by pouring the milk upon molds and immediately holding them over the dense smoke caused by burning the nuts of the Urucuri Palms (*Attalea excelsa* and *Cocos coronata*) until it is sufficiently hard to bear another coating, when the process is repeated until the requisite thickness is obtained. The mold is then removed. Formerly these molds were always in the form of shoes and bottles, and hence one of the kinds of caoutchouc is known commercially as bottle-rubber; but they are now frequently shaped something like battledores for folding linen, only thinner. In 1863, 65,649 cwts. of caoutchouc were imported into Great Britain.

The belt of land extending around the globe, from 500 miles north to 500 miles south of the equator, abounds in these trees producing caoutchouc. They can be tapped for twenty successive years without injury. In their native forest they stand so close that one man can gather the sap of eighty in a day, each tree yielding on an average three tablespoonfuls daily. Forty-three thousand of these trees have been counted in a tract of country of eight superficial miles in extent. There are more than one hundred and fifty manufactories of this material in Europe and America, employing between seventy and eighty thousand operatives, and using more than ten million pounds per annum; yet such is the extent of the field of produce, that however considerably the demand may increase, there will always be sufficient of caoutchouc to meet it.

Tropical fruit is now free of duty.

THE PLUM AND THE PRUNE.

There is, we believe, no other of our more common fruits that can be made from year to year so certainly profitable as the Plum in its numerous varieties. As an early table and dessert fruit it is always in demand. As we have no curculio to mar the fruit in any stage of growth, it is always perfect. It can be dried upon the stone with perfect assurance that no insect is inclosed; or the fruit can be stoned and then dried.

It is one of the most certain fruits grown, and the most abundant upon the tree. While the Grape requires every year a large amount of labor in the pruning and general culture to obtain a crop, the Plum or Prune scarcely requires the touch of the knife.

The dried product commands nearly as high a price per pound in New York as Raisins, the present quotation being for California Prunes, from twenty to twenty-five cents per pound. They are a fruit very easily managed; from the picking or gathering—for they can be shaken from the tree without injury—to the packing away of the dried fruit, the whole process is simple and easy.

Some of the larger and soft-meated varieties, as table fruit, need a more careful handling, and should be picked from the tree; but the smaller, lighter kinds can be shaken and caught on the canvas laid upon the ground. The rather dry tough-pulped German Prune is of this character, and yet with the finest of these the utmost care is taken in the picking and handling in order to preserve the bloom, which adds so much to their merchantable appearance.

There is not that extreme care or nicety required in the drying process as with Raisins, and they can be dried nearly as well upon a prepared bed of black soil, in our climate, as by any ar-

tificial process. Excellent results, however, have been obtained by the Alden process of fruit drying, which turns out a product perfectly unexceptionable.

There would seem to be hardly a limit to the extent to which Prune growing and curing could be carried on in California, with certain and profitable results. Our adobe soils, not entirely congenial to the production of many of our finer fruits, are the very best for large, perfect and sure crops of Plums and Prunes. We believe it would be one of the best investments in fruit growing that can be made, if, having adobe lands, the owner would turn his attention to the planting extensively of the Plum and Prune, and now is just the time to make the purchase of trees.—*S. F. Chronicle.*

ORANGE CULTURE IN FLORIDA.—As evidence of what has been done in Orange culture in the State, we cite a few instances. Dummitt's grove, on Indian River, is perhaps the finest in the State. It cost its proprietor to take care of it last year, \$1,000, and yielded 600,000 Oranges, for which he was paid \$11,000. This grove has 3,000 trees, which, with proper care, would average 3,000 Oranges each, and give an annual income of \$50,000 to \$75,000. H. L. Hart's grove, at Palatka, yields him an income of \$15,000 to \$20,000 per annum. Arthur Ginn's grove, at Mellonville, of 1,100 trees, pays him \$12,000 to \$15,000 yearly, and is worth \$100,000. Besides these groves there are a great number of splendid promise; but having been planted of late years, the incomes derived from them are as yet of little moment. Mr. DeBarry, of New York, has a grove, near Enterprise, of 20,000 trees. Mr. Charles S. Brown, of New York, has one opposite Palatka of 1,200 trees;

and Mr. James Patterson, of Toronto, has a grove on Banana River of 8,000 trees.—*Palatka (Fl.) Herald.*

GLACIAL ACTION UPON THE PACIFIC COAST.

BY PROF. GEO. DAVIDSON, U. S. COAST SURVEY.

In May last, I read a paper before the California Academy of Sciences, upon the terraces that disconnectedly border on our sea-coast from latitude twenty-six or seven to Behring Strait, and with most of which I have been more or less familiar since 1856. These coast-terraces, or plateaus—the *mesas*, or tables of old Spanish navigators and the late Spanish inhabitants—have generally been supposed to mark the ancient sea-levels, and to have been brought to view by an elevation of the continental shores. Some few of the smaller *mesas*, or terraces, composed of sand or gravel, may have been formed under the sea and subsequently elevated; but in nearly all such cases we must suppose the elevation to have been irregular and sudden. But those that exhibit, on an extended scale, level plateaus of rock which have every degree of inclination and contortion of stratification, and an infinite variety of texture, can not have been so wrought by the agency of water alone. Other forces, more powerful and more uniform and constant in action, shaped these flat-topped rocky benches; and the forces, if more than one, abraded the present continental line of our coast and cut through the western part of the Santa Monica range of mountains, so as to form the northern tier of the Santa Barbara islands. Much of the sharp lines of this abrasion has been obliterated by subsequent causes, principally by water from precipitation, alternations of heat and cold, and the action of the waves. * * *

The upheaval of the continental shores by subterranean action can not produce such terraces and plateaus. If the shores of the Pacific were to-day to be raised, say 200 or 600 feet, we know from the contour of the bottom bordering it, that such results would not be one of the consequences. The action of the water will not account for them. Whether by "continual dropping" or by storms, it first wears away the soft and more friable parts, leaving the harder; it destroys shores by undermining, and then grinding it, leaves irregular jagged surfaces. These irregular surfaces, if upheaved above the level of the sea, would not wear away regularly by the weather; the inequalities would in time be filled by disintegrated material, but the surface of the rock would not bear the impress of a planing-machine. We must be guided in a great measure by experience, and judging by our knowledge of present local glacial action, I think we can appeal to the action of ice, moving slowly but surely, as a great planing or molding machine; its lines of movement perhaps controlled by masses and elevations of land not now existing as such, and by forces no longer acting on such a scale. We may suppose a great ice-belt to have existed contiguous to the continent and moving parallel with it, and existing at the same period with the ice-sheet that covered the continent or the lower part thereof. The mechanical effects of this belt may be those we see exhibited upon the islands and the general coast-line; the effects of the latter in the gorges opening upon the shores in the interior valleys, and on the mountain flanks when at right angles to the coast-line.

Iron nails in a flower-vase will aid to keep the water sweet and the flowers fresh.

EPIPHYLLUM.

BY F. A. MILLER.

The *Epiphyllum* is a genus of Cactus frequently met with in greenhouses and conservatories, and by some popularly known as the "Lobster Cactus," and by others as the "Fuchsia Cactus." The former name originated undoubtedly from the shape of the flower, which resembles the lobster, (particularly in the varieties of recent introduction); while the name Fuchsia Cactus is easily traced to the graceful flowers which, like Fuchsias, are pending from the terminal branches. All the *Epiphyllums* are natives of Brazil, where they are found abundantly growing upon the trunks of trees, like Orchids.

One of the oldest varieties, and cultivated most extensively, is *E. Russellianum*, which is readily distinguished from all the others by its straight and regular flowers, the petals being distributed in a regular manner. The color of the flower is a beautiful, vivid purple-crimson.

Another old variety is the *E. truncatum*, which bears the flowers resembling "lobsters," one side of the expanded flower being much larger than the other. Of this species, some very fine varieties have been produced, and are promising to become extremely popular. The flowers of these new varieties are much richer in color, and present a number of shades, such as orange, crimson, purple, scarlet, pink, salmon, and violet, with white stamens.

Last spring we imported the following varieties, which are now in full bloom, and have been so for the past two months. They are admired by everyone who sees them; and I consider them of the best class of winter flowering plants—showy and pleasing:

- E. album violaceum*, violet and white.
- E. lateritium album*, crimson and white.
- E. roseum amabile*, rosy crimson.
- E. Ruckerianum*, crimson.
- E. salmonianum*, salmon color.
- E. grandiflorum marginatum*, salmon, with white.
- E. grandiflorum rubrum*, vivid crimson.
- E. tricolor*, orange, crimson, and white.
- E. violaceum grandiflorum*, violet and crimson.
- F. spectabile*, rosy crimson, white edge.

All of these are robust growers, and will flower when very young. With us they have done much better than could have been reasonably expected.

As to their cultivation, I must candidly say that they have not received any attention from us. They seem to thrive well in any soil; they are satisfied with very small pots; and they may be placed in almost any locality in our climate, and will not fail to flower abundantly. Only one thing should be borne in mind, which is, to water them freely while the buds are forming, and until they have done flowering, after which period they may be watered more sparingly. Unlike other Cacti, they require more moisture, and are not easily hurt by the frequent application of water; yet it seems necessary to provide for good drainage in the bottom of the flower-pot, by filling up one-fourth of the pot with broken pieces of crock. The best soil for them seems to be a light and porous mold, although we have them in excellent condition in common loam mixed with a small quantity of coarse sand and well-decomposed stable manure.

The *Epiphyllums* are propagated without any trouble. Any of the branches taken off the plant when the flowering season is over, and inserted slightly in sand, will readily strike root within two or three weeks, and are likely to flower

within a year. What more could possibly be required of a plant to make it one of the most popular and most desirable?

Among the plants we recently imported were two *Epiphyllums* grafted upon *Pereskia* stock, the trunks of which are about nine inches in height. Undoubtedly much finer specimens can be obtained in this way, and a stronger growth may be expected; but as there is no *Pereskia* stock to be obtained on this coast, we can not expect to work upon it; and instead, the stronger-growing *Cereus* may be used as stock to graft upon. I am convinced that fine specimens may be grown in this manner within a short time, producing a very large quantity of flowers, and I certainly think this *modus operandi* well worthy of a trial.

• A PLANT STAND.

The lack of a desirable place to keep plants often prevents the pleasure of raising them. They must have light, and air, and sunshine, and it is not always convenient to devote the brightest windows to their occupancy. If kept on the ledges, they are in danger of being chilled on a frosty night; and it is a tax to be compelled to move the heavy pots every time the thermometer drops. A flower stand of some sort that can be readily moved from window to window is therefore a necessity. The old-fashioned wooden ones are clumsy, heavy, and take up too much room. The modern wire frames are pretty and light; but one of moderate size costs ten or twelve dollars, which is a great deal to put in the stand when we wish to put it in the flowers.

We saw something the other day that seemed to serve both economy and convenience. A box three feet long, a foot

and a half wide across the bottom, and eighteen inches deep, is made of common pine. The sides flare outward, so that, at the top, they measure six or eight inches more, from edge to edge, than at the bottom. This box stands on four legs with casters, and under the bottom of the box a piece of wood, fancifully cut on the edge (a sort of pine valance), holds the legs firmly and symmetrically together. The top of the box is nearly even with the window-sill, and, when the whole is constructed, it may either be painted in colors, or stained dark-brown, to match the furniture wood. The inside of the box is better preserved from decay, if lined with zinc or tin; but it will last one, possibly two seasons, without any lining at all. Over the bottom is spread a three-inch layer of bits of broken flower-pots, and on this is set a double row of pots, or as many as will stand evenly on the surface. Then a thick layer of sand is poured over the broken pieces, and the rest of the space filled up with earth till it is even with the top of the flower-pots. In the bed thus formed, bulbs and slips are planted between the pots, and vines are started at the corners. When the latter are well under way, wires, on which the vines twist, are fastened diagonally from corner to corner, forming a beautiful, green arch over what seems to be a bed taken bodily from the garden. Sometimes a tiny hanging basket, or an Ivy growing in water, is hung from where the wires cross in the arch, but, even without it, there is no appearance of bareness. A carpenter will make the box for two dollars and a half, and the rest, painting and all, can readily be done at home.—*“Home and Society;” Scribner’s for February.*

In India, Jute is superseding Cotton.

INSURE THE GRAIN CROPS.

Every year our farmers suffer the loss of hundreds of acres of wheat, burned upon the field before harvesting, generally by the carelessness of sportsmen, smokers of cigars, or the spontaneous ignition of phosphorus used for the destruction of squirrels. These fires have sometimes proved destructive to that degree that some have had recourse to insurance to protect them against a total loss.

For the last two years, so imminent has become the danger, that insurance companies refused to take the risk, and farmers were compelled to become their own insurers. It will doubtless be the same this year; sweeping fires will lay waste in a day the labor of months. To guard against such wholesale destruction, there is no better mode of insurance or protection than belts of green trees or green herbage a hundred feet or more in width, interspersed at proper distances the entire breadth of the field.

These belts should be prepared now, by plowing and seeding with something that will be sure to remain green till after the harvesting of the grain. Alfalfa, as one of the clovers, has this property in a remarkable degree, and would be an effectual bar to the progress of fire in a grain-field, and its product really worth more to the farmer than the same breadth of land sown to wheat.

Among shrubs of taller growth, affording food for animals while green, and wood for the kitchen fire when dry, but remarkably juicy and succulent just when it would be wanted as a barrier against fire, there is nothing in the range of our experience equal to the Malva. If we take a still larger tree, and grow a belt as a bar to the progress of fire, as a wind-breaker, and for tim-

ber, take the Eucalyptus globulus.

These barriers, if miles in length and costing considerable sums, would be, nevertheless, a good paying investment, enhancing the value of the whole property, and adding security and insurance to broad, almost endless grain-fields; at least, only one section need be lost at one burning. It is a matter worthy and should receive the attention of our large landowners and grain-growers.—*Chronicle*.

ABOUT BEE PASTURAGE.

With experience and fact both going to show the profitableness of bee-culture on the Pacific Coast, the business nevertheless seems to be every year centralizing, getting into fewer hands, or, at least, with our rapidly increasing agricultural population, there is very little increase in the number who keep bees. We can account for this in no other way than that those who have attempted it in previous years and failed, either had really no taste for the pursuit, or were unfortunate in their location for its successful prosecution.

Wherever pasturage can be obtained in tolerable abundance, bee-keeping, if scientifically conducted, is attended with large profit. Our long and severely dry summers cut short the food of bees even more than would have been supposed; and this fact has brought about the nomadic system now practiced by our largest bee-keepers. However necessary this may be to the owner of thousands of hives, there are still great numbers of localities where from fifty to one hundred hives can be kept upon a largely paying basis without removal.

In the vicinity of towns and cities where vegetable gardeners grow their own seeds, and where fruit and orna-

mental trees and flowers abound, our suburban residents should keep bees.

For the benefit of those who would like to know whether they are in the vicinity of good bee pasturage, we annex a few of the more commonly grown plants, shrubs, and trees found in the suburbs of towns, which yield good bee pasturage. In early spring, Crocuses receive lively attention from bees; but more pollen than honey is collected from these flowers. The border Hyacinths of our gardens are honey-yielding, and are eagerly sought when in flower. The Raspberry, Gooseberry and Currant furnish excellent feed. The flowers of nearly all the different kinds of Beans are about as rich in honey as any flower can well be. A singular fact in regard to the flower of the Bean is, that being tubular-shaped and narrow, the bee can not get to the bottom of the flower on the inside, but will pierce the tubes near the bottom from the outside.

Field Mustard not only continues a long time in bloom, but yields a clear and excellent honey. The flowers of Turnips and all the Brassica tribe are exceedingly tempting to bees, and yield them large supplies. The White or Dutch Clover stands the queen of honey plants, but the large Red, though productive of honey, is useless, the bee being unable to reach it.

Plum-trees are among the very best of our fruit-trees for honey-yielding, but the Apple, Pear, Cherry, Peach, and Apricot are all largely honey-producing. The different varieties of Willow—*salix*—are always visited by bees in the spring. Maple, Sycamore—or *Plane*—and Lime-trees are of value to the bee farmer. From the foregoing list of the more common honey-producing plants, one can judge of the probable amount of bee feed for the season, in their respective localities.—*Chronicle*.

THE BANANA.

Mr. F. Curtis, a writer for the *Prairie Farmer*, from Louisiana, thus talks about the Banana :

“The Banana is not properly a tree, but a plant of leafy, succulent growth, of the genus *Musa*. The stalk is formed of the stems of the leaves in concentric layers, reaching with its leaves a height of fifteen or twenty feet, and eight or ten inches in thickness, and contains no woody fibre. From the centre comes the first bearing stem, which turns, and grows downwards. The end of it has the appearance of an ear of Corn, with purple shuck. This unfolds one leaf at a time, displaying two rows—eight to twelve—of tiny little fruit, with delicate blossoms, until it attains a length of two or three feet, covered with fruit. The leaves are a marvel for size and appearance, sometimes reaching a length of six feet, and eighteen inches in width, of a glossy pea-green. The root is perennial. It is large and fleshy—sometimes of the size of a half-bushel measure, from which put forth numerous rootlets, half an inch in diameter. From the main root are constantly springing numerous suckers, which go to form new plants. This being its mode of propagation, they can be taken off to form new plantations, or remain, as may be wanted.

“In a suitable soil, which should be rich and moist, and tropical climate, it requires about one year to mature its fruit, from the first appearance of the plant. When it is gathered, the stalk is cut down. Ten feet apart is a good distance to plant them. This gives over four hundred per acre, and the second year there will be ten or twelve plants to each hill, and soon will occupy most of the ground. After the first year they require but little cultivation, the

old stalks and leaves acting as mulch and manure. Under favorable conditions there is no cessation of growth. New plants and ripe fruit are found at all times, and a plantation once started lasts for years.

“It is probable that no plant ever cultivated will yield more food per acre, or result in greater profit to the owner, where there is a market for it. It is easily and cheaply gathered, requiring no packages, and bears handling and transportation well. Ten bunches a year per hill is a fair estimate for the yield of a good plantation. This would give over 4,000 bunches per acre. Many of these will contain over 100 Bananas. It is a favorite fruit in tropical countries, and always in demand at the seaport towns for shipment. There are some people, no doubt, who live on Bananas alone; but it is not probable that any great amount of work can be got out of a dozen of that fruit a day. Southern Florida and some of the islands on its coast have proved to be suitable and profitable for the culture of the Banana, and instances are mentioned where the receipts have been over \$3,000 per year from a single acre, including some plants sold. The southern part of California is also said to be well suited to its growth. These are the only parts of the United States where it can be grown successfully.

“Here it requires two years to perfect itself, and without winter protection, seldom matures its fruit.”

GARDEN ADORNMENTS. — Ornamental vases, rustic stands, and hanging baskets filled with choice growing plants, now form a prominent and comely feature in the decoration of our flower gardens and pleasure grounds. They are elaborately bedecked, and add rich-

ness and elegance to well-embellished grounds. In the smallest gardens there is room for one or more of them; they are of various sizes, and sold largely by seedsmen.

The successful culture of lovely plants in baskets, vases, etc., lies in the proper selection of plants; for example, all the plants set in one vessel should be such as will flourish under the same treatment.

It is true that some species require more water than others—some thrive best in sunshine, others succeed best in partial shade. Any one at a loss to select suitable plants may ask an honest florist to furnish such plants, and the right number to plant in a vase, stand, or hanging basket. State the size of it, and whether it will be placed in full or in partial shade—and whether creeping or upright plants are desired.

The next point is, to use a rich, light, and friable compost for the plants to grow in, as their roots will be confined in a small space. Frequent waterings should also be attended to. When the weather gets too cold for the plants in fall, all the vessels may be taken into the house, and by special care the plants therein will flourish till the following spring, when they should be thrown out, and the vessels refilled with new plants and fresh compost.

Ferns, Ivies, *Lysimachias*, *Periwinkles*, *Lycopodiums*, *Tradescantias*, *Saxifragas*, and many other genera, grow well even where they never get a glimpse of sunshine.—*The Evergreen*.

TO PRESERVE FLOWERS. — Put a pinch of nitrate of soda into the water every day when it is changed. This will preserve flowers for a fortnight. Nitrate of potash in powder has nearly the same effect.

ADORNMENT OF HOME.

Home has a meaning and intention beyond the simple necessities of life. It is made, or ought to be, for something more than a place to eat and drink and sleep. It is for cultivation, pleasure, rational enjoyment and improvement. Cultivated man generally exhibits some taste about home. It is generally the index to his degree of cultivation. The savage leaves his home unadorned. The barbarian deems it unworthy of him to study for rational adornments of his home; or even for ordinary comfort.

Just as civilization advances, taste exhibits itself in the homes of the people. A cultivated mind craves a beautiful home. And what makes a beautiful home? It is not wealth, for we have just been told of a man worth \$250,000, who never had a chair in his house or rather hovel. He and his family sat on rude stools. It is not professional honors, nor learning, nor talent, that makes home beautiful; for we have seen all these in homes disgusting to every idea of taste, order, or neatness. It is what is around and within our home that makes it beautiful—the evidence of taste, refinement and culture that encircles it. A home must have some things about it, or it can not be in the highest degree pleasant. The first of these is order. There must be order in the arrangement of the buildings. They must be situated in proper relation to the points of the compass. A house that faces no way in particular; neither north, south, east, or west, is sadly out of order, unless the road, or street, or hill, or valley, or stream, or some other prominent natural object, be so important as to be its regulator. When a house is orderly established with respect to the points

of the compass, or the scenery about it—the next thing is to have the land immediately around it so graded as to carry off all water and look pleasantly to the eye. Then the fences about the house should be square with the house and other buildings. They should be neat and trim, the best of their kind, and made both with respect to convenience and good taste. Fences may be cheap and in good taste, or expensive and out of taste. The yards, gardens, &c., about a home, when neatly fenced, add greatly to its appearance. Fine fences beautify a farm, and especially a home. When kept in good repair, painted or whitewashed, free from a hedgeway of weeds, briars, thistles, brushwood, &c., they remind every passer-by of thrift, taste, and happiness within.

The next point of importance is walks to the road, garden, yards, and out-buildings. They are easily made, and when neatly made and well arranged, add greatly to the beauty of home. A puddle of water, a mud-hole, or any such pestiferous obstruction, in a frequented path or walk about a farmer's home is a great annoyance, and reflects seriously on his good taste and good sense. The walks made, and trees and shrubbery are then wanted. Trees along the road, trees about the yards, and shrubbery around the house, are so natural, so graceful to the eye, so musical to the ear, so delicious to the taste, that a home without them scarcely deserves the name. We would not have it all trees about a home. That would create too much dampness. But just enough trees to make a sprightly contrast between sunshine and shade, between heat and cold.

But trees are not enough. There should be vines, an abundance of vines, those beautiful emblems of affection,

about every home. A home without vines, is like a man without a wife, or a bird without a mate. It wears a look of desolation. Vines come creeping about so lovingly, grow so thriftily, bloom so profusely, can be trained into so many beautiful forms, and are withal so fresh and fragrant, that they should be about every home, to remind its inmates of industry, sprightliness and affection.

Then commence the flowers, close along the walks, beside the doors, under the window, in the corners of the fences, sprinkled in profusely and yet orderly, so as to give an idea of finish as well as of beauty and happiness. A home without flowers! No, let it not be. Let every woman, every child with tiny hand and growing taste, plant flower seeds and roots in little nooks, and recesses, and beds, where they can grow as well as not. They love to grow and blossom. Who does not love to see them? Let the buildings all be painted, then let the flowers challenge them to a contrast of colors. When all is in order, let it be kept in order. And when the outside is beautiful, let the inside be, with order, neatness, comfort, taste, virtue, peace, good-will, love and happiness.—*Ex.*

VALUE OF WALNUT LUMBER.—As an illustration of the increasing value of Walnut lumber, the Indianapolis *Journal* notes that the standing Walnut trees on a half section of land on Eel River, in Miami County, Indiana, were recently sold to a lumber dealer for \$17,000. There is a large amount of other timber on the tract which is not included, only the Walnut timber being sold. Walnut lumber is coming more and more into use throughout this country and Europe, and at present a very large business is done in preparing and shipping it from Indiana.

Editorial Portfolio.

FERNS (*FILICES*) AND THEIR CULTURE.

We are much gratified to perceive among our amateurs a rapidly increasing appreciation of this wonderfully beautiful class of plants, whose consummate grace and delicacy of fronds, and lovely shades of pure green, afford far more gratification and repose to the eye than all the gorgeous tints of Flora's kingdom.

Ferns belong to the *Cryptogams*, and more especially to the division *Acrogens* of that class, of which they form one of the principal groups. They consist of arborescent and herbaceous perennials, and very rarely of annual plants; some of the tree Ferns having trunks from sixty to eighty feet in height, while others of the herbaceous varieties scarcely exceed an inch in height. All true Ferns may be recognized by the growth of their young fronds, which first make their appearance in the centre of the crown, clothed with a villous coating of light brown hair, and each closely en-rolled on itself; and by the development of their spores, which are produced on the under sides of the leaves. The Ferns offer so much variety of structure, that they are necessarily subdivided into many groups. They are found in almost every part of the world. They grow to the greatest perfection in the shade of almost impenetrable forests, and generally delight in a humid atmosphere—this habit must be specially noted in their cultivation. Like all other plants, they must have their season of repose. Many varieties are specially suited for rock cultivation; others are well adapted for hanging baskets. As a general rule, a compost of one-third of white sand, one-third of leaf-mold, and one-third of fibrous peat,

is the best soil that can be used for them. Their propagation is comparatively easy—either by subdivision of the roots, or by raising them from the spores—while some few develop young plants upon their fronds. These latter, when they have put forth two or three fronds, should be carefully removed, potted into small pots, and kept in the shade. Many very beautiful varieties are indigenous to our State, and their collection and cultivation promise a delightful recreation to those of our amateurs who have the opportunity, and will embrace it. Very useful articles on their culture will be found in the CALIFORNIA HORTICULTURIST, vol. 1, p. 289; vol. 2, p. 26; vol. 3, pp. 17 and 165.

WOODWARD'S GARDENS.

Although the present season has hitherto been particularly unfavorable, owing to the closely alternating of heavy rain and sharp frosts, yet, by the indefatigable attention of the gardener, the conservatories and hothouses have maintained their flourishing appearance. Many choice plants are coming into bloom; and when a propitious change in the weather takes place, the display of floral beauty will be magnificent. The grounds are in excellent condition; considerable alterations and improvements are in progress; and notwithstanding the inclemency of the weather, all the sections of the zoological department have been kept on the advance. The birds, in particular, are highly interesting, for their variety and the rarity of many specimens.

SOCIETY NOTICES.

WESTERN NEW YORK HORTICULTURAL SOCIETY.—The Nineteenth Annual Meeting of the Western New York Horticultural

Society was held in the Common Council Chamber, in the city of Rochester, commencing on Wednesday, January 7th, at 11 o'clock A. M. Reports were received from the Standing Committees, and many of the most important horticultural topics of the day were discussed.

NORTHERN ILLINOIS HORTICULTURAL SOCIETY.—The Annual Meeting of the Northern Illinois Horticultural Society was held in Farwell Hall, in the city of Sterling, Whiteside County, January 27th, 28th, 29th, and 30th, 1874. The discussions embraced subjects in every department of Horticulture, both in theory and practice, new and old, and a most profitable and enjoyable season was had.

NOTICES OF BOOKS.

Purdy's Small Fruit Instructor. This is a really valuable work on the subject of which it treats, and we can fully recommend it to those of our readers who need such information. The following are some of the subjects of which it treats: "Small Fruit for the Family," "Advice to New Beginners," "Profits of Small Fruits," "Gathering the Fruit," "A Plan for Laying-out a Small Family Garden," "Raising New Sorts," "Preparation of Soil for Strawberries, etc.," "Plan of a Fruit-drying House," etc. The price, post-paid, is twenty-five cents. Address, A. M. Purdy, Palmyra, N. Y.

OUR EXCHANGE TABLE.

The Horticulturist.—In our notice of this valuable monthly magazine, in our December issue, we erred in the amount of annual subscription. It should have been two dollars. Henry T. Williams, 5 Beekman St., New York.

The Ladies' Floral Cabinet is \$1 25 per annum. Published by Henry T. Williams, New York. An excellent monthly periodical.

American Farmers' Advocate. We note that the address of this very useful journal is changed from Jackson, Tenn., to Jacksonville, Ill. Subscription, \$1 per annum. Chas. W. Green, Editor.

Moore's Rural New-Yorker.—Published by D. D. T. Moore, 5 Beekman St., New York. Subscription, \$2 50 per annum. This excellent periodical entered on its twenty-fifth year on the 1st of January, and is evidently in the full vigor of its manhood. We can confidently recommend it to our readers.

Live Stock Journal.—An excellent exponent of its specialty, and well deserving the patronage of every farmer. \$1 50 per annum. Buffalo, N. Y.

FAVORS RECEIVED.

The Overland Monthly.—This is undoubtedly one of the best numbers yet issued of this first-class magazine, abounding in excellent articles, of which "The Vigilance Committee of 1856," "Salmon-fishing on the Novarero," "Seeking the Golden Fleece, No. 6," "Summering in the Sierra, No. 2," particularly attracted our attention. "Etc.," and "Current Literature," are also quite equal to any preceding.

Schedule of Prizes offered by the Massachusetts Horticultural Society for the year 1874, is to hand, per favor of E. W. Buswell, Esq., Treasurer and Corresponding Secretary. Many thanks for the same.

CATALOGUES RECEIVED.

We have received catalogue of R. J. Trumbull, 427 Sansome street, San

Francisco, Cal. A copious and well-illustrated catalogue, well worthy the perusal of such of our readers as need his specialties. His assortment of semi-tropical fruit-trees, from Garey's stock, are well worthy of attention.

We have just had a casual look at the proof-sheets of F. Lüdemann & Co.'s "Descriptive Catalogue of Plants," as they were going through the press of our publishers. These gentlemen are the proprietors of the Pacific Nursery in this city. We shall notice it more at length in our next issue.

FLOWER GARDENS FOR CHILDREN.—It is desirable on many accounts that children should cultivate flowers rather than fruits or vegetables. Most children are fond of flowers, and all can be taught to love them, and the hardier and commoner sorts at least do not tax their energies so heavily as either fruits or vegetables in cultivation. Besides, since flowers appeal solely to the moral sense, they facilitate the inculcation of generous habits. As children acquire strength and skill, they may gradually be intrusted with the care of vegetables or fruits; but they must be taught to use the products of their little gardens as a means of conferring happiness on others; for thus can their own happiness be most effectively attained, since that which is selfishly enjoyed must ultimately result in discontent. But of all the lessons to be learned in a garden, the most valuable is the art of observing; for so varied, so delicate, so minute, and yet so unerring are the operations of Nature, that, though the closest study may fail to fathom her mysteries, the rewards of such study are so rich and so surprising, that even the student of tender years is perpetually stimulated to fresh researches. This interest in natural ob-

jects, once awakened, will prove an inexhaustible source of pleasure while life lasts; for it is an interest that the commonest heath can gratify; and he that has made good use of his powers of observation, he that has trained his senses to bring him accurate information, can not "travel from Dan to Beersheba, and cry 'Tis all barren."—*Home and School.*

FLORAL REVIEW.

BY F. A. MILLER.

The weather has been unusually disagreeable during the last month or two, and has delayed work which necessarily ought to have been completed by us, before this time. Continual rain storms have kept the ground too moist for any outdoor work, and plants in the greenhouse and conservatories have suffered much from dampness. Usually we notice at this time, the approach of Spring, the buds begin to swell, seeds are vegetating, and everything seems to make a start for new life. This year, however, plants show as little life in February as we are accustomed to notice in November and December.

As we may reasonably expect some bright and warm days during the next few weeks, we should not lose sight of the most important work to be done without delay, such as working up the soil, enriching it with good old stable manure, planting trees and shrubs, wherever they are desirable, pruning and trimming of vines and flowering and ornamental shrubs, sowing hardy flower seeds, as Mignonette, Pansies, Stocks, Candytuft, Sweet Alyssum, Gypsophila, Sweet William, Larkspur, Pinks, Sweet Pea, Snapdragon, etc.

During bright and warm days it should not be neglected to ventilate greenhouses, conservatories, or rooms

where plants are kept, thoroughly, every day, from nine in the morning until three in the afternoon. The damp and disagreeable weather made drying impossible the past two months; the superabundance of moisture created a foul atmosphere, fungus makes its appearance in all its various forms, the leaves of plants are rotting away, and all this acts again upon the soil in which the plants grow. Thorough ventilation, as I advised above, will, in a great measure, counteract all the evils referred to, and will keep the plants from perishing entirely. If you can keep them in fair condition for another month, they will amply repay you for all the attention and care you have bestowed upon them.

Flowers have been very few and far between during the past month; and our florists have not been able to supply the demand. However, the worst is over undoubtedly, and a few days of fine weather will help materially. The chief bouquet material has been Camellias, Heliotropes, Lily of the Valley, Cineraria, Hyacinths, Primulas, *Abutilon vexillarium*, *Adiantum cuneatum*, and Orange-blossoms, from the greenhouse; and Roses, Pinks, Violets, Stocks, Mignonette, Ageratum, Pansies, Diosma, Erica, Fuchsia, Candytuft, Antholyza, Gladiolus, and Laurustinus, from the open ground.

For button-hole bouquets, the Lily of the Valley, Hyacinths, and Violets, are in greatest demand; while for ladies' hair-dress, the Camellia, with a spray of Smilax, or the Lily of the Valley, is used almost exclusively.

During the coming month, the following plants will be the chief attractions in the house: *Primula Chinensis* (Chinese Primrose), Cinerarias, Lily of the Valley, Camellias, Hyacinths, *Epiphyllum* (Fuchsia, or Lobster Cactus),

Cyclamen, Eupatorium, *Begonia Verschaffelli*, *Streptocarpus Rexii*, *Libonia Penrhosiensis*, *Linum flavum*, Azaleas, Bouvardias, and Narcissus.

The following bulbs may yet be planted for early flowering, both in and out of doors: Hyacinths, Tulips, Anemones, *Dielytra* (Bleeding Heart), Lily of the Valley, Narcissus, Snowdrops, *Erythronium grandiflorum* (a most desirable flowering bulb, and native of California), Ranunculus, and Crocus. All of these are early flowering bulbs, and adapted to house culture as well as for the border.

If Roses are taken up from the ground, planted in pots or boxes, and placed in a sunny place in the house, they will flower in about a month. About two-thirds of the young wood should be taken off before taking them into the house. The same mode of treatment is applicable to Deutzias, Spiræas, Wiegeliæ, and other flowering shrubs. The result will amply remunerate for the little extra labor and care.

PELARGONIUM MARIE LEMOINE AS A BEDDING PLANT.—I would strongly recommend the above to the notice of flower gardeners for the coming season. I had two large beds of double pink Pelargoniums last season for trial, each containing about sixty plants of Madame and Marie Lemoine: Madame is not worth growing in comparison with Marie—the growth was irregular, and most of the leaves spotted, and the trusses of flowers small, while in Marie the growth was regular, and the foliage handsome, and splendid trusses of bloom, which stood the rain. It is a continuous bloomer (far preferable to Christine as a pink,) and requires liberal treatment. I have been told it is a shy grower, but have not experienced it.—*Gardener's Chronicle*.

VOL. IV.—9.

REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPER.

I continue the description of the different kinds of nuts from the last report.

Bitter-nut, Hog-nut, or Swamp-hickories, are the poorest of all the varieties; in fact the kernel is so harsh and bitter that even the squirrels will not eat them. All the varieties ripen about the middle of September.

Horse-chestnuts, or Buckeyes, grow in fleshy, prickly capsules, and ripen in the fall months. These nuts are not edible without some preparation. The bitter green oil is removed by first grating them to a pulp, then adding one fiftieth (1-50) by weight of carbonate of soda. The mixture is then thoroughly washed and raked by means of a clear fountain, and a white and agreeable paste subsides, which is manufactured into bread and cakes. In Paris they are manufactured into starch.

Madeira or English Walnuts are annually imported here in moderate numbers, and found in the fine groceries, fruit-stores, and markets. The Grenoble nuts are considered the best, and are in season throughout the year. The nuts begin to arrive in January and continue until May, when they are considered best.

Peanuts, Earth-nuts, Pindar-nuts, or Ground-peas, are found for sale in all our principal cities and in most towns and even villages, and in all seasons of the year. They are brought principally from the Southern States, the south of this State, Africa, &c., in large quantities, and may be found not only in fruit and grocery stores, but also at the corners of the streets, and, after having been roasted, everywhere, in the markets, at apple-stands, from peddlers, &c.

The fresh or new nuts arrive here in October. In places where there are frosts, the first frost kills the vines and ripens the nuts. The annual importation to the Northern States and Canada, and the States west of the Rocky Mountains, no doubt considerably exceeds 200,000 bushels. A single planter in one of the Eastern States has obtained from their culture a yearly income of \$6,000. He raises from fifty to seventy-five bushels to the acre, and cultivates five acres to the hand, where at one dollar a bushel, the ordinary price—though one dollar and twenty-five cents are frequently realized—yields an income of from \$250 to \$300 to the hand. No such result, under the old system of labor, could be obtained with the staples on similar soils. Our Cotton planters contented themselves with a crop yielding from twelve to fifteen dollars an acre, and it was the summing up on a large surface that gave a living result. The cultivation of no crop is so easy as that of the Peanut, and only the simplest implements are required; first the plow, to break the land, and then simply the sweep and weeding hoes.

The average crop, as I have stated, is from fifty to seventy-five bushels to the acre, besides which, there will be left upon the ground enough to fatten 100 pounds of pork. The vine, when the Pea is removed, makes an excellent forage for cattle—said to be equal to the best hay or wild Oats. From the nut is expressed a now valuable oil. During the late war in the States this oil was universally used in our machine shops, and its lubricatory properties were pronounced by competent authorities to be superior to those of whale oil, for the reason that it does not gum at all. One of the qualities of the oil is extensively employed in the composition

of medicine; another is used for burning purposes, and possesses the virtue of not smoking; while still a third makes a really excellent salad condiment. Such, and so varied and important are the uses to which this simple product can be devoted; uses which the uninformed, who have perhaps regarded it only in the light of an indigestible bulb, would never suspect to proceed from its cultivation.

Pecan nuts are brought from the South and do well in California. They are taken by some for a species of the Hickory nut, known by them as the Illinois Hickory. It is almost an inch long, as large as the end of a common sized finger, with a smooth shell, and oblong shape. They are of an agreeable taste and wholesome. Those that are brought here come principally from the Southern States and Texas, and are in season from November until April or May.

Almonds and English Walnuts, with many others of the nuts just described, are now being grown extensively on this coast, and it will not be many years before we will probably have a large surplus quantity of many kinds of nuts, if not the whole of them, as we have now of Oranges, Grapes, &c. We import now Malaga Raisins, Zante Currants, and Hungarian Prunes. Currants, Prunes, Plums, &c., are now dried here in large quantities; also Apples, Peaches, and many other fruits too numerous to mention. The Alden process of drying fruit will revolutionize this whole traffic. Raisins have also been successfully cured here the past season, and we are every year doing more in the way of drying and curing Figs.

From the statistics furnished us, we condense the following as the operation of the Alden Fruit Preserving Works at

San Lorenzo; of which Littlefield, Webb & Co. are the resident agents. In a working season of 140 days, 790,000 lbs of fruits and vegetables have been preserved, as follows: Apples, 333,700 lbs; Pears, 171,350; Peaches, 68,734; Corn, 49,208; Squash, 48,283; Currants, 42,209; Apricots, 37,091; Potatoes, 14,613; Onions, 8,871; Plums and Prunes, 5,368; Rhubarb, 4,742; Tomatoes, 4,192; Cherries, 3,401; Peas, 1,406; Beef, 671; Beans, 206; Miscellaneous, 2,000; total, 790,045 lbs. This being the first season of its operation here, it is considered quite a success. During the 140 days, an average of only four evaporators were used; if the factory had been worked to its full capacity, 1,000,000 pounds would have been the amount, thus showing an average of nearly four tons per day. Not having a full supply of fruit was the reason the factory was not run to its full capacity. The sales of the Alden product have been much better than was expected, the quality of the fruit far exceeding any ever offered for sale by the Eastern factories. The agents of the company in this city have received orders which they are unable to fill, being sold out of a fall line already. Orders were received for a lot of Onions and Apples for the Navy Department, which would require 3,000 sacks of Onions and over 5,000 boxes of Apples to fill it; but the order coming so late, they were unable to procure them in quantities to warrant accepting the order. From what we have seen of the Alden product, we are convinced of its excellence and superiority over any present method of preserving, and bespeak for it great success on this coast. Following is the price list of the San Lorenzo Fruit Preserving Company: Apricots, 32c to 40c per lb; Peaches, 12½c to 30c; Pears, 12½c to 50c, the latter rate for Bartlett, pared; Currants, 32½c

to 40c; Apples, 12½c; Plums, 25c; Rhubarb, 35c; Corn, 30c; Potatoes, 14c; Sweet do, 15c; Onions, 40c; Beef, 40c; Tomatoes, 75c; Squash, 25c. The above are put up in bulk in boxes containing 30 to 50 lbs, and also in 1-lb caddies in cases of two dozen each. Extra choice Apples, in 10-lb boxes, expressly for family use, 18c; do Pears, 22½c per lb.

The first Cucumbers of the season arrived in the first week in January, from Vacaville, Solano County. They were grown under glass. Green Peas were at that time less plentiful, on account of the supply from the Mission Gardens being exhausted. The poor quality of those coming forward at that time, prevented any advance.

The markets on the 10th of last month (January) were abundantly supplied with Los Angeles Oranges, the greater portion of which were of inferior quality, and sold at low prices. The stock of Mexican held out for some time, and had a depressing effect upon California fruit. Apples were abundant up to the middle of January; but Pears of all kinds were very scarce. Bananas were at 75c; Smyrna Figs, 35c per lb; Apples, by the box, were delivered at \$1.25 to \$2.50; Pears, \$2 to \$3.

With the exception of a decline in Asparagus and Artichokes, prices in the vegetable markets underwent no change from the beginning to the end of January. The last week in January, Green Peppers, from Mexico, retailed at \$2 to 25c; Spinach, 8c; New Potatoes, 5c to 8c; Asparagus, 50c per lb; Lettuce, 20c to 25c per dozen; Salsify, 8c to 10c per bunch; Potatoes by the sack, delivered, \$1.25 to \$1.50 per 100 lbs.

During the same period, the supply of tropical fruit was increased by the arrival of a cargo of Oranges, Limes, and Cocoanuts, from Tahiti; Bananas from Honolulu, and Bananas, Pineap-

ples, and Limes, by the Panama steamer. Shipments of California Oranges from Los Angeles were liberal, and as the quality improved and the supply of Mexican decreased, the inquiry for them increased. Apples were abundant, and prices took a wide range. In the latter part of January, Bananas were at 75c; Smyrna Figs, 35c per lb; Apples by the box, delivered, \$1.25 to \$2.50; Pears, \$2 to \$3.

The last of January the retail markets continued dull under the depressing influence of wet weather. Oranges were the chief among fruits, and they were in abundant supply, especially from Los Angeles. The inferior descriptions of the latter were hawking in the streets at 25c per dozen, while the better description from the San Gabriel valley—from the Sunnyslope and Lake Vineyard orchards—commanded the highest price in the market, \$1 per dozen. Mexican Oranges were plentiful at 50c to 75c per dozen, and Tahiti Oranges at 50c. Pears were giving out, and were quoted at 6c to 8c. Pineapples sold at 75c to \$1 each.

Potatoes, Asparagus, Cabbage, and Cabbage Sprouts, remained firm at the quotations of a week before. Rhubarb from Petaluma retailed at 20c per lb. Mushrooms advanced to 35c and 50c per lb. Horse Radish was easier at 20c per lb.

IMPROVED FOLIAGE BEETS.—The garden Beet would be a beautiful ornament in the flower garden if it were not so common elsewhere. But there have been some variegated kinds produced, which are said to be as handsome as the Coleus. Mr. Bull thus talks about them—one in particular, which he calls "Multicolor": "This useful and handsome decorative Beet has been

raised by Mr. Clark, gardener to W. S. Mitchell Innes, of Edinburgh, where it has been carefully grown and selected for some years past. With reference to the origin, Mr. Clark states that a single variegated plant came up in a lot of the ordinary garden Beet. This plant produced seed which gave a numerous progeny of various colors. The seed saved from the second generation produced plants in which the variegation was still further developed, and embracing the following colors: rose, orange, magenta, silver, bronze, crimson, with various shades of purple—and with the different colors blended, from the brightest orange to the richest carmine; and when shown before the Royal Caledonian and Royal Horticultural Societies, twenty distinct varieties were exhibited. From its hardy character, and the variety of color it produces, the use of this Beet as a decorative plant for flower gardens (apart from culinary purposes), can scarcely be over-estimated; plants potted in autumn would be extremely serviceable for cool conservatory decoration, their colors rivaling those of the brightest *Dracenas*, with the advantage of not requiring a stove like the last-named."

PURPLE CONE-FLOWER, (*Echinacea purpurea*).—A specimen of this plant in cultivation from Illinois, presented some features which commend it to attention for the garden. Although somewhat coarse in foliage, its large flower-heads terminating the naked peduncles are quite showy, from the dark-purple, almost black, conical centre and the numerous (ten to fifteen) light-purple pendant rays. These rays are about two inches long by one-fourth of an inch wide. The plant is vigorous and hardy, and is worthy of trial in the flower-garden.

Editorial Cleanings.

A LONDON EXPERIMENT WITH SEWAGE.—The Phosphate Sewage Company, of London, have patented a process which promises to solve the very troublesome question of the disposition of the liquid filth that flows through the sewers of every city. The process combines the saving of the rich manurial properties of the sewage for fertilizing purposes, with its disinfection, so that, instead of polluting some neighboring brook or river, the liquid portion that escapes is clarified into sparkling water, pure alike to smell and taste. The company is at present experimenting with a portion of the sewage of London, treating it in the following manner: The sewage, a turbulent mass of thick, black, and odorous water, is pumped out of the main into a wooden carrier, along which it runs for a few feet, till, passing a small pumping-engine, it receives the addition of a small quantity of phosphate of alumina, specially prepared. The sewage continues its course along the carrier some distance, the phosphate meanwhile becoming thoroughly mixed with it, and visibly affecting its appearance in the direction of clarification. It next receives a further addition in the shape of milk of lime pumped into the carrier from another small pumping station, and the mixture is permitted to flow into two large tanks, where the process of precipitation takes place, the effluent water running off by carriers to perform its work of irrigation.

NEW PAPER-FIBRE.—According to the *Agricultural Gazette* of India, a common weed called *Sida retusa*, growing in great abundance in Queensland and New South Wales, has recently been found to afford a very valuable material

for paper-making. It is a species of *Malvaceæ*, and the best specimens grow about Windsor, New South Wales, where it is known as American Lucerne. It is alleged to be of such vitality and vigor of growth as to be almost ineradicable, and to grow in such profusion as to be a very troublesome weed; to be very superior to Esparto-grass, clean, easily bleached, and having all the best qualities of flax. "Samples of the *Sida retusa* having been submitted to the chief paper manufacturers in England, one and all have agreed in expressing their most favorable opinion of its perfect adaptability to the purpose of paper-making, and all entertain a very high estimate of its market value." Various species of *Sida* are represented to be common throughout India. One, *Sida piliafolia*, referred to by Dr. Forbes Boyle, in his work on Indian fibres, is said to be cultivated in China for its fibre, as a substitute for hemp and flax. Dr. Roxburgh describes its fibre as "strong and pliable, very silky in its nature, and the plant of very rapid and luxuriant growth, three crops being obtained in one year."

PACKING OF ORANGES AND LEMONS.—A full grown Orange-tree yields from 500 to 2,000 fruit annually, and arrives at the bearing state in three or five years, as does the Lemon-tree; and both grow luxuriantly in most soils. The plantations, in the Mediterranean countries, are called gardens, and vary in size, the smallest containing only a small number of trees, and the largest many thousands. The fruit is gathered in baskets similar to peach-baskets, lined with canvas, the basket being held by a strap attached and passed around the neck or shoulders. From the garden the fruit goes to the repacking magazine, where

it is removed from the boxes in which it was picked in the gardens, and repacked for shipment by experienced female packers, after having been assorted by women, and wrapped in separate papers by young girls. As many as 500 (mostly women and children) are employed by some of the fruit-growers in their gardens and magazines, in gathering, sorting, and repacking for shipment, the wages paid them varying from nine to sixteen cents a day. In sorting every fruit that wants a stem is rejected. The boxes are then securely covered, strapped, and marked with the brand of the grower, when they are ready for shipment. Twenty years ago this trade was nothing in its commercial characteristics, or the inducements it offered to capitalists. Now it is progressing with giant strides into prominence, and is a considerable source of revenue to the Government.

DITAINÉ, NEW SUBSTITUTE FOR QUININE.

—The use of *Eucalyptus globulus* as a substitute for quinine has been quite thoroughly discussed, and now we find another plant which bids fair to make equally as great a stir in the medical world. The plant in question, *Echisera scolaria*, belongs to the family of the Apocynaceæ, and grows quite abundantly near Luzon, in the province of Bataugar, in the Philippine Islands. Its bark has for some time been employed by the inhabitants of the province as a cure for all kinds of fevers. M. Gruppe extracted from the bark the active principle, which he called *ditainé*, and which has been used in the hospitals in the same manner and the same doses as quinine. It is said to be quite as efficacious as quinine, without producing any of its disagreeable effects, and has been found very valuable as a tonic.

“SANFOIN.”—The Monterey Gazette has the following: “This is a French name of a grass, a species of Lucerne, which in France has long been cultivated as the most profitable of grasses, whether for hay or for pasture. Victor Bidache has received ten pounds of the seed, and will take measures this season to propagate it. He informs us that ‘Sanfoin’ will grow on lands having a dry constitution, and that it is remarkably prolific, yielding, without irrigation, two crops of hay the season, and then serving for pasture. It grows two feet high, has a beautiful flower, and is full leaved. Besides its use as hay, it is employed as a fertilizer, like the red clover in the Eastern States. Should Mr. Bidache’s experiment succeed, and there is no reason it should not, ‘Sanfoin’ will be a valuable addition to our grasses.”

THE YEW POISONOUS.—All the evidence on the subject of the Yew being poisonous to cattle, horses and deer, leads to the conclusion that when eaten in its fresh state it is harmless, but when withered or partially so, it is poisonous. The clippings of Yew hedges, for instance, if laid within the reach of these animals and eaten by them, have invariably caused death; but it is known that when they browse upon the fresh shoots in parks no such result occurs.—*Cottage Gardener*.

GERMINATION OF PRIMULA JAPONICA.—English florists find that the *Primula Japonica* retains its germinating power down to the third season. Seeds which were received direct from Japan by E. G. Henderson & Son, and germinated but small numbers the first year, produced thousands freely the second year, and the same pans still produced the third year from the original sowing.

THE *London Times* sharply controverts the assertion made by Dr. Edward Smith to the British Association, that fish is rather a relish than food, and contains little more nutriment than water. As opposed to this statement, the investigations of Mr. Payen are cited, who proves that the flesh of fish on the average does not contain more water than fresh beef, and has as much solid substance as the latter.

For instance, the flesh of salmon contains 75.70 per cent. of water, and 24.296 per cent. solid substances, while beef (muscle) contains 75.88 per cent. of water, and 24.12 per cent. solid substances. The flesh of herring contains still less water than that of salmon, and some fish are as rich in nitrogenous substances as the best wheaten flour, weight for weight.

THE ESPARTO GRASS.—At the Society of Arts recently, Mr. Johnson read a paper on Esparto Grass, *Macrochloa tenacissima*, now so largely used in the manufacture of paper. The leaf is the portion used, and the imports have risen from fifty tons in 1856 to over one hundred thousand tons in 1870, standing second in this respect to cotton only. The plant grows best on the sea-coast of southern Spain and northern Africa, and there seems to be no reason why the culture should not be largely increased both in the native country of the plant and in other regions of similar climates, etc. The plant is reproduced by seed, or transplanting.—*Gardener's Chronicle*.

THE BEST PLANTS FOR HANGING BASKETS.—A contributor to the *London Garden* says that plants with slender branches which naturally hang down, are most suitable for hanging baskets.

“Mother of Thousands”—the “Wandering Jew” with its prettily marked leaves—the Lobelias, and some of the trailing Campanulas or Bell-flowers—the well-named “Rat-tailed Cactus,” and the so-called “Ice-plant,” are all more at home when suspended than when grown in any other position, unless it may be when placed on brackets at each side of the window, where they have a very charming appearance. The same writer suggests that the suspended basket or flower-pot should be supported by a piece of cord passed through a small pulley, by which means it will be easily lowered down for the purpose of watering.

TREE LEMON VERBENA.—In these days, when *effective* plants are sought after, we should not lose sight of things at hand with which to produce as good results as any new introduction can afford. The *London Gardener's Chronicle* calls attention to the pretty effects which can be had from the common Lemon Verbena when trained as a standard. The wavy spikes of flowers are very graceful, and the odoriferous character of the plant will always make it a favorite in any form.—*Gardener's Monthly*.

BLACKBERRIES IN CALIFORNIA.—The *California Agriculturist* notices an acre and a half Blackberry patch near San José, from which were picked sixteen tons of fruit, and adds:

“This is the second crop that he has gathered, as the vines are but three years old. The soil is a rich, light alluvial, and he cultivates thoroughly and cleanly. The plants are four to eight feet apart. He irrigates from the time of blossoming while the fruiting lasts, as often as once a week, and says that it pays to irrigate copiously. The variety

cultivated is the Lawton. One man will pick from 100 to 112 pounds per day, and it has required seven men constantly at work to pick the fruit from one and a half acres during the ripening season."

HEALTH FROM FLOWERS.—It is reported that an Italian professor has discovered that perfumes from flowers have a chemical effect on the atmosphere, converting its oxygen into ozone, and thus increasing its health-imparting power. As the result of his researches he states that essences of Cherry, Laurel, Lavender, Mint, Juniper, Lemons, Fennel, and Bergamot are among those which develop the largest quantities of ozone, while Anise and Thyme develop it in a less degree. Flowers destitute of perfume have no such effect. He very naturally recommends that dwellers in marshy localities and near places infected with animal emanations should surround their homes with a profusion of the most odoriferous flowers—a recommendation which the Creator, through their beauty and fragrance, addresses to the senses of all sensible people.

ADIANTUM FORMOSUM.—The above named Fern is certainly an exceedingly useful variety. It is very easily cultivated, and can be propagated freely; the mature fronds have also the good quality of keeping longer after being cut than any other of the species; but that it is more beautiful than *A. cuneatum* I can not admit. It is quite as easy to grow. I noticed it in an article on Ferns last year. The method alluded to of inverting a small garden saucer inside a larger one, so that the bottom of the pot just touches the surface of the water, is good when the plants have quite filled their pots with roots. I have some Ferns which are grown for exhi-

bition, and must not be shifted into pots larger than twelve inches in diameter; they require watering twice or thrice a day in summer, and often suffer from neglect when standing on the stage with other plants; but when the pots are placed bodily in saucers of water, they are not a tithe of the trouble, and seem to do well with their treatment.—*Gardener's Record.*

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING JAN. 31ST, 1874.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office).

BAROMETER.

Mean height at 9 A. M.....	30.17 in.
do 12 M.....	30.17
do 3 P. M.....	30.15
do 6 P. M.....	30.15
Greatest height, on the 29th at 12 M.....	30.45
Least height, on the 15th at 6 P. M.....	29.68

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.....	46°
do 12 M.....	50°
do 3 P. M.....	50°
do 6 P. M.....	46°
Greatest height, on the 15th at 12 M.....	60°
Least height, on the 12th and 22d at 9 A. M., and 12th at 6 P. M.....	39°

SELF-REGISTERING THERMOMETER.

Mean height during the night.....	41°
Greatest height, on night of 16th.....	54°
Least height, on night of 23d.....	38°

WINDS.

North and north-east on 17 days; south and south-east on 2 days; south-west on 8 days; east on 1 day; north-west on 3 days.

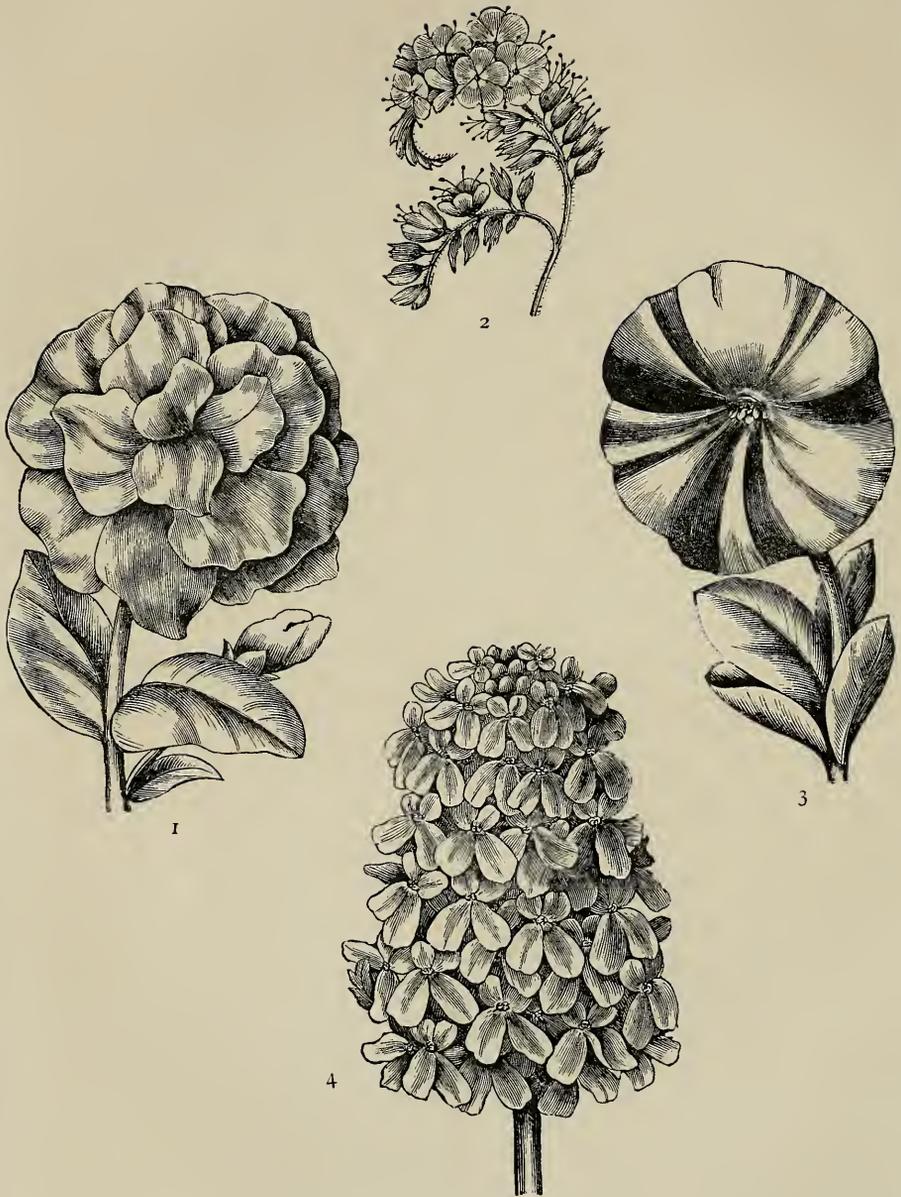
WEATHER.

Clear on 7 days; variable on 8 days; cloudy on 16 days; rain on 14 days.

RAIN GAUGE.

January 1st.....	1.54 inches.
.. 14th.....	0 06 "
.. 15th.....	0 35 "
.. 16th.....	0 20 "
.. 17th.....	0 59 "
.. 18th.....	0 07 "
.. 19th.....	0 36 "
.. 20th.....	0 32 "
.. 21st.....	0 08 "
.. 25th.....	0 25 "
.. 26th.....	0 12 "
.. 27th.....	0 13 "
.. 28th.....	0 45 "
.. 30th.....	0 33 "
Total.....	4.85 "
Total rain of the season up to date.....	17.14 "

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GROUP OF ANNUALS.

1. *Double Petunia.*

2. *Phacelia.*

3. *Single Petunia.*

4. *Candytuft.*

T H E

California Horticulturist

AND FLORAL MAGAZINE.

VOL. IV.

MARCH, 1874.

No. 3.

ACHIMENES.

BY F. A. MILLER.

The Achimenes (Nat. ord. *Gesneriaceae*) is a bulbous rooted plant, exclusively cultivated under glass, and may be recommended as a very desirable house plant. It is found in the West Indies, Central America, and Mexico. The treatment necessary is simple; but the following rules must be observed: The best soil for it is a sandy leaf-mold, to which a small quantity of bone ashes should be added. Plant six to eight bulbs in a six-inch pot, at equal distances; the pot to be filled up to within one to one and a half inches of the rim; as the plants grow up fill in carefully and gradually the same soil, until the pot is nearly full. If treated in this way, side-shoots will be formed from the main stems, and a compact growth will be the result. Set the pot close under glass. The planting may be done in February, or any other time until April. Two or three months after planting, the plants will be covered with rich flowers of various shades, as described below. After the flowering season, and when the stems have decayed, the bulbs should be taken up and buri-

ed in sand of moderate dampness, where they may remain until the time for planting comes again. I would advise to plant bulbs of only one color in a pot, the effect being much better when in bloom. This is also preferable, for the reason, that some varieties grow taller than others, and uniformity is required.

The Achimenes is very easily propagated from cuttings. Very desirable varieties are:

A. coccinea, native of Jamaica, fine scarlet.

A. gloxiniaeflora, (from Mexico), flowers large white, with yellow throat.

A. grandiflora, lilac.

A. longiflora major, beautiful blue.

A. Ambrose Verschaffeltii, fine white.

A. purpurea elegans, deep claret color.

TO MEND CHINA.—Take a very thick solution of gum-arabic in water, and stir into plaster of Paris until the mixture becomes of proper consistency. Apply it with a brush to the fractured edges of the china, and stick them together. In three days the article cannot be broken in the same place. The whiteness of the cement doubles its value.

ORNAMENTAL SHRUBS—HOW TO TAKE
CARE OF THEM.

Deciduous shrubs are propagated by cuttings, layers, offsets, or divisions of the root, and seed. Cuttings are made of the ripe wood of the same year's growth, cut in November and heeled in—that is, the lower end of the cutting is planted in sand, in a cellar or some place where there is an even temperature, above freezing, and yet not warm enough to start the buds before it is time to plant in the spring. Most of the new varieties are propagated by cutting off the young shoots. These are taken off when about three inches in length, and planted in boxes or shallow pots, filled with sand, and placed in frames where there is a moderate degree of bottom heat. To be successful in raising cuttings in this way, the temperature should be kept as even as possible. The sudden changes from fifty to sixty, and then down to thirty, causes the cuttings to damp off, as the gardeners term it—that is, turning black and rotting. Other varieties of shrubs are raised from cuttings of the root, which may be cut up in small pieces of an inch in length, and planted in the same way. All varieties like a rich and deep soil. The Laburnum and Japan Quince have long roots, which run deep into the ground, and when grown in poor soil, they have a dwarf and stunted appearance. Most shrubs, as a general rule, send out their roots not far from the surface of the soil; consequently, a slight surface manuring in the fall is all that is necessary to keep them growing and blooming luxuriantly. In pruning, some little judgment is required. Some varieties produce their flowers on the wood of last season's growth; hence, care must be exercised in removing wood, or the sup-

ply of flowers will be limited. Others produce their flowers on the young wood made in the spring. These may be pruned more severely. As an illustration of this fact, the *Spiræa prunifolia* bears its beautiful white flowers on leafless shoots of last season's growth, while the *Spiræa opulifolia*, which flowers later, blooms on young shoots of the same season's growth.

The following is a list of twenty-five varieties of the best now in cultivation:

BERRY-BEARING SHRUBS.

Callicarpa Americana.—Flowers very small and insignificant. In October, the branches are covered with beautiful purple berries. Propagated by divisions of the root and cuttings.

Daphne Mezereum.—Most fragrant of all the flowering shrubs. Blooms in March, and is succeeded by bright scarlet berries. Propagated by layers and seeds.

Euonymus Americanus, or Burning Bush, sometimes called Strawberry Tree.—A tall growing shrub, covered with bright scarlet berries. *E. fructa alba* bears white berries, and forms a pleasing contrast to the former. It is very easily propagated by seeds, cuttings, layers, and division of the root.

Symphoricarpus racemosus, more commonly known under the names of Waxberry and Snowberry; the flowers are insignificant, but the berries are rather pretty in the fall. *Symphora vulgaris*, commonly called the Coral Plant—the berries are red, and bear a slight resemblance to coral beads, easily propagated by layers and divisions of the root.

Berberis atropurpurea.—A variety of the common barberry, with dark purple leaves. In spring it bears a profusion of flowers, of a yellowish color, quite pretty, succeeded by berries of a dark color, of no great beauty, yet it

should be in a collection, on account of its hardiness, retaining its foliage for a considerable length of time during winter. Propagated by cuttings and divisions of the root.

Amygdalus Persica, or double flowering Peach.—The new crimson one is a splendid addition to our collection of flowering shrubs. It frequently bears double fruit, but they never mature. To perpetuate it, it requires to be budded on the common Peach or Plum stock.

Amygdalus pumila is the old double pink-flowered Almond, too well known to need any description.

Amygdalus pumila alba plena, the new double white flowering Almond, is also a great addition. No choice selection of shrubs is complete without it. It is extremely hardy, and easy to propagate by cuttings of the root.

Andromeda calyculata—Is a dwarf shrub, retaining its leaves all winter, and covered with white flowers in the spring. *Andromeda floribunda* grows taller than the above, flowers larger and more abundant. Propagated by seeds, layers, or cuttings.

Azalea calendulacea, Orange colored Azalea.—Very showy, but not as fragrant as the *Azalea viscosa* or *nudiflora*, which grows wild in most parts of the country.

Cercis, Japan Judas Tree.—This is probably the most showy of all the early flowering shrubs in cultivation. The flowers are of a rosy pink, and produced so profusely as to cover the branches entirely. Propagated by layers.

Cytisus scoparius—Scotch brown, a very graceful growing shrub, of medium size, foliage very small, and bearing a profusion of pea-shaped flowers of a bright yellow; not perfectly hardy, yet does well in sheltered positions. Propagated by seed.

Cydonia Japonica, Japan Quince; a beautiful flower, but the plant, on account of its thorny character, is no favorite with us. *Cydonia Japonica alba* is a white, or, more properly speaking, a pink variety. Both, when planted together, form a pleasing contrast. Propagated by layers and dividing the roots.

Deutzia scabra grows eight or ten feet high, bearing an abundance of pure white flowers. The new double flowered variety is pretty, yet we think it will be some time before it supersedes the preceding one. *Deutzia gracilis*, a dwarf kind, suitable for early flowering in the house. Propagated by cuttings.

Forsythia viridissima, Golden Bell, flowers very early in spring, and retains its foliage until quite late in the season. Easily propagated by layers. *Forsythia suspensa*, a new weeping variety, flowers similar to the above, but much smaller.

Halesia Tetraptera, Silver Bell Tree, bearing thousands of white bell-shaped flowers. Propagated by seed.

Spiraea.—A beautiful class of shrubs, commencing to flower early in the spring, and continuing until autumn. *Spiraea prunifolia* bears its flowers on long, delicate shoots. *Spiraea Reevesii* bears a profusion of white flowers. *S. fl. plena*, a double flowered variety of the former. *Billardii*, bright red. *Callosa*, pink flowered. Propagated by cuttings, layers, and divisions of the root.

Syringa, Lilac.—The new varieties are very fine. *Syringa virginialis*, a delicate white flower. Persian, purple flowers. *S. laciniata*, cut-leaved curious foliage. These varieties are valuable, as they commence to flower when quite small. Propagated by layers, cuttings, and divisions of the root.

Tamariscus Africamus.—A very graceful shrub, growing quite tall, foliage

delicate, flowers in long spikes, of a pale pink; can be raised from layers of the branches.

Weigelia rosea.—This shrub has become very popular. Its beautiful flower, extreme hardiness, and quick growth have rendered it a general favorite. *Weigelia amabilis*, a strong growing kind, of not much beauty, but it blooms occasionally during the summer. *Weigelia variegata*, variegated leaves. Propagated by cuttings, layers, and divisions of the root.

Viburnum opulus, the old-fashioned Snowball. There are several varieties of this shrub. It is propagated by cuttings and layers.

Hypericum, or St. John's Wort.—A dwarf shrub, bearing small yellow flowers, in bloom for quite a length of time during summer. Propagated by seed.

Philadelphus coronarius, or Mock Orange, the most fragrant of all the Syringas. *Philadelphus grandiflorus*, larger flower than the former, but not so fragrant. *Nana*, a dwarfish variety. *Gordonarius*, similar to *grandiflorus*. All the varieties named bear white flowers. Propagated by cuttings, layers, and divisions of the root.

Hydrangea.—The new variegated leaved varieties are very ornamental. *Argentea variegata* has white spots or stripes on its leaves. *Aurea variegata*, foliage, golden stripes. They require to be protected during winter. Easily propagated by cuttings and layers.

Crataegus oxyantha, English Hawthorn. The red and white are quite pretty, and well worth cultivating. Propagated by seeds.

Kalmia latifolia, our native Laurel.—Its extreme hardiness and delicate flower has made it quite a favorite of ours. When removed from its native woods, it should be planted in a similar soil.

Calycanthus floridus—sweet scented

shrub. The stems and flowers are both fragrant. The flowers are not remarkable for their beauty. Propagated by suckers, layers, and cuttings.

Rhododendron—There are so many varieties of this beautiful evergreen shrub, that selection is a matter of taste. *R. Catawbiensis*, large purple flower. *Maximum*, pink flower. Propagated by grafting, seeds, and layers.—*Horticulturist*.

THE HOLLY.

BY E. J. HOOPER.

The Holly (*Ilex aquifolium*) is a beautiful evergreen shrub, which I should like to see more cultivated than it is in California. It is essentially a winter ornament in almost every civilized country, where it can flourish in the open air. At Christmas, especially, it is that the Holly-bush attracts the eye, sanctified by the customs of so many nations. Ever green and ever brilliant, now entwined with snowy clusters of star-like flowers, now clad with glowing masses of deep scarlet berries, beautiful in every season,

"It weathers every changing hour,
And welcomes every sky."

And thus it commends itself not only to the variable climates of other lands, but even to our own happily climated State, rich as it is in numerous plants of both native and foreign growth; and notwithstanding that we possess so beautiful and indigenous a plant as the lovely Madroña-tree, (*Arbutus Menziesii*), it is fully equal to it in the great beauty of its flowers, foliage, and red berries.

The Holly is beautiful and inspiring even in its most commonly diminutive and bushy state; but the effect is, of course, greatly enhanced when it is planted in some open spot, where it may

stand in the perfection of its growth, an evergreen tree, displaying the verdure of summer amidst, as even in our mild region, the sombre and subdued expression of the winter landscape.

"Glossy-leaved and shining in the sun,"

it is indeed always a glad and cheering object, as may be seen in the handsome grounds of R. B. Woodward's country place in Napa Valley, where the brilliant clusters of scarlet berries, which inwreath its outer branches, contrast and embellish its cone-like mass of enduring greenness.

The circumference of the stem and branches of the Holly is small in proportion to that of many other trees. This may in some degree be accounted for by the peculiar slowness of its growth, (at least in most countries), and the consequent hardness of the timber, the annual deposits of woody layers being remarkably small and compact. The bark is smooth and of a grayish tinge, the lower branches spread horizontally, and when the tree is uninjured by cattle, etc., diverge regularly on each side of the trunk, while the upper and lower shoots assume a more elevated direction, so as to give the tree a cone-like appearance. "The branches," to quote the minute description of Hunter, "are garnished with oblong oval leaves, about three inches long and one and a half broad; of a lucid green on their upper surface, but pale on their under, having a strong midrib; the edges are indented and waved, with sharp thorns terminating each of the points, so that some of the thorns are raised upward; these being very stiff, can not be handled without pain. The leaves are placed alternate on every side of the branches, and from the base of their footstalks the flowers come out in clusters; standing on very short foot-

stalks; each of these contain five, six, or more flowers."

"O reader! hast thou ever stood to see
The Holly-tree?

The eye that contemplates it well perceives
Its glossy leaves,
Ordered by an intelligence so wise,
As might confound the atheist's sophistries.

"Below a circling fence its leaves are seen,
Wrinkled and keen;
No grazing cattle through their prickly round
Can reach to wound;
But as they grow where nothing is to fear,
Smooth and unarm'd the pointless leaves appear."

The meaning of the latter stanza is explained thus: When the tree is allowed to assume its natural form, the leaves on the lower branches alone are furnished with these prickles, while those on the upper boughs are, for the most part, destitute of them.

Yet handsome as the Holly may be as a tree, it is especially valuable as a hedge-row plant. For this purpose it is most generally cultivated in England and many parts of Europe, and is peculiarly adapted, whether we regard its great durability, the impenetrable nature of its foliage, the facility with which it bears clipping, and the evergreen character of its tough and polished leaves, unchanged by seasons or blasts, and almost impervious to the insect tribe.

"A hedge of Holly, thieves that would invade
Repulses like a growing palisade;
Where numerous leaves such orient green invest,
As in deep winter do the spring arrest."

Whether our comparatively dry climate would suit it as a hedge-row plant, experiment could alone decide. They have excellent hedges of it in many parts of Europe, where the climate is far colder than California.

A rich and deep loam is the proper soil, a rather moist and sheltered, though not over-shaded place, the situation, in

which the Holly thrives best; yet it has this further recommendation, that there are but few spots in which it will not grow. Even between the shade and drip of other trees, so uncongenial to almost every other plant, it is uninjured; and in this respect it is unequaled, except by the Dwarf or Tree Box.

The timber of the Holly is hard, white, finely grained, susceptible of a very high polish, and easily stained with different colors: hence it is peculiarly suited for inlaying, veneering, and other ornamental cabinet work. It is, however, rather scarce everywhere, and rarely to be obtained in any quantity, even in the countries where it is most grown, being too much prized by the owners to be cut down for timber. It is considered to rank next after Box and Pear woods, for wood engravings.

Many varieties and sub-varieties have been raised by accident or cultivation from the Holly.

The name Holly is evidently a corruption of the word holy, and applied in consequence of being for many ages, and in most European countries, associated with the sacred festival of Christmas.

PRESERVING CUT FLOWERS.—Cut flowers in vases will keep much longer if the vases are filled with white sand, and with water enough barely to cover it, or rather to keep it thoroughly wet. Water by itself rots the stems, so that they lose the power of drawing up moisture; but this does not occur so readily where they are thrust into the wet sand. The sand should be washed by having water poured on it and drained off before use; otherwise, the salt which all sea sand contains will prove injurious. As wet sand is an unhandy thing to put into vases, it is well to have it washed and dry beforehand.

REMARKS ON THE CULTIVATION AND AFTER TREATMENT OF GLOXINIA, GESNERIA, AND ACHIMENES.

BY THOS. L. WEBB.

These are all natives of various parts of South America, and can be brought into bloom at any season by merely regulating their period of rest, so as to prepare them for starting into growth at any time of the year. The remarks that follow may be of some use to amateurs not possessed of a good hothouse, and who wish to grow a few of these fine objects in their greenhouse.

Before remarking, however, upon the subject of treatment, it will, perhaps, be of some benefit to those who have not paid attention to the cultivation of this class of plants, to state that the leaves are the agents of the bulbs' (or tubers') maturity, and by which they collect and lay up a store of matter so essential to perfection in the flowers; so that it will be readily understood, that whatever has a tendency to promote healthy leaves, tends also to induce excellent bloom.

The treatment these tropical herbaceous plants require, so nearly agrees, that they can be classed together for cultivation. The Achimenes are the smallest, with scaly roots, and I find do best grown in shallow pans. The Gesnerias are larger tubers, and named after Conrad Gesner, a botanist of merit, of Zurich. The Gloxinias will form tubers from four to six inches in diameter. They were named after Gloxin, a botanist of Colmar.

At the present time—January—all those that are not already started into growth, should be stowed away in a dry place on a shelf, at the back or darkest part of the house, or they may be put with their sides turned up, under the stage, in a temperature not low-

er than 45° Fahrenheit, for it is not safe to keep the tubers colder, as they are liable to rot; if above 55°, to start into growth. There can, however, be some already started into growth if care has been taken to give the tubers a due proportion of repose. Debility, which is often seen in them, arises from improper management, the vital energies of the plant being nearly exhausted for the want of rest. Therefore, those who would cultivate them with success, must carefully attend to periodical resting. As to growing the plants, it is the system of some cultivators to part them after they have commenced to grow, others, directly after they are removed from their winter quarters.

In starting the roots of Gloxinias, (which may be done every six weeks if you have a hothouse) they should be taken out of the old soil, and repotted into four or six-inch pots, according to the size of the tubers, in a compost of light sandy peat and leaf-mold, and a small portion of well-rotted cow-dung, which will enrich it, taking care to give plenty of drainage.

The tubers of the Gloxinias and Gesnerias will only require to be pressed on the surface of the soil. Achimenes will require to be covered with at least half an inch of soil; then placed in a warm, close frame in the greenhouse, so that they get plenty of light. There is nothing to beat a pit to grow them to perfection, with a good moist bottom-heat from a bed of tan, dung, or leaves—the latter is preferable, being easily procured—also a lasting, nice, sweet temperature of from 60° to 70°, when they will make a free growth; give them plenty of water. It is as easy to grow good Gloxinias, Gesnerias, and Achimenes, as it is a few Cucumbers; and an amateur can have them to

do well in his greenhouse or pit. Use the syringe rather freely as they grow; and, as the temperature rises it will, with these, as most other subjects, induce clean and vigorous growth. The thrip, one of the worst pests of our greenhouses, will attack this class of plants with avidity, more particularly the Achimenes. Even the bloom will not be spared if they are allowed to get ahead. They can also be well grown in ordinary frames, such as are used in the truck patch. About the middle of March prepare some good fresh stable manure, in the same manner as for early frame cucumbers, then let the same quantity of leaves be collected and mixed with the dung, sufficient to form a good substantial bed, with a steady heat of about 70°—let the dimensions of this bed be about three feet larger every way than the frame to be used—cover the whole with six inches of soil of any kind, or sifted coal-ashes, for plunging in the pots or pans. The end of March will be time enough to put in the tubers, taking care to use soil warmed to the temperature of your frame or pit; shut up close for a few days, and give no water. Open the sash every fine morning to prevent the heat rising above 75 deg. Aim at a night temperature of from 55 deg. to 60 deg. After a few leaves have shown themselves, water carefully, and sprinkle over the leaves in the after part of the day, just before the sun is off the glass, and shut up immediately. Should we get a spell of cold weather, and the thermometer indicate a lower temperature, renew the heating material by removing the outer portion of your bed by cutting quite to the bottom, then replace with fresh, hot stable dung, or dung and leaves. This will not, however, require so much preparation as the dung for the original bed, as the

excessive heat will not come in immediate contact with your plunged pots, your object being at this time to maintain a steady heat of 75 deg. Water of nearly the same temperature as the frame, or at least tepid, must always be used at this season—and shade from the mid-day sun. As they start into flower, give more air and plenty of water; and as they expand, remove them from the frame to the greenhouse, first to the warmest, then to the coolest part of the house, to prolong their season of bloom. After they have done flowering, put the earliest batch in a warm place out of doors. Water moderately, each week giving less, to encourage them to go to rest. Later batches, after flowering, can be placed on their sides under the partial shade of trees, or a wall, where they will get sufficient sun to thoroughly ripen them. By the end of September, or early part of October, they ought to be all brought into their winter quarters until wanted to perform their routine of work again.

The following are a few good showy Achimenes:—Ambroise Verschaffelt, white, with crimson eye; Carl Woolfurth, fine crimson; *Carminata splendens*, carmine; *Longiflora major*, violet blue; *Longiflora alba*, white; Margarita, pure white; Meteor, scarlet; Sir Trehern Thomas, crimson; and Mauve Queen. A few good Gloxinias:—Lauretta, blue; Brilliant, crimson; Fairy, white and violet; Model, pink; Optima, dark rose; Sanspareil, pure white. Of Gesnerias there are *Zebrina splendens*, Cinnabarina, Donckelaari, Purpurea, Velutina. There is a great variety of the three species, and all that is required is a trifling outlay in getting a collection, and care.

There is a striking Gloxinia that requires especial notice, namely, the old,

almost forgotten, *Gloxinia tubiflora*, which is a very distinct variety introduced from south Brazil. The tubers are not unlike potatoes in appearance, and throw out stems, which grow and produce white tube-shaped flowers from two to three inches long. The plant attains nearly two feet in height; flowers from the bottom to the top of the stem. No collection, however small, should be without this variety. It is also delightfully fragrant.—*Gardener's Monthly*.

PROTECTING YOUNG FRUIT-TREES.

Jonathan Shearer, of Wayne County, Michigan, tells us, that in planting orchards he has found it an excellent practice to protect the stems of the trees from the direct rays of the sun (until the tops are sufficiently large to accomplish the same purpose) by winding them with a rope of straw. He cites one instance where Apple-trees thus treated grew fully a third faster than those treated in the usual way. This simple precaution is deemed especially important in cases where persons prefer to keep the surface soil clear, as the intense heat reflected in summer from bare ground is thought to be a prolific source of disease in young trees. Some horticultural writers, with the view of obviating this difficulty, have advised planting much closer than is customary, even if part of the trees have in time to be cut away. One has gone a step farther, and suggested that it might be well to introduce "nurslings," such as Alders, Poplars, or Willows—of course removing them before they become large enough to interfere with the roots of the fruit bearers—and thus secure the cool surface which, in orchards, is almost as important as a dry, warm subsoil.—*N. Y. Tribune*.

ORANGE CULTURE.

BY J. STRENZEL.

[This interesting and valuable article on Orange Culture was corrected by the author from the *Farmer's* print, for insertion in the present issue of the CALIFORNIA HORTICULTURIST.]

An Orange grove in the far off Sunset Land was one of the dreams suggested to my fancy on reading Fremont's narrative of travels in Upper California in 1846; it was the guiding star on that long journey across the untracked plains in 1849—through the salty, waterless Llanos Estacados, in the knee-deep road-dust in our meanderings along the Gila River, and on the much dreaded Colorado Desert. When, after thirteen months of wandering, the wide-spread plain of the San Joaquin, gleaming with fiery brightness of fields of *Escholtzia*, greeted the gaze from the summit of Pacheco's Pass, we praised the Lord that permitted us to view this "Land of Promise."

In 1853 I planted the first Orange seed; that grew well, and in 1873 I had realized my dream. During these many years the *Farmer* has faithfully and ably advocated the State's advancement in Horticulture especially, being always ready to promulgate the experience of workers. I take the liberty to profit by your further indulgence. It is now demonstrated that Oranges can be grown all over California; in fact, I suggest that every home could and should be graced by more or less of this golden fruit of the Hesperides. To insure this, it is well to guide the new-comers in those processes which, if well attended to, will secure in comparatively a few years that success towards which the efforts of their predecessors have been directed for a quarter of a century.

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The Orange-tree under favorable conditions is a rapid grower; but when those are lacking may remain stationary for years. It requires the richest of mellow soil, such as is always well drained, and must have also an abundance of surface moisture. Originally a tropical fruit, it gets acclimatized in a more temperate zone, and, with some shelter and in a favorable location, will sustain without injury a temperature of a few degrees below the freezing point. It is a great feeder; the roots spreading over the surface of the ground absorb fertilizers readily, and require all the solar heat available; so the trees should have plenty of space, not less than fifteen feet apart in the rows. They require careful pruning and shortening in, even of the sharp spiny thorns; when this is done, innumerable bearing shoots take their place; thus not only is fruitfulness promoted, but injury to the fruit during wind storms is avoided. The story of the early history in California fruit culture is repeating itself. Then the product of a Peach-tree was set at hundreds of dollars, and fortunes were made by the single rule of arithmetic. The consequences of this inflation are, fewer trees now and decidedly inferior fruit. Some count on two thousand Oranges to a tree; this multiplied by the ruling price for the best fruit looks very handsome; so we see the market crowded with little sour, half-ripened, perfectly worthless fruit, to the injury of the careful grower. Now, in our latitude, anything like two or three hundred large, rich, perfect Oranges on a tree in its *teens*, should satisfy the cupidity even of a "diamond salter." Orange-trees can be bought now by the thousand, and at a very low price. Thus parties wishing to plant extensively can be easily supplied and without a loss of time.

But my object in writing this sketch

is to encourage the new-comer—the man of little means but sturdy arm and will—and more so, our girls, panting for extended spheres of labor. To those I would say, obtain a few of the best flavored and largest ripe Oranges, select the plumpest seed, and plant it fresh in boxes with perforated bottoms, and sides about eight inches high, filled up with rich mellow soil that will not bake, dropping the seeds five inches apart and covering one inch; keep the box in a warm room and the soil damp. When the young plants appear, give plenty of air and sunshine, and sprinkle them every evening with slightly tepid water; if there is no frost apprehended and the nights are warm, keep your boxes out-of-doors, sheltered from wind and burning sun; a screen made of unbleached muslin will answer for both; fork over the surface between the plants occasionally, and mulch it toward the midsummer with well-decomposed manure. The seedlings should attain the height of twelve to eighteen inches during the season, but be not too ambitious to stimulate an exuberant growth; rather shorten in the rampant shoots and secure a stocky symmetrical growth. During the winter keep them in a dry airy place, with a temperature never under 33° and not over 60°, and in the spring transplant them to larger and deeper boxes. This is the time to graft them over, if you know of a tree bearing superior fruit, or a particular foreign variety from which you could obtain scions—otherwise let them be, as the fruit is reproduced true from seed. Seedlings are the thriftiest and hardiest, make larger and finer trees, and if carefully shortened in, and the forming of fruit buds promoted by nipping the ends of shoots, will bear early enough. All the grafted foreign varieties are more tender, of slender growth, and the few

Oranges they bear a year or two earlier do not amount to much generally. Except in very favorable locations, the seedlings should remain in boxes the second year, affording a greater facility for sheltering them during the winter, and be transplanted out in the open ground the third year. The time of the year for transplanting small trees is immaterial, provided it is not done during scorching midsummer days; but like other evergreens they should be always lifted with the earth adhering to and covering the roots in a lump. After transplanting, they should be copiously watered to settle the ground, and the trees shaded from the sun for a week and more. In choosing the site for an Orange-grove, former observation is necessary to indicate the spot exempt from freezing; a few feet of elevation above the surrounding surface, a few feet to the right or left of the prevailing currents, make a vast difference in the climatic peculiarities of a given location. This was well understood by the Digger Indians. Their ancient camps along the banks of creeks, in the innumerable little valleys among the hills, are just the places; they invariably combine mellow soil, enriched by the offal of the camp, with nearness to water, and are always the most cozy and sheltered nooks in all the country. In these nooks vines, Tomatoes, Melons, etc., will remain green nearly all winter, and young plants are not injured by spring frosts. Next, a free supply of water is essential. The holes for the reception of Orange-trees should be four feet in depth and the same in diameter, with a layer of old bones at the bottom, six or eight inches deep, filled up half way with the richest top soil well pulverized, and all drenched with water till thoroughly settled. The tree with the adherent ball of earth is placed in the

centre a couple of inches higher than it stood before, and the hole filled in. The general rule as to further treatment and pruning must be adhered to.

In most parts of the State, the tree when young will require more or less shelter during the cold spells; anything that will prevent a current of air around a plant, after sunset, and consequent reduction of temperature, or sudden thawing after the freeze, will answer; thus boughs of evergreens or even brush stuck around, or a frame of poles covered over with discarded sacks, the shelter of a wall with an overtopping roof, can all be made use of to answer the purpose. The copious sprinkling of the trees at sunrise, after a cold freezing night, is also most effective; also the planting between in alternate rows of evergreen, for which purpose the different varieties of the Eucalyptus are eminently adapted.

The foliage on the older trees and the ripe fruit is coated over during the summer with a black rust, considered by some to be a parasitic growth. It washes off easily, without leaving any trace whatever. It appears rather to be an accretion of dust mixed with the exuded volatile oil abounding in the leaves and outer rind of the fruit. By copious showering during the summer any injury from that cause can be easily obviated. More serious, as affecting the growth of the tree, is the rapid increase of the scale insects; they don't mind the Chamomile recommended by some, but soapsuds or weak lye-washes subdue them effectually.

The same processes are followed in raising Lemons. The tree is rather more tender than the Orange, but the fruit is often more profitable. I have Lemon seedling trees bearing as perfect and large fruit as the best of Sicily. Oranges and Lemons can be safely

transported long distances, and the market for them is unlimited at remunerative prices. There is no possibility of overstocking. Nothing need be wasted from the products of this culture; the surplus leaves dried are used in pharmacy, and make a very palatable tea, and should supersede the nerve-unstringing Bohea; the drooping flowers are the source of the costly oil, neroli; the smallest green fruit finds a demand for the best of bitters, the larger for preserving, and the ripe fruit, a luxury in itself, is the best corrective of the injurious effects of a too nutritious and greasy diet; the wood is very firm, elastic and durable, and even the sharp thorns make the best and most fragrant toothpicks.

The culture of these two varieties of fruit can fill the full scope of available labor in our State. No girl need be idle, but can raise her dowry in Orange and Lemon trees, each bearing tree at the most moderate estimate representing a capital of one hundred dollars invested at the highest per cent.

GROUPING PLANTS.—There is no way in which the deadening formalism of our gardens may be more effectually destroyed than by the system of naturally grouping hardy plants. It may afford most pleasing results, and impress on others the amount of variety and loveliness to be obtained from many families now unused. Trees and shrubs, distinguished for their fine foliage, collected in a quiet glade; and then bright foliage trees should be set in contrast with quieter colors, and varied with bright beds of flowers and leaf plants, or hardy flowering shrubs. These groups should be irregularly, but artistically, planted. Then, on a knoll, plant a large bouquet of the rosaceous family—Hawthorns,

Cherries, Plums, Pears, Peaches, Almonds, etc. There is so much that may be done to add to the bewildering beauty of a landscape by naturally artistic planting, that we are often astonished that people do not "see it."—*Rural New-Yorker.*

APPLES FOR FOOD.

Apples are now considered to contain far more brain food than any other fruit or vegetable, and to be much more nutritious than Potatoes, which enter so largely into the component parts of every meal. At present, Apples are principally used in the form of puddings, pies, tarts, and sauce, and are also eaten raw, in which state they are more wholesome than when mingled with butter, eggs, and flour. But they are served at every meal; and, substituted for pickles and such condiments, they would surely be found beneficial. Sweet baked Apples are a most desirable addition to the breakfast and tea table, and are far more healthful, appropriate, and sustaining, than half of the dishes usually esteemed essential at such times. Served with milk and bread, they make the best diet that young children can partake of, and are very satisfying in their nature.

Baked Apples, without meat, are far more substantial food than Potatoes can possibly be made, and to us the delicious aroma and flavor are always most appetizing. We would rather go without our daily bread than our daily baked sweet Apples. Yet, although there is such an abundant crop of Apples this season, we presume there are many families who will not use a barrel of them for the table this season, but who will devour at least six barrels of Potatoes. Let us beg of them to equalize

the two a little more, and purchase at least three barrels of Apples to five of potatoes. They will find that less flour, eggs, sugar, and butter will be consumed in a family when a plentiful supply of Apples is stored in the cellar. One of the most celebrated physicians of Philadelphia eats two raw Apples every evening before he retires to rest, and thinks that they not only supply food to his brain, but keep the whole system in a healthy condition. For years I have followed his advice, and am confident that the fruit has been of great service to me.

There are dozens of recipes for preparing Apples for the table, almost all of them requiring the addition of butter, eggs, etc.; but to us either baking, boiling, or steaming makes the most palatable dishes. Our family favorite is prepared thus: Wipe the Apples clean, dipping them first into boiling water; then with a corer remove all the seeds and stem, by punching it through the Apple. Place the fruit in a deep baking dish, put a tablespoonful of white sugar into the middle of each Apple; turn in a teacupful of boiling water, with three tablespoonfuls of sugar dissolved in it. Bake in a slow oven till quite soft, taking care not to burn the skins. Take out into a dish and serve with cream; milk will do, but it is a poor substitute for the richer article; concentrated milk, however, is as good.

The Apples can also be pared, cored, and sweetened, and placed in a deep dish on the upper part of the stove; a large teacupful of boiling water poured over them, and a plate laid over the dish. Boil them until soft, and there is no trouble about removing the skins when eating them. Sweet Apples can be treated in this way, using molasses instead of sugar, if preferred; and they will be delicious in flavor.

Pickled Apples are almost as appetizing as pickled Peaches, and are easily prepared. Take one pound of coffee-crushed sugar, No. 1, and dissolve it in one quart of cider vinegar; add to it one tablespoonful of whole cloves, two of allspice berries, and two of stick cinnamon, all broken fine. Boil and skim it for twenty minutes. Put into the syrup small sweet Apples; let them cook until a broom straw will run through them, but do not let the skins break badly. Skim out into a jar, and turn over the boiling liquor. Small sour Apples can be used, if desired, and the Siberian Crab Apple makes a delicious relish if thus prepared.

The ingenious housewife can invent ways of cooking Apples; if the skillful French cooks have discovered three hundred and sixty-five ways of cooking an egg, surely our inventive brains can discover two hundred ways of cooking Apples.

Apple short-cake is a "dainty thing to set before one's king," and most husbands appreciate it. Fair friends, let us cultivate the use of Apples for food, and not let them decay in our cellars for want of appreciation.—*Cor. Country Gentleman.*

COMPOST FOR FLOWERS.—In cleaning off the garden and flower borders, there is more or less of leaves, litter, etc., that must be disposed of in some way. Take it and make the basis for a compost heap for the winter; empty all the coal and wood ashes of the house over it, as they accumulate from time to time; save all the bones and refuse of the kitchen, and all the greasy dishwater, and the chamber-lye, and add them daily to the heap. Gather, if you can, from the blacksmith shop or elsewhere, iron-filings or scales from the hammering of heated or rusty

iron, the parings of horse-hoofs, and, with a little of sharp sandy soil, add them to the heap. This, well mixed, in the spring, will form one of the cheapest fertilizers for all kinds of flowers in the open border.—*The Horticulturist.*

EPIPHYLLUMS.

These remarkably beautiful flowers are much grown and well understood by all practical men, but there are many young gardeners and amateurs to whom a few words of advice may be of service. Epiphyllums are easily propagated by cuttings taken off at a joint and planted in light sandy soil in well-drained pots, and placed in a warm house, and the soil kept rather dry until they have roots. They should not be exposed at this stage to brilliant sunshine during the middle of the day, but a few hours' exposure to the sun each day is better than keeping them constantly shaded. They may be wintered in a warm greenhouse, if kept moderately dry at the roots, but they make a better and an earlier growth when wintered in a temperature not less than 50 deg. at night, and 55 to 60 deg. by day.

It should be remembered that they are at all times impatient of too much moisture at the root, and that they like a free and open soil. For established plants there is nothing better than turfy loam, leaf-soil, peat, and very coarse sand, in equal parts. They do not require overmuch pot-room: a shift into a pot two inches larger once in two years, if well drained, will suffice to keep them growing and in good health.

Those who have their forcing-houses at work, or the convenience of a stove, should shift their stock if required, and then give them the aid of more heat than they would enjoy in a common

greenhouse. Water sparingly until there are signs of their commencing to make a new growth. After they are fairly started let them have more water and air. By the beginning of June any house will suit them, provided it is airy, and not shaded.

They will well repay the cultivator for a little extra care in the spring, as they make an earlier growth with the assistance of a little extra warmth at that season. This gives them more time to make and mature their growth, and larger and more blooms is the result.

There are different methods of growing them. Some prefer them on their own roots, while others like to have them on stems a foot or more in height. They are easily grafted upon any of the larger-growing Cacti, so that the stem may be had of any height desired. For my own part, I like to have them on their own roots and grafted on tall stocks, as a greater variety of form is obtained. Specimens on stems twelve inches high, in a six-inch pot, are admirable subjects for dinner-table and indoor decorations, as also are dwarf plants on their own roots for filling vases.

I have not named any variety to be grown, for the reason that they are so beautiful that I am not acquainted with any one variety that is not worth growing. If I have a preference, it is for *E. truncatum albescens*, *E. truncatum cruentum*, and *E. truncatum violaceum*.—R. P. B., in *Gardener's Magazine*.

REMOVE THE FLOWERS.—The *Garden* says: "All lovers of flowers must remember that one blossom allowed to mature or "go to seed" injures the plant more than a dozen buds. Cut your flowers then, all of them, before

they begin to fade. Adorn your room with them; put them on your tables; send bouquets to your friends who have no flowers, or exchange favors with those who have. On bushes not a seed should be allowed to mature."

RAISINS IN CALIFORNIA.

The San Francisco *Bulletin* asserts that experiments have been carried far enough now to show that all the raisins needed for consumption in the United States can be made in California, and not inferior articles either, but equal to the very best imported. It says: "It does not even require artificial heat or costly machinery, although Grapes can be converted more rapidly by an artificial process. The manufacture of raisins is about as simple as that of making dried Apples. The process is perfect enough when the Grapes are laid on the dry warm ground. All the vines now in bearing, which do not produce Grapes suitable for raisins, can be changed rapidly by root-grafting. Even the common Mission Grape makes a good raisin, much better than the second quality of those known to commerce. Of course, raisin-making requires considerable manipulation. It is a business requiring attention to many small details. The bunches of Grapes must be cut off at the right time, spread out to dry, carefully watched, turned over, assorted, packed, and finally put up in the most attractive way. But after all there is not more attention to details than is required in the conduct of a successful dairy. There can not be much of a speculation about the business. Only so many Grapes can be raised on an acre, and if they are of the best sorts, the amount of raisins which can be made will be known in advance. It is doubtful if up to this time the

vine-growers of this State have realized their expectations of profit from their vineyards. Grapes have brought low prices. Wine can not be made profitably except by experts. Many vineyards are remote from market. But if there be added this new resource, it will make little difference as to the remoteness of the vineyard. The fruit-growers have already found a way out of their difficulties, by a better process of drying fruit. The Grape-growers will yet find an important outlet in the same direction."

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ERRORS IN ORNAMENTAL TREE PLANTING. — A few days since, in passing through the pretty village of Warren, the capital of Warren County, Pennsylvania, I was forcibly, not to say painfully, struck by the utter want of taste and judgment displayed by some of the residents, in the matter of ornamental tree planting. In some of the instances referred to, evergreens were planted in the immediate front of the houses, and so near to them that, although they had obtained only a partial growth, the branches had already intruded themselves into the veranda, thereby not only inconveniencing the residents, but presenting anything else rather than a handsome appearance, and threatening, in the course of a few years, to almost entirely exclude the sunlight from that portion of the premises. Many old residences are open to similar objections. No greater error in taste, or in the important matter of health, can be committed than this. Trees, however beautiful, should never be planted so near the house as to bar out the sunshine. There is no more effectual method of destroying their beauty, nor a better plan for introducing disease. I have known houses, thus crowded upon by trees of dense foliage, that became so

unhealthy as to be regarded as almost untenable. They were restored to fitness for human habitation by removing a portion of the trees that obstructed the sunlight and the free circulation of the air. Another error in ornamental tree planting is the setting of trees of large growth in small yards, and especially as is frequently done in cemetery lots. Just as lofty mountains dwarf adjacent hills, so large trees have the effect of lessening to the eye the size of small yards or small buildings. It is sound and seasonable counsel, therefore, to advise all persons who are about to plant ornamental trees adjacent to dwellings, or in small yards or gardens, to have an eye to taste and health. Let them be in keeping, in point of size, with the building or plat they are intended to beautify; and, moreover, let the planting be not so close as to shut out the blessed light of the health-giving sun. —*Journal of the Farm.*

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POTATOES AND POTATO CULTURE.

A few weeks hence our farmers must commence planting Potatoes for this year's crop. Perhaps all have their own settled opinions in regard to the best varieties and systems of culture, which no words of ours can change. But it may not be amiss for farmers to consider why changes both in varieties and culture have been made during the past few years; also whether we are really making progress, or merely repeating what has been done many times before. As is well known, the Potato is a native of cool climates, although not what we would term cold ones, being found growing wild in high mountain ranges in tropical countries; hence we find that it succeeds far better in the extreme northern part of the Union than in the Middle or Southern States. Vermont can beat

Virginia any time in growing our common Potato, simply because the climate is more congenial to its growth. Soil certainly has some effect on the quality of the tuber, as well as its size, but Vermont soils are no richer or better adapted to the growth of Potatoes than much which can be found in regions where this plant does not thrive; therefore we must attribute more to the effect of climate in the production of the best Potatoes which come to market, than to soils. There was also a time when a majority of farmers thought it necessary to plant whole tubers for seed in order to obtain a large yield, although there were a few equally successful who always persisted in cutting up the tubers for planting.

The thousands of experiments made in the past ten years to ascertain the truth in regard to all the old notions as to Potato culture, have proved conclusively that a moderate sized section of a large tuber was as good, if not better, for planting than a whole one. The largest yield of Potatoes on record was produced from planting single eyes of a tuber, only one in a hill.

Science, the handmaid of all progressive movements in agriculture, as well as in other departments of labor, has also fully demonstrated that a Potato tuber is not an individual seed any more than an ear of Corn is one, but that each bud is really a seed as much as a kernel of Corn, and as capable of producing as strong and vigorous individual plants when separated from the parent tuber, as Corn is when taken from the cob. If a tuber is planted entire, only a small number of the buds germinate; the others perish or are suppressed through an overgrowth of their fellows.

Now these facts are patent to every man who has given the subject careful

consideration, either theoretically or practically; and no matter who or how many may decry them, they will remain facts as firmly established as the Atlantic Cable, the Pacific Railroad, or any of the numerous other great achievements which were for years pronounced impossible. We know that there are a few farmers who still adhere to the old plan of planting whole Potatoes, and claim that cutting the tubers is an unnatural process, which is likely to cause degeneration and disease; but we would remind them that cultivating plants at all is an unnatural process, though by its aid we have been able to surround ourselves with nearly all the comforts of civilized life. We have no more desire to see our cultivated fruits, flowers, and vegetables go back to their wild condition than to see civilized nations relapse into barbarism. We have claimed, and still hold to the opinion, that thousands of bushels are wasted every year by planting whole tubers. This waste will probably continue until all learn, not economy merely, but the utter folly of planting whole tubers for seed.

It is true that instances are not wanting where whole tubers have produced more than pieces, but these are only exceptions to the general rule, just as small, inferior tubers have occasionally produced as much as the large and perfect ones; but no good farmer would at the present day advocate the continued use of small, half-matured Potatoes for seed. We would not, however, use the very large overgrown specimens, for these may not be any better than the very small ones; but the fully developed, thoroughly ripened tubers are always the best, and these are generally of medium size, varying, of course, according to the variety.

Whether it is best to plant early or late in spring depends very much upon

the locality and season; consequently there is little room for argument on this point. But, as a rule, if the Potatoes come forward before hot weather, they will not only yield better, but the tubers will be of better quality. There is, however, little to be gained by putting seed in the earth until it is warm and dry enough to work easily.

Planting is another operation which should be varied according to circumstances. In a light, dry, warm soil, the seed may be placed deeper than in a heavy cold one, but, as a rule, Potatoes are not planted deep enough to insure a healthy growth and large yield. The tubers are not produced upon the true roots of the plants, as many suppose, but on subterranean branches which spring from the principal stem, mainly above the roots. This being the case, we can readily understand how rather deep planting will facilitate the issuing of roots, and also afford a greater length of stem below the surface for the production of bearing branches. The hilling up of the growing plants so long practiced by the cultivators of Potatoes produces similar results to deep planting, and we have no doubt it came into use long before the reason why it increased the yield was known. It is still an open question among our farmers whether deeper planting and level culture is not far preferable to shallow planting, followed by the usual hilling-up process.

The tendency, however, among our most extensive cultivators of Potatoes, is to adopt the former system, and we think it is preferable to the latter, especially in warm climates and in dry seasons. Under what is termed level culture, the soil remains comparatively cool and moist, whereas, if thrown up in ridges or hills, it is likely to become hot and dry. But climate and soil

should always be taken into consideration in adopting any particular method of culture.—*N. Y. Sun.*

WINTER CLOTHING OF CHILDREN.—The outer clothing for children should be warm but not heavy, for it is a false notion to suppose that a quantity of heavy clothing is good for a child; it only tires, without infusing warmth. Air-tight materials and water-proofs are injurious to health. As a rule, loose textures are warmer and healthier than very close ones; and fluffy materials are infinitely better preservatives against the cold than close and smooth materials. Color has also a great influence on the warmth of clothing; thus white, which is coolest in summer, is also warmest in winter, and black the reverse. To preserve health, it is also necessary to go out in all weathers; and in no case should the child be too much wrapped up. A short, loose jacket for cold days is a good outward covering, or a soft woolly polonaise—anything, in fact, which is warm without being too heavy, nor preventing the free use of every limb. Heavy clothing engenders undue perspiration, which should be particularly guarded against in the open air, especially at this time of the year. During the time that children are out of their nursery or school-room, the windows should be left open top and bottom; thus the air of the room will be purified before they return to it. (The windows, of course, must be closed before the children enter the room again.) These may seem very trifling and useless hints to many; to others, however, they may not be without value. Children are delicate plants, and to be reared into stalwart trees they need care and thought during the early years of their tender growth.—*Daily Graphic.*

ANNUALS.—(SEE FRONTISPIECE.)

BY F. A. MILLER.

Much brightness could be given to our flower-gardens by cultivating a few of the pretty annuals, which form such prominent features in European and Eastern gardens. The expense of obtaining the seeds is but a trifle, and one package of seed will produce a great number of plants, which will flower during the summer if sown in the spring.

The *Double* and *Single Petunias* are generally classed as annuals, but with us in California, they are hardy, and will hold out for several years in the open ground. Double *Petunias* are rarely produced from seed, yet seed can be procured from our seedsmen which will produce a certain percentage of double flowering plants. In reality, the single varieties are prettier than the double ones, and for bedding out are preferable. Many exceedingly fine colors are now produced—some of them variegated, striped, blotched, shaded, and mottled with pleasing colors and tints. All of the different varieties may be obtained from seed.

The *Rocket Candytuft* is an improved variety of the old-fashioned *Candytuft*, and produces most perfect spikes of white flowers two or three months after the seed is planted. The leading colors of this flower are white and purple; of the latter, however, various shades have been produced of late. In our mild localities, such as San Francisco, *Candytufts* may be had in bloom all the year round, if the seed is planted from time to time.

The *Phacelia* is a native of this country, and its delicate blue flowers are produced in spikes, not unlike the *Heliotrope*. As a border or bedding plant, it is most desirable, as it will thrive well without the assistance of irrigation.

NUTRITIOUS FOOD.

Upon this subject a writer in the *Philadelphia Star* says: "I submit the following article on food, hoping it may do a little good to the poor class in these pinching times: Oatmeal contains 91 per cent. of nutritive matter; Wheat, 85½ per cent.; Potatoes, 28 per cent.; the best flesh meat, 25 per cent. It may be seen by the above that one pound of Oatmeal contains nearly four times as much nutrition as one pound of beef. We pay for the beef per pound 15, 20, 25 cents; for one pound of Oatmeal we pay 5 cents.

"Nearly half the people of Ireland and Scotland live on Oatmeal and Potatoes. They do not taste flesh meat once a month. The writer of this article has not eaten flesh for a year; he finds himself better physically as well as mentally. His dinner for one day consists of one cent's worth of oaten meal or cracked Wheat, made in the form of mush. He does not do this for economy, but for health.

"I would like to say a few words before I close this article on Wheat. Wheat contains of the carbonates, or heat and fat producers, sixty-two per cent.; of the phosphates, the class that supplies the bones, the brain, and the nerves, and gives vital power, both mental and muscular, two and a half per cent.; of the nitrates, the class that supplies the waste of muscle, twenty-one per cent.

"If Wheat were eaten in its natural condition, without bolting, it would supply all the needed elements in the human body; but in the process of bolting nearly the whole of the phosphates and nitrates are removed; so that bread made of superfine flour will sustain life only a few weeks.

The best way to get good Wheat meal

is to buy of any mill of our city, half a bushel of whole Wheat, thirty pounds. Either get the miller to grind it for you, or take it home and grind it in your coffee-mills."

A NEW VEGETABLE.—The *Gardener's Chronicle* says: "In the current number of the *Journal of Botany*, Dr. Hance describes a Chinese culinary vegetable, consisting of the shoots of a grass, *Hydrophyrum latifolium*, wild in Northern China and Amoor Land, and cultivated in Southern China in standing water. As brought to market, the "cane shoots" occur in cylindrical pieces of a white color, $2\frac{1}{2}$ to $3\frac{1}{2}$ inches long, 1 to $1\frac{1}{2}$ inch in diameter, tapering upward into a conical point, and surmounted by the leaves and culm, from which they are readily detached. In taste, the raw shoot is not unlike a half-ripe nut, but it is never eaten uncooked. By the Chinese it is stewed with meat, and by foreigners cut longitudinally into two or three pieces, well boiled, and served with melted butter. Prepared in this way, it is stated by Dr. Hance to be one of the most agreeable of vegetables. "It is difficult," says the writer from whom we quote, "to describe its exact flavor, but it is, perhaps, nearer to that of unripe maize, as boiled and eaten by Americans under the name of green Corn, though it possesses a richness and delicacy to which I know no parallel in any other vegetable."

The species in question is nearly allied to the American species, *H. esculentum*, formerly grown in this country. There is little doubt that the Chinese plant would also thrive in our climate, on which account we are glad to hear that Dr. Hance intends to send home living plants.

Editorial Portfolio.

THE CULTIVATION OF ANNUALS.

By the term annuals we designate those plants which live but one year, and consequently require to be raised from seed every year; although in our favored climate some varieties may be induced to renew their growth a second and even a third season by careful cultivation, and by not permitting them to mature their seed. It is a singular circumstance that on this coast so little attention is paid by amateurs to this class of plants, which, although they may require a little more attention than perennials, yet amply repay by the additional beauty they bring to the *parterre* in their charming diversity of form and color, in the exquisite delicacy of their tints, and the delicious fragrance of many of them.

The present time is the season for cultivating them, and to prepare for them it is only necessary to provide a liberal amount of well-decayed manure, which should be thoroughly mingled with the soil to the depth of nine inches. In sowing the seed it is necessary to remark that one of the causes of disappointment is the planting them *too deep*. For most of the larger seeds of annuals from $\frac{1}{8}$ to $\frac{1}{2}$ inch is deep enough, while for the more delicate it is a good plan to press the soil with the back of a spade, then sprinkle the seed lightly on the surface and cover it slightly with fine earth, which should also be lightly pressed; it may be necessary from time to time to supply some moisture, but this will require great care, as frequent and heavy watering, particularly with some soils, tends to cake the surface and retard the growth of the young plants. Particular care is also necessary to remove the weeds, which else will choke

the young plants. Many varieties will bear transplanting, but as a general rule it is better to leave them where they have established themselves, merely thinning them out, to permit and encourage vigorous growth.

Annuals may be divided into *hardy*, *half-hardy*; and *tender annuals*. The hardy annuals may be sown in the open garden where they are to finally remain; the half-hardy require to be sown either in plunged pots, or in a prepared bed of earth over a gentle hot-bed, in the early spring, and, when they have made some growth, transplanted into a like situation until the beginning of May, when they should be transplanted into the borders where they are to remain.

Tender annuals should be sown about February or March, in pots of light mold, and plunged in a hot-bed. When the young plants come up they should be transplanted singly into pots of the smallest size, and again plunged into the hot-bed as near the glass as possible, but shaded from the sunshine. In a week or two, if they have made satisfactory growth, they should be again transplanted into the next sized pots. These shiftings should be continued from time to time, according to their growth, until they are in pots of six or eight inches in diameter, according to their nature.

Very good varieties of the hardy are, Candytuft, (several varieties) Lobelia, Sweet Pea, Morning Glory, Marigold, Mignonette, with many others.

Of the half-hardy we may mention Petunias, Asters, Zinnias, Delphinium, Ten-week Stocks, Phlox Drummondii.

Among the tender annuals we may mention the Balsams, Celosia, (or Cockscorn) Portulacca, etc. Some plants though not strictly annual will bloom the first year, as the Tropæolum,

(Nasturtium) Pansy, Scabiosa, and Verbena.

We call the attention of our friends to the group of annuals which adorns the present number, and for which our esteemed correspondent Mr. F. A. Miller has written the descriptions. For the plates we are under obligations to James Vick, Esq., Rochester, N. Y.

WOODWARD'S GARDENS.

This Central Park of the Pacific is still increasing daily in interest for the recreation-seeking public. New animals, new birds, and new fishes are constantly being placed in their several departments. These, with the rich and most attractive Museum of Natural History, are in course of classification in accordance with the natural systems of arrangement of Linnæus, Cuvier, and others. The objects will all be labeled with the names in the usual Latin terms, with the English names generally added. The visitors, by this means, will be able to refer to the several objects so designated by the labels, in the several books of natural science or history, so as to obtain a more particular knowledge of the external form, geographical habitation, and distinguishing traits of individual species; and the further interest of the subject mainly resting upon anecdotes of *animal* sagacity or ferocity, their instinctive and almost reasoning habits, and perils of adventure in the wilds of Nature; and *vegetable* forms and beauties in their wonderful diversity and mutual relations.

Every department of science furnishes an abundant quota of materials for delightful observation and instruction, and it is found that every fresh step in discovery has made the conclusion more reasonable, if not more certain,

that the argument of design in the formation of Nature, as commonly presented, is cumulative, and adds new splendor to the illustrations of it. Every being with which we are conversant—every limb and fragment of every being—every atom composing those fragments—is discovered to bear on it the stamp of purpose—the very autograph of mind. It is a means to an end, or both means and end. In this, as we conceive indisputably correct view of the case, how much ought we to appreciate the efforts of those who, like Mr. Woodward, are continually adding to the pleasure and interest of the public, in collecting new objects, both animate and inanimate, for exhibition in these Gardens, and thus illustrating this boundless temple of the creation, very apparently the altar and service of an in-dwelling Deity—irresistibly indicating by innumerable particular instances mind as the agency at work in the universe.

SOCIETY NOTICES.

GEORGIA HORTICULTURAL SOCIETY.—A new society with this title has been organized and holds its sessions at Atlanta, Ga. At its meeting this fall, the members filled two tables, each 100 feet long, with fruit of most attractive description—pears, apples, grapes, figs, etc.

FAVORS RECEIVED.

The *Overland Monthly* for March is at hand, containing its usual amount of interesting articles, among which "Orange Culture in California," "Geological Surveys," and "Head-waters of the Sacramento," particularly interested us.

We have received a pamphlet entitled "Facts and Figures relative to Wool Growing," and "The History of the

Angora Goat," by Landrum & Rodgers, of Watsonville, Cal. It contains much useful and interesting information on the subjects treated.

CATALOGUES RECEIVED.

The *Quarterly Catalogue* of Briggs Bros., of Rochester, New York, is at hand; it is a very elegant affair, being handsomely and copiously illustrated on tinted paper. Descriptions are abundant, the catalogue of plants very full, and prices moderate.

We have received the *Spring Catalogue of New, Rare, and Beautiful Plants*, of Peter Henderson, 35 Cortland Street, New York; very copious and well illustrated; describing and offering many new and desirable plants at tempting prices. Also *Seed Catalogue* for 1874 of the same firm, equally copious and elegantly illustrated. The colored plates of both these catalogues are very beautiful.

James Fleming, successor to Henderson & Fleming, address 67 Nassau Street, New York, has obliged us with his *Seed Catalogue*, which is well worthy of careful perusal by intending purchasers.

The *Annual Catalogue* for 1874 of Geo. H. Williamson, Gallatin, Tenn., lies before us; it contains a very good selection of seeds, both of vegetables and flowers.

We noticed the *Catalogue of Plants* of F. Lüdemann & Co., Pacific Nursery, San Francisco, Cal., in our last, but had not time to examine it. It is a source of pleasure to us to perceive that the nurserymen and seedsmen of the Pacific Coast are so far awakening to their interests as to publish and distribute catalogues of their stock. We are convinced that this action must

conduce to the increase of their trade, by not only affording our own people the opportunity of selection at short notice, but also introducing to Eastern customers many of the indigenous trees, shrubs, and plants of this side of the continent. This catalogue, as well as those of Miller & Sievers and R. J. Trumbull, are well worthy of the attentive perusal of each person.

OUR EXCHANGE TABLE.

American Agriculturist, published by the Orange Judd Company, 245 Broadway, New York. Subscription \$1.50 per annum. An excellent monthly periodical.

Prairie Farmer, office 118 Monroe Street, Chicago—a weekly journal of much merit, and well worthy of support. Terms \$2.50 per year.

Boston Journal of Chemistry, devoted to the science of home life; this is a very useful paper. Terms \$1 per annum. Published by Billings, Clapp & Co., 34 Oliver Street, Boston.

PLANTS FOR NORTHERN AND SHADY EXPOSURES.

In reply to a request of a respected correspondent, we subjoin the following list of *plants which will grow in a northern shady situation*, which has been handed to us by our esteemed correspondent, Mr. F. A. Miller:

CLIMBING PLANTS.—Ivy, nearly all the different varieties; Clematis, such varieties as *integrifolia* and *tubulosa*; *Akebia quinata*, excellent for this purpose; *Jasminum revolutum* (Yellow Jasmine); Honeysuckle (Chinese Evergreen), sweet scented.

FLOWERING SHRUBS, ETC.—Fuchsias, *Erica Mediterranea* and a few other

hardy varieties, Hydrangea, Myrtle, *Sollya heterophylla*, *Astilbe Japonica*, *Vinca* of different varieties.

HERBACEOUS PLANTS, ETC.—Violets, *Amaryllis lutea*, Anemone, Lily of the Valley, hardy Ferns, Iris, Mimulus, Lobelia, *Myosotis* (Forget-me-not), Narcissus, Pæony, Auricula, Ranunculus, Sedum of various sorts.

GERMAN IVY—SOIL AND TREATMENT.—The *Rural New-Yorker* answers a correspondent as follows: "The climbing vine known as 'German Ivy' is not, in fact, an Ivy, nor any relation of one, but a climbing species of Groundsel from the Cape of Good Hope. Its right name is *Senecio scandens*, and it resembles Ivy only in its leaves, which are heart-shaped or angled. The flowers are yellow, and produce abundantly on old plants which are exposed to the sun and dry atmosphere; but, under such conditions, the plants lose their beauty, as the leaves become brown and burnt in appearance. The plant grows rapidly in almost any good rich soil; but a light leaf mold, with a little decomposed barn-yard manure added, is probably the best. Shade is indispensable, if a deep rich green color is desirable in the foliage, consequently it is very suitable for room decorations, and may be trained on trellises or around the walls where the direct rays of the sun never reach it. It is readily propagated from cuttings or layers, any small piece of the vine taking root and growing with great rapidity."

Mr. PYNÆRT has discovered, it is said, that *Lilium auratum* is a grand specific against house-flies—that a small specimen of it in an apartment will keep it clear of these troublesome insects.

NEW AND RARE PLANTS.

La Belle Carnation.—Tree or perpetual-flowering Carnations are so valuable for supplying, during the winter season, cut flowers for the button-hole and hand bouquet, that we gladly welcome any addition to our present list of varieties which possesses either distinctness or superiority to those already in cultivation; hence the pleasure we feel in directing the attention of our readers thus prominently to the new white-flowering variety, *La Belle*, and which has been recently introduced to public notice by the raiser, Mr. James Blackley, Leyton. This variety differs from all other varieties in cultivation in producing very large and double flowers, possessing the most delightful fragrance, combined with a remarkably robust and free-flowering habit. As regards its constitution, it may be considered the forerunner of a new race of varieties of the highest possible value. Hitherto the greatest drawback to the cultivation of these flowers has been their want of vigor; but in this variety there is no lack of vigor. The specimen in question was trained to a trellis, about five feet in height and three feet in diameter in its widest part, which is completely covered. The trellis, notwithstanding its comparatively gigantic dimensions, was covered with a healthy growth, and, although the plant had been in full bloom for the last four or five months previously, it was fairly furnished with fully-expanded flowers, and the buds could be numbered by the hundred. From the manner in which it was trained, it was computed that the main stem had attained a length of not less than sixteen feet, although the age of the plant at the present moment does not exceed three years.

The growth of this variety is slender and wiry, making rapid progress and producing fresh shoots or flower-buds at every joint. On some of the side-shoots buds were produced at every two or three inches, on shoots averaging from eighteen to thirty inches in length, so that the produce of a specimen of the size of the one to which allusion is here made would be simply enormous; and therefore two or three specimens should be grown wherever cut flowers are in request during the winter season. It may also be trained over the interior walls of the greenhouse where space could be spared for one or more plants; or it may be trained just under the glass if more convenient; but for general purposes it will probably be found that training to a balloon-shaped trellis will be the most preferable plan.

The flowers, which are of the purest white, are very large and smooth, and perfectly double, and highly fragrant, and for either hand or button-hole bouquets will be found of the highest value.

With respect to the means adopted for the production of this specimen, Mr. Blackley has been good enough to furnish us with the following particulars: "The compost which has been used, and which would also suit the varieties already in cultivation, is prepared by mixing a moderate proportion of road-drift with mellow turfy loam that has been laid by a sufficient length of time for the fibrous roots of the grass to decay. Before using the soil it is necessary to examine it carefully for wire-worms, which must be destroyed, for they are, as most cultivators are aware, great enemies to Carnations, Picotees, and Pinks. They must not be overpotted; and at each shift sink the ball of soil low enough in the pot to bury two or three joints underneath

the soil. From the joints so buried healthy fibrous roots, which will be of immense value in promoting a healthy and vigorous growth, will be produced. Young shoots will also push from the joints, and from these flowers of the finest quality may be gathered. When planted outside for training over trellises or up walls, the border should be top-dressed with a compost prepared as directed above, in such a manner as to bury several of the lowest joints, for the purpose of encouraging the production of new roots and fresh growth.—*Gardener's Magazine*.

Arundo conspicua.—We are surprised that the beautiful *Arundo conspicua* is not more frequently cultivated as an ornamental plant. To our mind it is far superior to the Pampas Grass, of which so much is thought. It has these advantages over the Pampas. Though nearly as large in stature it has much less foliage compared with the flowers, and therefore is not so lumpish in growth, whilst still it has sufficient to furnish it. Then the flower spikes come up in good time in summer, and are in full beauty for some weeks before the bad weather sets in, while the Pampas barely comes into flower before the autumnal rains and frosts mar its beauty. The *Arundo*, moreover, seems to be quite as hardy as the Pampas, for in dryish situations on the Bagshot sand formation, it grows and flowers freely year after year, while the Pampas does no more. The lovers of the picturesque should be on the lookout for so fine a garden ornament.—*Gardener's Chronicle*.

New Oleanders.—Great improvement is being made in the Oleander in Europe. White, yellow, and red, and numerous shades of color and forms of flowers. They are being named and

distinguished as we distinguish Roses or Dahlias. The Oleander suits our summer climate so well, that a collection of them would be a beautiful sight to see in bloom.

A New Race of Violets.—The *Florist and Pomologist* says, Mr. Lee of Hammersmith has succeeded in raising a new race of violets, in which the petals are flat like a Pansy. It is the result of a cross between Czar and Devonensis. The flowers are pale blue, sweet, and very large, and Mr. Lee is "not without hope that he will make them in time parti-colored like the Pansy." The best one he has named *Victoria regina*.

"Golden Fleece" Thyme.—Gold-leaved bedding plants are scarce, the golden Feverfew being the best known. This yellow-leaved form of the garden Thyme is highly spoken of in the English journals.

Aquilegia chrysantha is the name finally decided on by Dr. A. Gray, for the long-spurred, golden Columbine, about which so much has recently been said in the horticultural journals.

Cineraria ceratophylla is spoken of as a promising silver-leaved plant for bedding purposes.

THE *Moniteur de l'Algerie* states that, in 1871, the coral fishery employed 131 boats. In 1872, there were 80 more boats. Improved methods of fishing have, however, given equally good results, when compared with those of former years; in fact, there has been an increase in quantity of coral put on the market. New beds of coral have been found near Sardinia, which have drawn many of the Algerian fishermen to the northern Mediterranean.

REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPER.

The public, although there is of course at this season but a limited supply, instead of standing in any fear from a generous consumption of all ripe fruits, as well as of most well cooked vegetables, may with confidence regard them as positively conducive to health. All physicians, of every school—Allopathic, Homeopathic, Hydropathic, or any other branch of the healing art—agree in this respect, however they may differ on other points of medicine, treatment, or diet. The very maladies commonly assumed to have their origin in the free use of Apples, Pears, Peaches, Cherries, melons, and wild berries, are now well known to be quite as prevalent, if not equally destructive, in seasons where there has been a scarcity of one or more of these fruits. There have formerly been so many erroneous ideas entertained regarding the bad effects of fruits, that it is better that now and forever a counteracting impression and a full and decisive settlement of the question should be definitely arrived at, it having its foundation in common sense, in all sanitary laws, and being based on the common observation of the most intelligent and best informed physiologists. No one, we are sure, ever lived longer or freer from the paroxysms of disease by discarding the delicious fruits of every season, and of every land in which he finds a home. On the contrary, they are necessary for the preservation of health, and are therefore caused by a wise and munificent Providence to make their appearance at the very time when the condition of the body, operated upon by debilitating causes not always understood, requires their grateful, renovating influence.

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That fruits are naturally healthy in their season, if rightly taken, no one who believes that the Creator is a kind and beneficent Being, can for a moment doubt. And yet, it is true, in some instances, of course, that the use of both summer and fall fruits appears sometimes to cause fatal diseases, especially in children. Why is this? Because we do not always conform to natural laws in using this kind of diet. These laws are very simple and easy to understand. Let the fruit be ripe when you eat it, and eat when you require *food*, but not so much just after dinner or any full meals. Let fruit form part of the meal, but not after satiety has ensued. Fruits that have *seeds* are much healthier than the *stone* fruits, though these latter may be partaken of in moderate or small quantities at a time. But all fruits are better for very young children if baked, or cooked in some manner, and eaten with bread. The French nearly always eat bread with raw fruit. Apples and winter Pears are very excellent food for children—indeed, for almost any person in health—but best when eaten for breakfast or *during* dinner. If taken in the evening, just before retiring, fruit often proves injurious. The old saying that Apples are *gold in the morning, silver at noon, and lead at night*, is pretty near the truth. Both Apples and Pears are often good and nutritious, when baked or stewed, for those delicate constitutions which can not bear raw fruit. Much of the fruit which too often appears in our markets, evidently gathered when unripe, might be rendered fit for food by preserving in sugar. Ripe currants are excellent food for children, and an excellent remedy for thread and other worms. Mash the fruit for this purpose, sprinkle it with sugar, and with good bread (and no country affords better than California),

let the children eat of this fruit freely.

Unripe vegetables are as insipid and unwholesome as unripe fruits. As to the quality of vegetables, the middle size are preferable to the largest or the smallest. But allowance must be made in this latitude, with its stimulating climate and rich soil, for vegetables as well as fruits being naturally larger, nay, even gigantic, than in most other countries. It is usually considered that most fruits and vegetables are more tender, juicy, and full of flavor, just before they are quite full grown. Freshness is their chief value and excellence—and one should as soon think of roasting an animal alive, as of boiling a vegetable, or preserving or cooking a fruit, after it is dead. The eye may easily discover if they have been kept too long; they soon lose their beauty in all respects. Roots, greens, salads, etc., and the various productions of the garden, when first gathered, are plump and firm, and have a fragrant freshness no art can give them again, though it will refresh them a little to put them into cold spring water for some time before they are dressed. If vegetables are not thoroughly boiled or cooked tender, they are tremendously indigestible, and much more troublesome during their stay in the stomach than the most under done meats or breads, etc. But, again, if vegetables are too long over the fire, they lose their beauty and flavor.

As to our markets, toward the latter part of last month (February), the return of pleasant weather brought in a more liberal supply of vegetables. Mushrooms and Cucumbers were cheaper, and Rhubarb was more plentiful than before that time. Spinach was 8c. and new Potatoes 6c. per lb.; Lettuce, 20 to 25c. per dozen; Salsify, 8 to 10c. per bunch; Potatoes, by the sack delivered, \$1.50 to \$2 per 100 lbs.

Prices in the fruit market, toward the end of last month, were without special change. Apples, Oranges, Lemons, and Limes were plentiful. Pears were very scarce, and commanded fancy prices. Bananas were 50c. per dozen; Smyrna figs, 35c. per lb.; Apples, by the box delivered, \$1 to \$2.50; Italian Chestnuts, 50c. per lb. Mammoth specimens of Shaddock Oranges were offered about the 20th of February at 50c. each; Citrons from Los Angeles County, 15c. each; Oranges, Loreto and Los Angeles varieties, 25c. to \$1 per dozen.

Cucumbers were getting more plentiful and cheaper, being quoted at 35c. each; Green Peas were up to 20c. per lb.; Cabbage Sprouts quoted at 10c. per lb.; Artichokes, 75c. per dozen; Jerusalem Artichokes, 6 to 8c. per lb.; Asparagus, 50c.; Mushrooms, 25c; Col-rabi, 25c. per dozen. On the 27th of February, vegetables improved slightly in quality, but the descriptions remained the same as they had been about the middle of the month. Some descriptions were getting scarce, and a stiffening in prices was the result.

About the 1st of this month (March) Pears were almost out of market, and the few offered were high in price. The price of Apples was very much restricted, and strictly choice pellow Newtown Pippins retailed, by the box, at \$3 to \$3.50. Los Angeles Oranges came forward freely and met with an active demand. Bananas were 50c. per dozen; Smyrna Figs, 35c. per lb.; Apples, by the box delivered, \$1.50 to \$3.50; Italian Chestnuts, 50c. per lb.

The temporary suspension of the collection of the import duties upon foreign semi-tropical fruits through the late construction of the revenue law relating to them, has resulted in a marked depreciation in the prices of some descriptions, more particularly Lemons,

which are selling at 25c. to \$1 per dozen. Imported Oranges are also much cheaper than native grown, partly on the same account, and partly owing to their being inferior in quality. Bananas are selling all the way from \$1.50 to \$5 per bunch, and 50 to 75 cts. per dozen; Preserved Bananas, recent importation, 25 to 37½ cts. per package. Domestic fruit, excepting Oranges and Lemons, is becoming scarce and poor. The last Oregon steamers brought down large consignments of Newtown, Spitzenberg, Red Cheek, and Swaar Apples, which are offered in the stalls for 8 cts. per lb.

The return of pleasant weather has brought a more liberal supply of vegetables. Mushrooms and Cucumbers are cheaper, and Rhubarb is more plentiful at the last two weeks' prices.

Prices in the fruit market are, about the middle of this month (March), without much change. Apples, Oranges, and Lemons are plentiful. Pears are very scarce, and command fancy prices.

VARIEGATED VINCAS.—The best known Vinca (*V. minor*) is a common garden plant, and is known as Periwinkle or Running Myrtle. In old gardens, its creeping stems cover large patches with bright green foliage, from amongst which delicate blue flowers appear early in the spring. The large Vinca (*V. major*) is less hardy and not so common. It has larger and more rounded leaves than the other. Both these species have produced varieties with the leaves marked with yellow in such a manner as to make them decidedly ornamental plants. These variegated forms are frequently used for hanging baskets, but they do not hold their leaves perfectly during the winter, and are not well suited for house cultivation. For bas-

kets and vases outside it, they are most useful plants; and when planted in a basket or vase, they hang over the edge with a very fine effect.—*Et.*

Correspondence.

POMONA AND CERES AT HOME IN THE MOUNTAINS.

BY DR. HENRY DEGROOT.

WEAVERVILLE, TRINITY CO., CAL., Feb., 1874.

MR. EDITOR:—Though the HORTICULTURIST often reaches and never fails to interest at least a few of us in this far north country, we seldom see much in it descriptive of the floral beauties or of the horticultural and pomological resources of Trinity County. Nor is this at all strange, considering that she lies almost up to the forty-first parallel of north latitude, and that nearly the entire area of the county consists of lofty ridges and broken hills cut everywhere by deep and precipitous cañons. To the world abroad, Trinity has been little known, except for its rich gold mines, its numerous streams, magnificent forests, and granite mountains; and while it stands to-day the foremost county in the State as regards its mining opportunities and prospects, it has still capabilities of soil and climate that rank it second to none as a fruit-growing district. Such Apples as are raised here are never produced at points much farther south, however favorable the location. Neither are the Peaches, nor other description of fruit, excelled by any grown elsewhere, either as regards size or flavor.

SOME OF THE ORCHARDS HERE
are marvels to see, even so late as December and January. Of these orchards, the most famous is that of Mr. Joseph McGillivray, on the Trinity River, fifteen miles below this place. Here were to be seen hundreds of bushels of

Apples and Pears hanging on or lying underneath the trees throughout the entire fall and early winter, with no one to pick or care for them. And such Apples! I have never seen anything like them in the San Francisco market, nor even in Oregon—so large, so fair, and so luscious! Not an Apple or Pear but was perfection itself—so immense, solid, juicy, and tender!—every one without spot or blemish! Here, for the first time, I found the Spitzenberg possessing the true old-time flavor, though the Apple of New England growth, in which I so delighted in boyhood, was a pigmy beside these.

The season of the earlier fruits was already over when I visited this spot about the first of December. But there had been gathered an extraordinary crop of Peaches, Apricots, Plums, Cherries, etc.—all splendid fruit, equally as fine as the Apples and Pears—while the Grapes still hung on the vines, and the Almond-trees, thrifty beyond measure and loaded to exhaustion, were covering the ground with their well-perfected nuts. The proprietor of this orchard has resided here, farming and mining, for over twenty years. He began setting out trees at an early day, selecting the very choicest varieties of fruits from the first; and having extended his planting gradually, has now over sixty acres covered with this description of trees, the most of them in full bearing. For some years, at first, his orchard proved a source of profit to him; but latterly, this has not been the case, the market for these products having been limited. As time wore on, the most of the householders here betook themselves to planting trees and vines, so that now nearly all have fruit enough of their own raising, and there are few to buy of the large orchardists and viniculturists. Mr. McGillivray, a big-hearted, liberal-

ly educated Scotchman who lives here with his family in a sort of baronial profusion, suffers whoever will to come and help themselves to what fruit they want—a privilege of which his near neighbors, more especially the miners, eagerly avail themselves.

At the time I visited this place, the owner having filled many large bins in his barn with Apples and Pears of the varieties best suited to keep, had turned his entire stock of horses, cattle, and swine into his orchard to feed on the fruit as it dropped off; and yet the ground under many of the trees was covered with it, there being more than the animals could devour.

Only a little inferior to the McGillivray orchard, in extent, scarcely at all in variety and excellence of fruit, is that of Dr. Ware, situated one mile above Weaverville, where also hundreds of well-filled bee-hives are to be seen—this insect thriving amazingly in a country so abounding in wild flowers and honey-bearing shrubs and trees. Over on the Hay Fork, a branch of the Trinity, are many fine orchards; also a large and thrifty one at the old Lowden Homestead, on the main river, with a great number scattered throughout the county—fruit being everywhere so plentiful as to have little or no sale. Here in Weaverville nearly every house is buried in trees, vines, and flowers—the main street being lined with Cottonwoods, which, having been planted in the early days of the town, have now attained large proportions.

While fruits and flowers of nearly every kind grow so luxuriantly here, the cereal crops can be brought to perfection with little labor, and often without irrigation. The most of the cereals sown are, however, cut for hay, as there are but few natural meadows in the county, except such as are located in

mountain basins not easily reached. In the matter of wild flowers and forests, Trinity is not surpassed by any section of country on the coast, there being found here a greater variety of woods and shrubs than in any other part of California; a feature due in part, no doubt, to the fact that the coast and the Sierra Nevada mountains come in together at this point, bringing each its peculiar growth of trees, plants, and flowers, and commingling them here. By this means both the flora and the botany of this region have been greatly diversified and enriched. Thus, we have here among trees, the Madroña, Alder, Chincapin, Laurel, Sycamore, and Redwood proper, with a great variety of berries, rarely found elsewhere than on the Coast Range, intermixed with several species of the Oak, Cedar, and Pine, common only in the Sierra Nevada, while such trees as abound in both these ranges are all met with in the mountains here, frequently growing in the greatest profusion. The same peculiarity distinguishes also, in a considerable degree, the grasses, the flowering plants, and the shrubs.

In passing lately over Bulkey Hill, lying eight miles east of and between this place and the main Trinity, I noticed standing on the very summit of the ridge a low shrub-like tree resembling the Cypress, being thickly branched and of perfectly conical shape, but of a species entirely unlike any I have before seen on this coast. I was afterward informed by Captain George Atkins, who has traveled much over this region, being withal a close observer, that the tree is not only *sui generis*, but that it is the only one of the kind he has ever seen, and he is quite certain that it has not its duplicate anywhere in the neighborhood. Being very beautiful, and most likely an entirely new

species, this tree should command the attention of botanists.

Should this *screed* meet with favorable consideration, I may hereafter have something more to say about the Pomology, Horticulture, Flora, and Botany of "Old Trinity."

Editorial Gleanings.

NOURISHMENT OF BUDS THROUGH THE BARK.—In *Comptes Rendus* for November is an article of much interest, by M. E. Favres, detailing the results of some experiments made by him to determine the direct source of supply of food to the buds of trees.

The trees selected for the experiments were the Mulberry, Walnut, and Cherry Laurel. Three kinds of experiments were instituted: 1st. The removal of a complete or partial ring of bark. 2d. Separating flaps or strips of bark bearing buds. 3d. A combination of the two preceding methods.

On the Walnut and Laurel a complete ringing of a branch was followed by early death of the buds above it, but a narrow bridge left sufficed to secure continued growth. The exposed wood was in all cases protected from the air. If the ringing is performed around the bud instead of around the branch, the same results followed. In all these cases starch is found in the buds below the ringing, but above it is soon exhausted by the growth of the bud, and when the supply of starch is exhausted the death of the bud follows.

There is no difficulty, M. Favres observes, in proving the ascent of nourishment by the bark, if a strip bearing a bud be detached, except its lower end, from a Mulberry during the season of active vegetation.

A strip of bark with a bud separated the 20th of June, made a branch twenty

inches long by the end of August. The Walnut gave the same results, with abundant cellular exudation on the internal face of the strip, which must be kept from drying, but which did not show quite as great growth as normal branches. A strip of wood may or may not be left on the detached bark. If a branch be ringed at short intervals, the buds in the intervals will die in a time proportionate to their distance from the lower ring, and the starch will be found wanting in such intervals, conclusively proving the passage of starchy matter to the bud by means of the bark.

STRENGTH OF TIMBER.—The strength of a piece of timber depends on the part of the tree from which it was taken. Up to a certain age the heart of the tree is the best; after that period, it begins to fail gradually. The worst part of the tree is the sap-wood, which is next the bark. It is softer than the other parts of the wood, and is liable to premature decay. The deleterious component of the sap-wood is absorbed, if the tree is allowed to grow for a long period, and in time the old sap wood becomes proper timber-fibre, similar to the heart-wood. Hence, the goodness of a tree for timber purposes depends on the age at which the tree was cut down. When young, the heart-wood is the best; at maturity, with the exception of the sap-wood, the trunk is equally good throughout; and, when the tree is allowed to grow too long, the heart-wood is first to show symptoms of weakness, and deteriorates gradually.

The best timber is secured by felling the tree at the age of maturity, which depends on its nature, as well as on the soil and climate. The Ash, Beech, Elm, and Fir are generally considered at their best when at seventy or eighty years'

growth, and the Oak is seldom at its best in less than one hundred years, but much depends on surrounding circumstances. As a rule, trees should not be cut before arriving at maturity, because there is then too much sap-wood, and the durability of the timber is much inferior to that of trees after they have arrived at their full development.

THE PETUNIA.—The Petunia is really one of the most valuable summer flowering plants we have. Not much for cutting from, it is true, but still they are so easily grown, and so indifferent to heat and drought, so continuously flowering, and flowering in so many of its shades of color so gaily, what in these valuable particulars can excel them?

There is, besides all this, some novelty in them. We recollect very well when the Petunia first came into general notice as a cultivated flower. It was then a pale rose color, and not half the size that it is now. A few years after, the big, coarse, white flower kind got into our gardens, and since then there have been numerous forms and shades of color ranging between white and rose. The florist has taken hold of them and produced distinct races, and given them fancy names borrowed from aristocratic people, as if that is the proper course to pursue in making aristocratic caste in Petuniadom. Some of them are very sweet, especially at nightfall, and their odor attracts the night-moths, until a bed of Petunias of a light summer evening is by no means a small attraction in the most pretentious garden. And then they can be had so easily. A ten-cent paper will give plants which will flower where they are sown in six weeks afterwards.—*German-town Telegraph.*

FEEDING STOCK WITH PROFIT.—In theory a fattening animal can not be overfed; but in practice the limit of excessive feeding is fixed by the animal's power of assimilation. The feeder must consider various circumstances, such as the quality of the food—for if it be rich and lavishly used, a large quantity will be ejected in an undigested state—the state of the animal, his age and condition. Lean animals, for example, are unable to appropriate an enormous amount of highly nutritious food, and they are liable to be very much upset if they are fed too fast until they have begun to move in the right direction. They should be kept on cheap and bulky food till their powers of assimilation have improved with their condition, when they should be pushed on more rapidly. The art of fattening depends on supplying an excess of food judiciously. A mature animal needs a certain amount of food to maintain him in good condition, and the greater amount he can be induced to take over and above this fixed quantity, the faster will the process of fattening proceed, and the smaller will be the waste of that portion of food which goes merely to maintain life, and which must, therefore, be lost in a sense to the feeder.—*N. Y. Herald.*

THE JAPANESE APPLE.—A correspondent writes *The Tribune* as follows: "The *Pyrus Malus floribunda* is a very beautiful shrub when in bloom, and is covered with an extraordinary profusion of flowers. It has been flourishing in this country for the past two years, giving entire satisfaction in every way. All such additions to our list of hardy shrubs, combining all the requisites for general cultivation, should receive the notice that their merits deserve. A strong plant in the writer's collection,

now just going out of bloom, has been one of the chief points of attraction to all visitors for the past two or three weeks."

AN ENORMOUS GRAPE - VINE. — The "Lord Raleigh Grape-vine," which was growing when Sir Walter landed at Roanoke Island in 1610, and was then but three inches in diameter, is now spoken of as one of the largest vines in the world. It covers one and a half acres, and last year yielded 46 barrels of wine—1,480 gallons in all—which sold for \$2 per gallon, yielding \$3,680. There is a Scuppernong Grape-vine in Terrell County, North Carolina, which is said to be much larger than the Raleigh vine, and to produce at least a fourth more wine. The wine from the vintage of last year from this vine measured 2,520 gallons, and brought the handsome sum of \$5,040.

ENGLISH TRADE IN ROSES. — A magazine writer says: We could name several nurseries where from 120,000 to 150,000 Briers are budded annually, and several more where the number averages from 30,000 to 60,000. One of our friends in the trade invests annually £2,000 in Briers and labor in making out-door Roses. Having cast up a series of totals of this kind that we can pretty well rely on, we are satisfied the sale of Roses must considerably exceed a million annually. If we reckon these worth one shilling each, the total cost to the public will be £50,000. But we have yet to consider the pot Roses, and the new Roses, and all kinds of odds and ends of a commercial nature of which Roses are the subject, and we shall probably have to add an equal amount for these, which brings up the total to £100,000. That this is far be-

low the actual amount that changes hands in this country on Roses is made evident by the large sums our nursery-men pay to the French raisers every year for their novelties.

WARMING SMALL GREENHOUSES.—An English journal says that a gentleman who had a small greenhouse of half hardy, not tender plants, employed at first no heat but gas, during cold snaps. The gas was however found ruinous to the plants, and he substituted cheap paraffine lamps, distributed in different parts of the greenhouse, with entire success. In the colder winters of this country, the same means of softening the severity of the temperature might be adopted, provided the half hardy plants selected were sufficient to bear some cold, or in smaller greenhouses or plant cases.

BUTTON-HOLE BOUQUETS.—These elegant little sprays are no longer confined to masculine use. Small gold and silver tubes are constructed for ladies, with a pin at the back, by means of which they fasten a Tea Rose, a Gardenia, a sprig of Heliotrope, a leaf of Geranium, and a scarlet blossom of some kind, at the left of a lace necktie or tulle scarf, instead of a brooch. Of course the colors of flowers are chosen to suit the taste and the dress, but they are always small, choice, and fragrant. Violets are in great demand.

STANDARD HONEYSUCKLES.—An exchange gives the following directions to trim the Honeysuckle into a bush form, giving it great beauty and effect: Buy a plant of it, train or tie to a stout stake, prune freely but not too severely, give good soil and culture, and "it will grow into a plant that will aston-

ish, by its flowering capacity, thousands who have not seen it so trained."

A FINE GINGKO TREE.—In the Botanical Garden, at Pisa, Italy, is a Gingko tree, *Salisburia adiantifolia*, which has attained the height of nearly ninety feet, and at three feet from the ground is nine feet seven inches in circumference. It was received from England, and planted in 1788. It is a splendid tree, and very remarkable for the rich golden color which the leaves assume before falling.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING FEB. 28TH, 1874.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office.)

BAROMETEE.

Mean height at 9 A. M.	30.14 in.
do 12 M.	30.13
do 3 P. M.	30.12
do 6 P. M.	30.12
Greatest height, on the 5th at 12 M.	30.37
Least height, on the 17th at 6 P. M.	29.82

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	47°
do 12 M.	53°
do 3 P. M.	54°
do 6 P. M.	49°
Greatest height, on the 20th at 3 P. M.	60°
Least height, on the 18th at 9 A. M.	42°

SELF-REGISTERING THERMOMETER.

Mean height during the night.	41°
Greatest height, on mornings of 2d and 9th.	47°
Least height, on mornings of 26th and 27th.	36°

WINDS.

North and north-east on 11 days; south and south-east on 4 days; south-west on 6 days; east on 3 days; west on 2 days; north-west on 2 days.

WEATHER.

Clear on 13 days; cloudy on 10 days; variable on 5 days; rain on 10 days.

RAIN GAUGE.

February 1st	1.54 inches.
.. 6th	0 01 "
.. 9th	0 05 "
.. 10th	0 12 "
.. 11th	0 12 "
.. 12th	0 19 "
.. 13th	0 79 "
.. 14th	0 08 "
.. 26th	0 06 "
.. 17th	0 18 "

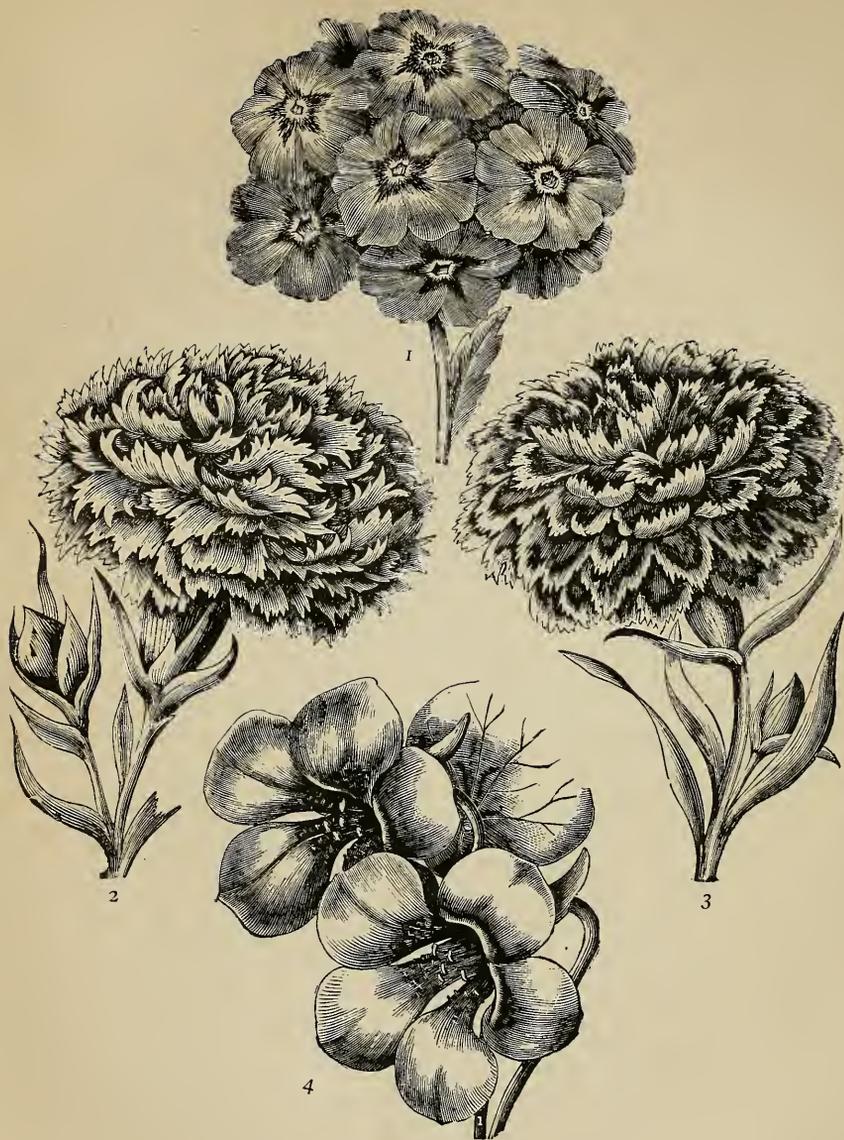
Total 1.83 "

Total rain of the season up to date..... 18.97 "

JOB PRINTING

OF EVERY DESCRIPTION

Executed at this Office!



GROUP OF ANNUALS.

1. *Verbena*.

2. *Dianthus laciniatus flore-pleno*.

3. *Dianthus diadematus flore-pleno*.

4. *Tropaeolum*.

T H E

California Horticulturist

AND FLORAL MAGAZINE.

VOL. IV.

APRIL, 1874.

No. 4.

CAMELLIA CULTURE.

BY F. A. MILLER.

While it is generally understood that the Camellia requires little care, as compared with other greenhouse plants, I find that but few persons succeed in retaining their plants in good and healthy condition for any length of time; and florists themselves seem still to adhere to the idea that their stock of Camellia plants has to be renewed every few years, on account of their dying off or becoming worthless. When we ask what the cause of all this is, we can not obtain any satisfactory explanation. One attributes the failure to unsuitable soil, another to the impurity of the water, a third to the peculiar climatic conditions of the locality, etc., etc. As far as I am concerned, I fail to see any objectionable ingredient in our soil, if properly prepared; nor in the water, if judiciously applied; nor in the climate, if the necessary protection is given.

Within the past few years I have had frequent occasion to note the cause of sickness and loss of Camellia plants; and doubtless many other plants would have perished, possibly sooner, had they

been exposed to similar ill-treatment. The various causes of failure in the cultivation of Camellias may be summed up as follow:

1st. Over-potting, which is practiced by amateurs as well as by professional gardeners, to a very great extent. This treatment is only desirable when growing certain plants for specimens, or when a continuous development of young growth is desirable.

2d. Insufficient drainage, which has a tendency to sour the soil, and to produce decay in the roots.

3d. Placing pots containing these plants upon dry shelves. This frequently results in the drying-up of the outer earth containing the spongioles, which are formed of very delicate tissue, and which alone enable the plant to absorb the moisture and plant-aliment contained in the soil. To keep these spongioles in active condition, it is necessary to protect them from a dry atmosphere, which can only be properly accomplished by plunging the pots to at least half their depth in sand, tan-bark, or almost any other handy material. Where amateurs cultivate but a few plants, and where nicety and neatness are most desirable, the pot contain-

ing a Camellia plant may be set into one of a larger size, and the space between may be filled up with sand, which will answer every purpose as well as plunging.

4th. Exposure to violent heat, as direct sunshine. The Camellia requires partial shade and a cool temperature. Some of our florists are in the habit of forcing these flowers when they find a large demand for them; for instance, about Christmas and New-Year. I am of opinion that forcing is detrimental to the plants, and frequent forcing is likely to destroy them. Give your plants all the airing and ventilation you can, and protect them from the hot sun, and they will keep in a healthy condition.

5th. A close dry atmosphere, and the burning of coal or gas in the room where the plants are kept; this will kill almost any plant. When it is necessary to burn gas or coal, the plants should certainly be removed for the time being; and during dry and warm weather, a frequent syringing with water will be most beneficial.

6th. Frequent surface watering, in not sufficient quantity to penetrate the soil to the depth of the pot. When you do water your plants, water them thoroughly, so that every particle of the soil may be moistened. If done in this way, not more than two waterings per month will be necessary, unless the weather is very warm and the atmosphere unusually dry.

Remedy all these defects in treatment, keep your plants clean and free from dust, and I am quite certain that Camellia culture will be more successful in the future. Our climate is a most excellent one for Camellias, and they might be planted almost anywhere in the open ground, if proper shelter from strong winds and protection from the

direct rays of the hot sun were provided.

“SCIENTIFIC GARDENING.”

The transition from grafting to budding is natural enough. Those twenty white stakes stand as so many monuments of another horticultural disaster. On a September day, twenty buds, so rare that the original stock could not be bought at any price, had been deftly slipped into as many “suckers,” which had come out from the roots of as many Rose-bushes. The next spring they were set and staked, and each was about as precious as the right eye of any amateur horticulturist. The small buds had developed into branches a foot long; great double peerless Roses had been hanging pendent from the original stocks—Roses with regal names and titles. There would have been twenty glorified specimens of Floriculture today, but for that foreign gardener who had been “educated in the best schools in Europe,” who knew everything, and could not be told anything. Roses must be cut in to make new wood. Before night he had clipped those twenty standards each below the bud, and had taken himself off with his diabolical shears, his insufferable conceit, and his rustic innocence. He never came back to look at the work of his hands, nor to hear the wish mildly expressed that a pair of shears might be invented which would shorten the stature of that gardener at least a foot. There was a special aggravation of the case, because we had been nursing a theory for years, that by splitting two Rose-germs of different kinds and putting the odd halves together, if growth could then be induced, there would be a hybrid Rose—either the color of the one would be distinct on one side, and the other

on the opposite side, or the Rose would be mottled, having red and white spots on each leaf. This Siamese bud had started finely. Bad luck to the gardener's shears which abbreviated that experiment, and enveloped the vexed question again in darkness.—*Overland Monthly for April.*

FIG CULTURE.

BY DR. J. STRENTZEL.

The tree of the Garden of Eden, producing one of the most luscious fruits, should be more largely cultivated in California. No fruit-tree is easier propagated, longer lived, or more thrifty under ordinary care; none a more prolific or abundant bearer. The fruit, wholesome and nutritious, is easily preserved for future use by drying, and is thus adapted for a staple article of food in our favored clime.

The Fig-tree thrives best in a rich, mellow soil, and requires a copious supply of water during midsummer, on any of our uplands or dry soils, to produce large and well-ripened fruit. It is propagated from cuttings of the previous year's growth, or by sprouts from stool-plants or around the butt of a tree. These last are partially rooted already, and will make a fine growth during the first season, and begin to bear the year following. This very facility of propagation appears to be a barrier to the further improvement of the Fig by the production of new and choice varieties from seed, which calls for the best efforts of our nurserymen in that line. Considering the great difference in the quality of the fruit and in the growth of the trees of the same variety, when raised under favorable conditions, it is presumed that the seedlings would also

vary, probably with great improvement both in size and flavor of the fruit.

The fruit of the Fig-tree forms in the axillæ of the leaves. The so-called first crop is on the previous year's growth; the second crop is developed with the new wood during the season, and is checked only by lack of moisture in the soil, or by the autumnal frosts. This peculiarity of growth induces long and straggling branches, disturbing the symmetrical beauty of a tree, and by which its vitality and power to produce fruit are also impaired; but with a little care in regard to proper pruning, as cutting out crossing branches, and shortening in one-third to one-half those of exuberant growth, the whole tree is filled out and renewed with new fruit-bearing shoots.

The ancient method of oiling the apex or eye of the fruit is not practiced here. It may be serviceable to varieties with an open calyx, as preventing the intrusion of insects.

There are about a dozen varieties of the Fig cultivated in our State, all succeeding equally well. The *Violette*, *Angelique*, and *White Ischia* are of excellent quality, but inferior in size; the large *White Genoa* is a splendid variety, but rather juicy and thin-skinned, and so more difficult to dry in the sun in the bay counties. Among the dark varieties, the *Black Naples* is the largest, but none is superior in quality to our *Mission Fig*, which will shrivel on the tree, and keep in fine condition, a luscious sweetmeat, until the rainy season, if not disturbed by the winged gourmands.

The improved processes of drying open a wide field for the profitable culture of the Fig on the most extensive scale, to supply not only the Pacific Coast and Territories, but the whole Union. Here is another industry, re-

quiring for its inception but little capital, and, with a minimum of labor, secure of quick returns and a continental market.

THE BRIGHTON AQUARIUM.

The Brighton Aquarium, while emulated by several buildings of a similar nature in different parts of England and the continent, still holds its own in being on a scale of magnitude hitherto unsurpassed; more than one of its tanks, in illustration of this, being of sufficient size to accommodate the evolutions of porpoises and other small cetacea. The works were commenced in the autumn of the year 1869, but owing to various interruptions the building was not formally thrown open to the public until August, 1872.

The area occupied by the aquarium, says the eminent naturalist, Mr. W. Saville Kent, in *Nature*, averages 715 feet in length by 100 feet in width, running east and west along the shore-line. The building internally is divided into two corridors separated from one another by a fernery and considerable interspace. The approach to the first or western corridor is gained through a spacious entrance hall, supplied with reading-tables, and containing, between the pillars which support the roof, portable receptacles of sea-water for the display of small marine specimens that would be lost to sight in the larger tanks.

The tanks for ordinary exhibition begin on the left side of the western corridor, and follow in consecutive order round the two corridors, the last immediately facing No. 1. The smallest of these tanks measures eleven feet long by ten feet broad, and is capable of holding some 4,000 gallons of water; while the largest, No. 6, in the western

corridor, presents a total frontage, including the two angles, of 130 feet, with a greatest width of thirty feet, and contains no less than 110,000 gallons. Every gradation of size occurs between these two extremes, the depth of the water in all ranging from five to six feet. Supplementary to the foregoing, a series of half-a-dozen shallow octagonal table-tanks occupies a portion of the interspace between the two corridors, these being especially adapted for the exhibition of animals such as star-fish, anemones, and others, seen to best advantage when viewed perpendicularly through the water. Flanking one side of this same interspace are several ponds fenced off for the reception of seals and other amphibious mammalia and larger reptilia, while at its farther or eastern extremity artistic rock-work runs to a height of forty feet, thickly planted with choice ferns and suitable exotic plants, and broken in its course by a picturesque water-fall and stream. Tanks 12 to 17 in the eastern corridor, in addition to the stream and basin beneath the water-fall, are set apart for the exclusive exhibition of fresh-water fish, the remaining tanks being devoted to marine species. The bulk of water thus utilized in the fresh and salt water tanks collectively amounts to 500,000 gallons, and in addition to this several smaller store-tanks in the naturalist's room, adjoining the eastern corridor, afford accommodation for reserve stock, or for new arrivals before their display to public view.

The style of architecture dominant throughout the building is Italian and highly ornate, the arched roof of the corridors being groined and constructed of variegated bricks, supported on columns of Bath stone, polished serpentine marble, and Aberdeen granite; the capital of each column is elaborately carved

in some appropriate marine device, while the floor in correspondence is laid out in encaustic tiles. The divisions constituting the fronts of the tanks are composed each of three sheets of plate glass, each plate having a thickness of one inch, and measuring six feet high by three feet wide, separated from one another and supported centrally by upright massive iron mullions; in the smallest tanks the front is represented by but one of these divisions, while that of the largest, No. 6, consists of as many as eleven. Among other conspicuous structural features of the aquarium demanding notice, are the huge masses of rock entering into the composition of the tanks and fernery.

The system adopted at the Brighton aquarium for continually renewing the supply of oxygen, necessary for the well-being of the animals, is by streams of compressed air, which are constantly forced into the tanks through vulcanite tubes carried to the bottom of the water, each tank being fitted with a greater or less number of these tubes according to its size.

THE WILLOW.

BY E. J. HOOPER.

The Willow (*Salix*, Nat. Ord. *Salicaceæ*), belongs to the Linnæan class *Dicæcia*, the distinguishing feature of which is, that the flowers bearing stamens, and those producing pistils and seed, are on two different trees, although the leaves and general appearance of each are the same. All the species are natives of the northern hemisphere, mostly within the temperate zone, though one or two are found within the Arctic circle. The catkins of the different species vary in length and size, as well as in the color of their anthers. The leaves, though greatly varied in

size and form, are all more or less oval, and of a pale sea-green tint, and very frequently white, silvery, and downy on the under side.

“Along the brink the path they kept,
Where high aloft o'erarching Willows wept,
Whose silvery foliage glistened in the beam,
And floating shadows fringed the chequered stream.”

The many important uses rendered us by the different species of Willows and Osiers serve to rank them almost first in the list of our economical trees and plants. The timber is soft, light, and smooth, though tough. There are computed by some botanists to be about 250 species. There are not many that have much claim to an ornamental character, but most of them are of great utility. Among the several uses to which Willows are applied, perhaps the most important is that of basket-making, and the next in consequence is the application of the bark to tanning purposes. In some countries, too, their leaves are employed as food for stock. A substance called “salicine” is obtained by maceration of the bark of several species, which has been proved to be equally efficacious with Peruvian bark in the cure of agues and other low fevers. The employment of Willow poles as supports in the garden hop-grounds and vineyards in the eastern part of the United States, and in other parts of the world, is well known. The bright yellow twigs of one variety of them at least—*Salix vitellina*—are among the toughest of the genus, and are grown by cultivators of the Grape, and market-gardeners, to bind their vines and other produce. The *Salix Babylonica*, the Weeping Willow, is decidedly worth great consideration; it is most ornamental, intermingled with other differently growing fine trees, in nearly all situations; but, when enjoying the most appropriate place for it, the margin of a

stream or piece of water, is certainly one of the handsomest trees we possess. *Salix annularis*, or Ring-leaved Willow, is another pretty pendulous species, more tender than the preceding in a severe climate, but well adapted no doubt for California.

The Napoleon Willow, brought from the island of St. Helena, is a rather weak, pendulous sort, appears to be distinct from either of the above, and is, in all probability, a variety of *S. purpurea*, common as a woven hedge, well kept down, in some parts of England.

With regard to the planting of Willows, nothing can be more easy. They may be increased to almost any extent by cuttings, in the manner of the Osiers, grown for fagoting, underwood, or brush, which have long and tough rods. These are *viminalis*, *rubra*, *Forbyana*, *Lambertiana*, or *purpurea*. Their after management must of course depend upon the uses they are destined for. The very common mode of pollarding them, as in Europe, is objectionable on several accounts. They are then spoiled either for timber or poles. The crowd of small stuff which rises on the head after each cutting suffocates one the other, and the trunk is rendered of little value by its being foreshortened. It must be decidedly more profitable either to cut them over near the ground, as is practiced with stools of Ash, Chestnut, and other plantations for wood, the subsequent shoots to be thinned according to the strength of the stool and space they are allowed to occupy—or at once let them run up into perfect trees, taking off only such lateral branches as may be required for repairs, etc., before the principal growths have attained a marketable size.

The ground most suited to the formation of Osier-beds, as they are called, is

found on the margin of streams. It should be of considerable depth, and partake largely of a loamy character. The land should be sufficiently high to prevent more than occasional submersion, for although all Willows thrive in damp soils, few of them are naturally bog or even marsh plants, and never succeed where frequently saturated.

Useful as I have proved the Willow tribe, and beautiful to the eye, it fills a scarcely less important place as affording nourishment to bees. Its ornamental catkins and delicate leaves, which embellish the earliest days of spring, furnish sustenance to those valuable insects. On those of the *S. Caprea*, especially, the annual produce of the hives greatly depends. It is in flower in California in most years as early as February. During this time, whenever the thermometer is at or about forty-two degrees in the shade, accompanied with sunshine, the bees come abroad. This is a temperature which often occurs here, and if they have an opportunity during February of feeding a few days upon this Willow, or, perhaps, other kinds, the hive will soon become in a flourishing state.

With regard to the estimation in which the Willow has been, and still is, held by poets, to enumerate them all would be impossible. A few, however, may be mentioned :

“ A hollow vale where watery torrents gush,
Sinks in the plain; the Osier and the rush,
The marshy sedge, and bending Willow nod,
Their trailing foliage o'er its oozy sod.”

OVID.

“ Poplars and Willows trembling o'er the flood.”

POPE'S HOMER.

“ The floating shade
Of Willows gray close crowding o'er the brook.”

THOMSON.

“ The thirsty Salix bending o'er the stream,
Its boughs as banners waving to the breeze.”

MONTGOMERY.

“ There is a Willow grows ascant the brook,
That shows his hoar leaves in the grassy
stream.”

SHAKESPEARE.

A CARPET FOR SAND-HILLS.

The report of the Engineer of the Golden Gate Park contains facts of great interest. We have in this city 3,000 acres of shifting sand, with a constant tendency to an increase of the area. The western or ocean side of the city is made nearly desolate by these sands. Every wave which beats on the shore, and every breeze, conspires to raise this sand and drive it inland. If the whole western side of the city were carpeted with verdure, insuring a complete fixation of sand, millions of dollars would be added to the wealth of the town. The engineer shows how this can be done. In fact, the experiments of the last year amount to a very conclusive demonstration. The average cost of reclaiming an acre of land at the Golden Gate Park has been \$30.75 an acre for grass, or, with the addition of shrubs, \$43.93.

The most difficult part of the work of reclamation will be an embankment of nearly three miles along the beach, where now eight hundred cubic feet of sand are raised for every lineal foot. While this will be the most difficult feature of the work, the engineer does not anticipate any great difficulty in making an effectual barricade by means of shrubs, which will fix the sand and form a natural embankment. The inside work could then be carried on by the lot-owners at comparatively small expense.

The results thus far attained with the Yellow Lupine are very remarkable. It thrusts its roots into the sand, and, when once established, it in a short time covers the desolation with the most beautiful vegetation. A top soil is soon formed, and then grass will grow. There are other plants and grasses which are known to thrive in the sand. Along

the beaches in the Atlantic States is a low bush bearing what is known as the Beach Plum. This shrub grows in the sand, and appears to form a complete barricade to drifts. With so many resources, it can hardly be doubted that all the sand-dunes in the city will be reclaimed. Now that successful experiments have already been made, and the approximate cost is known, it may be considered that this great work is fairly inaugurated.—*S. F. Bulletin.*

 ABUTILON BOULE DE NEIGE.

BY A NEW CONTRIBUTOR.

The Plant Catalogue of John Saul, Washington, D. C., just received, has the following description of a *new* and *rare* Abutilon at the very head of the list of flowering plants:

“ABUTILON BOULE DE NEIGE.—The Floral Magazine says of it: ‘Abutilon Boule de Neige was exhibited by Mr. Standish, of the Royal Nursery, Ascot, and was received by him from France. He describes it as very free flowering, as indeed could be seen from the small plants exhibited by him being full of flowers; and he also states that it is very valuable as a sub-tropical plant, bearing exposure to the summer well, and interesting by the contrast of its pure white flowers and green foliage. This plant will be invaluable to our florists for cut-blooms, during summer when bedded out, and during winter in the forcing-house—a charming acquisition to this group. Price \$1 each.’”

This plant is figured in a very large and beautiful manner, in colors, as a supplement to the catalogue quoted above. This is the very same plant that our florists and nurserymen have been cultivating very extensively for at least six years past. Messrs. Lüdemann &

Co., nurserymen of this city, place it in their recent catalogue among the ever-green plants as "*Abutilon niveum*, white, price fifty cents;" but by wholesale, it can be had for thirty cents. They have one in their nursery that is twelve feet in height, and is a constant bloomer, having a profusion of white flowers the year round. Our nurserymen also cultivate a crimson *Abutilon*, called "Santana," which we have failed to find in any Eastern catalogue we have so far examined, and therefore presume it is also a "new and rare" plant there. It is "a beautiful plant either for greenhouse decoration, or for the open air, of rapid growth; leaves palmated, light green, glossy; deep crimson flowers, very distinct, and continually blooming; the price is only fifty cents." It is exceedingly gratifying to us to be thus able to identify what we have cultivated for a number of years, as new and quite rare in the East. The above may seem like bringing the "shop" into notice by giving the prices, but this the reader will at once see is only done to make a comparison.

GARDENING FOR CHILDREN.

Few parents probably ever think what an influence a few lessons on gardening would have on the future life of a child. Everyone knows how the acts of childhood last in the memory, even into old age, and this influence may be either good or bad, like the act itself; therefore, knowing this, we have a good incentive for teaching our children the knowledge which shall be useful to them in future years. Gardening is, however, seldom taught to children, although one of the most useful kinds of knowledge which they could obtain. Perhaps the reason why it is so is be-

cause there are few able to teach; but it needs only a beginning to make the next generation much in the advance of this.

The boy is set at work hoeing or digging, but no one explains any motive for the act, consequently his interest in the work does not reach beyond the mere manipulation of the soil, and what might become mental recreation and a pleasure, is the worst kind of drudgery. If he was told why the soil was stirred and its effect, there would be something more than the usual incentive for work, and the lesson would be remembered. A child should never be allowed to do any work without first knowing its object; and the parent that is capable of explaining this clearly will not be very likely to permit an improper act.

But what we here call gardening may well include more or less of farming, because the farmer raises plants as well as the gardener. Neither do we believe in confining a knowledge of gardening to boys, for it will do girls no harm even if they should never have occasion to use it. Let the boy begin by raising plants himself, sowing the seeds and tending the plants as they appear, and progress soon becomes a constant source of delight as well as knowledge. Begin with annuals, for they come into perfection soon, and will not tax the patience of the child too severely at first. A few perennials may also be started at the same time, and a few words of explanation show him the difference and how to distinguish the two classes. Gay flowers usually attract most, but melons, or other annual fruits, may well come in for a share of attention. One step in this direction will lead to others, and a boy or girl who would, under the usual course pursued by farmers, hate gardening, will become thoroughly imbued

with a love for it and all its surroundings. The hoeing, raking, digging, and other operations in the garden, when their use is fully explained, become very interesting even to older persons, but they are remembered better if taught in youth.

If we are ever to be a nation of good gardeners or farmers, we must have the science of the thing taught to children. Our common schools must be made more practical and interesting to children, for the science of every-day life and its surroundings are full of interesting and useful lessons, and these need to be placed foremost, and dry book-lessons second or last. A knowledge of how that weed by the school-house door-step grows is of more consequence to the child than the age of the Egyptian Pyramids or the height of Pompey's Pillar. We were taught when a child to repeat many a falsehood by the yard, because they were in school-books, but never had a teacher who could tell which way a Lima beanstalk turned around a pole, or why it turned at all. Now, while farmers are making war upon those who oppress them, had they not better look into the school-houses and see that their children are being taught that which shall be most useful to them as farmers and farmers' wives?

A DESTRUCTIVE WORM.—We hear complaint that a small worm has made its appearance in this vicinity, and is making disastrous inroads upon some of the grain. It resembles the army-worm somewhat. It eats in a circle, and takes the grain as it shoots above the ground, leaving not a spear in its course. Several farmers in this neighborhood will be compelled to sow their land over again, owing to the devastations made by these worms.—*Gilroy Advocate.*

GROUP OF ANNUALS.—SEE FRONTSPIECE.

BY F. A. MILLER.

We take pleasure in calling the attention of the reader to another group of annuals, represented in our frontispiece, for which the Magazine is again indebted to James Vick, of Rochester, N. Y.

The *Verbena* is not considered an annual with us here in California, as it is sufficiently hardy to withstand our winters. The production of new varieties is continually increasing, and the *Verbena* is now a most popular bedding plant, and indispensable for the flower garden. It is very important that the old plants should be well cut back in the spring of the year, so as to produce young wood and better flowers.

The *Dianthus* has also been wonderfully improved, and many most exquisite and distinct varieties are under cultivation. The seed is sown early in the spring, and the young plants will produce an abundance of flowers during summer and the following winter. The *Dianthus* also withstands our winters, holds out for several years, and ceases to be an annual in California.

The *Tropæolum* has no less claim to our special attention. Hardly any except the oldest varieties are cultivated here, although the colors of the latest acquisitions are most superb. It is a pretty climber for trellis-work, and continually in bloom. It develops its flowers the first season from the seed, but, like the other plants we have named above, continues to live and thrive for a number of years. We know of some plants in this city which have never stopped blooming for four years. Certainly this fact must encourage the planting of these so-called annuals.

THOROUGH cultivation is indispensable to success in gardening.

EUCALYPTUS GROVES.

A Hayward correspondent of the Oakland *Transcript* gives the following:—
 “Two miles north of Hayward are two remarkable groves of the Eucalyptus or Australian Gum-tree. They belong to J. T. Stratton, the present Surveyor-General, who resides in Oakland. One grove contains about sixty acres, the other ninety; the whole comprising about 130,000 trees, big and little. The trees are only four years old, yet many of them are from forty to fifty feet high and a foot in diameter, and are planted in regular rows like an orchard, though closer together; in fact, the rows are too close for the general thrift, and the proprietor is about to cut away every other tree, which will afford firewood enough to pay for all expenditure heretofore. When Gen. Stratton was setting out the trees, the neighboring farmers laughed at him, and advised him to desist and attend to his surveying, as he would be dead long before the timber would amount to anything; but the laugh is now on the other side. Five years hence the available timber will be immensely valuable for manufacturing and for firewood. There are many species of the Eucalyptus, most of which are adapted to this climate. The tree grows to great size and height, and when seasoned is extremely hard, solid, and resembles hickory. It is well suited for wagon and carriage making, and as firewood it creates a heat almost equal to coal, and deposits a cinder which will keep hot for a long time. No doubt General Stratton’s foresight in planting these extensive and beautiful groves will produce not only cords of wood but cords of money; for, if cut down and sold now, at the age of only four years, the young forests would bring many thousands of dollars. Moreover, the

successful experiment will be of vast importance to the people living in poorly timbered districts, as it has demonstrated that an abundance of valuable wood can be produced from the seed within five years from the time of planting, while a period of nine or ten years will produce timber logs more than two feet in diameter.

 A FLOURISHING EXPORT TRADE IN SEEDS AND PLANTS.

A considerable trade, and one constantly increasing, has sprung up with Europe in plants indigenous to the Pacific Coast. Sonntag & Co. have the principal part of the business in their hands, and they have collecting agents at work from Washington Territory to Southern California, in Nevada, and also in Arizona.

The Pacific Coast is constantly yielding up botanical treasures, and attracting the attention of the scientific world. The *parterres* of lovely flowers upon our hills and mountains are not appreciated until one has been abroad, and visited the gardens of Europe. In England, and in several countries on the continent, wild flowers from this State, where they are found in boundless profusion, are cultivated under glass, and nurtured as botanical novelties. There are seventeen species of the Lupine in California, indigenous to the soil, and other wild flowers in like proportion. Among the California plants held in high esteem by the Europeans is the Ceanothus, or the Beauty of the Sierra, a charming flower, found in the mountains, as its name would imply, and also on the hills to the west of the city. The California Pitcher Plant, differing materially from the Pitcher Plant of the Eastern States, is also prized abroad as a novelty. Its leaves are in the form of tubes, and will

hold water. Another popular plant is the *Scolopus Bigelowi*, a plant discovered by the Mexican Boundary Commission, and named in honor of one of its members. This is a great botanical curiosity. It grows to the height of eighteen inches, has large green leaves, spotted with maroon, and bears purple flowers.

Among the tree seeds in demand among the Europeans are those of the *Sequoia gigantea*, or *Wellingtonia gigantea*, named in compliment to the late Duke of Wellington, which is best known as the Big Tree of California. The English naturalist Lobb is supposed by many to have first met with the tree near the source of the Stanislaus River, in Calaveras County, though other writers attribute its discovery to Douglas, in 1831; but perhaps the most probable statement is the one generally believed in California, and is that a company of miners on a prospecting tour came accidentally upon the Calaveras group. In 1865 were sold two pounds of the seeds of this tree, in one of the German States, at the rate of \$125 per pound. Other favorites are the *Pinus flexilis*, a hardy tree, found at the height of 13,000 feet; the *Pinus insignis*, a lovely grass-green pine; the *Cupressus macrocarpus*, an evergreen; the *Thuja gigantea*; the gigantic *Arborvitæ*, alias *Libocedrus decurrens*, a noble tree, with a straight and very robust stem—in color the foliage is a remarkably bright green, and the branches are long, flat, and frond-like; and many other Firs, Pines, Cedars, Cypresses, etc. The need of a good work on the botany of the Pacific Coast has long been felt; and in this connection we are pleased to learn that Professor Brewer, of Yale College, who was associated with Clarence King during the geological survey, is writing a book de-

voted exclusively to this subject.—*Morning Call.*

MOUNT SHASTA FROM STRAWBERRY VALLEY.

Isolated by the valleys around its base from the ridges of the Sierra Nevada and the Coast Range, which in this region are conterminous, if not quite intermixed, and showing so much of its real elevation, Mount Shasta has the finest exposure of all the lofty summits in California. Indeed, there are few mountains anywhere in the world which stand so apart, and are seen to such great advantage. Mount Whitney, in southern California—its superior in height by 500 or 600 feet, and its only proved superior in the United States, outside of Alaska—is but one of a number of companion peaks, of little inferior height, rising a few thousand feet above the general elevation of a long crest-line, accessible by a quite gradual approach on horseback. The peaks about the railroad summit, having an elevation of 9,000 to 10,000 feet, are reached by an ascent, on the railroad or wagon-road grades (which go within 3,000 or 4,000 feet of their tops), not less than 100 miles long. But arrived at the base of Shasta, you are only 3,567 feet above the sea, and make the remaining elevation of nearly 11,000 feet to the top, on horseback and afoot, in the short distance of fourteen or fifteen miles. Standing out so boldly, Shasta is a conspicuous landmark over an area several hundred miles in extent, and the view of it from any of the valleys at its foot is alone ample reward for the long journey necessary to obtain it. The study of it from Strawberry Valley is a constant source of pleasure, for many days in succession, from the early morning, when it is cold and austere, until the

evening, when it is warm and ruddy with a delicious Alpine glow, lasting forty minutes after the valley is in cool shadow. In the clearest atmosphere, and close as it is, the twin cones of its summit look soft and smooth, as if clad with soil, where they are not covered or streaked with snow. Innocent and inviting as are those slopes, except for the steep angle of their inclination, we know they are rough piles of broken rocks, of toppling slabs, and sharp volcanic clinkers. But how lovely they look! How delicious in their prevalent tint of pinkish drab, streaked with the red of lava edges and the white of frozen snow, and relieved so high up against the blue sky; while low down is the abruptly terminating line of dark-green firs and pines, sloping to the bright grassy meadow at the foot of all. In some lights, and especially when the atmosphere is hazy, the peak above the timber-line is a delicate *mauve* color; and then it is as airy and wonderful as the dome of Aladdin's genii-built palace, insubstantial almost as the fabric of a vision.—
B. P. AVERY, in *Overland for March*.

PROFITS OF ORANGE CULTURE IN CALIFORNIA.

Seedling Orange-trees rarely bear fruit until seven years old, and frequently not until eight years old. As a rule, the first crop is sufficient to pay all current expenses. The second crop will give a fair profit, while the third crop—worth at, say, \$15 to \$25 per 1,000, \$10 per tree—is enough to pay back all the principal invested, allowing that nothing has been realized in the meantime from the space between the rows. Orange-trees fifteen years old will bear from 1,000 to 2,000 Oranges, netting the fortunate owner from \$20 to \$25 per tree, or \$1,000 to \$2,000 per acre. This

is no fancy picture—the dream of an imaginative mind. The Los Angeles and San Gabriel valleys, in Los Angeles County, afford ample proof of the truthfulness of these assertions. From his orange-grove of seven acres, Mr. Wilson nets the handsome sum of \$2,000 per acre per annum. The fair owner of the Wolfskill orchard, covering an area of about thirty acres, is reputed to net from the Orange-crop from \$45,000 to \$50,000 per annum. Mr. L. J. Rose, of Sunnyslope, who has an avenue half a mile in length, leading from the county road to the door of his residence, lined on each side by a double row of Orange-trees, five hundred of which are now bearing, sold the crop of 1872--3 for \$30 per 1,000, which aggregated about \$15,000. The trees in the San Gabriel Mission orchard yield from 2,000 to 3,000 Oranges per tree per annum, which sell readily for the highest price in the market.—TALIESIN EVANS, in *Overland for March*.

RHEUMATISM.—A correspondent in the *English Mechanic* gives the following remedy for curing rheumatic gout, from which he had long been a sufferer. He insulated his bedstead from the floor, by placing underneath each post a broken-off bottom of a glass bottle. He says the effect was magical, that he had not been free from rheumatic gout for fifteen years, and that he began to improve immediately after the application of the insulators. We are reminded, by this paragraph from our English contemporary, of a patent obtained through this office for a physician some twelve or more years ago, which created considerable interest at the time. The patent consisted in placing glass cups under the bed-posts in similar manner to the above. The patentee claimed to have

effected some remarkable cures by the use of his glass insulators, but we have not heard from him for some time. We can not vouch for any merit in the idea, but it is one easily tried; and as no harm can arise from the experiment, we hope some one will test it and give us the result of his experience.

KEEP AMMONIA IN THE HOUSE.

We find the following sensible article credited to "Exchange," and we transfer it to our columns because our own experience teaches us that the advice is good:

"No housekeeper should be without a bottle of spirits of ammonia, for besides its medical value, it is invaluable for household purposes. It is nearly as useful as soap, and its cheapness brings it within the reach of all. Put a teaspoonful of ammonia to a quart of warm soap-suds, dip in a flannel cloth and wipe off the dust and fly-specks, and see for yourself how much labor it will save. No scrubbing will be needed. It will cleanse and brighten silver wonderfully: to a pint of suds mix a teaspoonful of the spirits, dip in your silver spoons, forks, etc., rub with a brush, and polish with chamois-skin. For washing mirrors and windows it is very desirable: put a few drops of ammonia on a piece of paper, and it will readily take off every spot or finger-mark on the glass. It will take out grease spots from every fabric: put on the ammonia nearly clear, lay blotting-paper over the place, and press a hot flat-iron on it for a few moments. A few drops in water will clean laces and whiten them as well; also muslins. It is a most refreshing agent at the toilet table; a few drops in a basin of water will make a better bath than pure water, and if the skin is oily it will remove

all glossiness and disagreeable odors. Added to a foot-bath, it entirely absorbs all noxious smell so often arising from the feet in warm weather, and nothing is better for cleaning the hair from dandruff and dust. For cleaning hair-brushes and nail-brushes it is equally good. Put a teaspoonful of ammonia into one pint of water, and shake the brushes through the water. When they appear white, rinse them in pure water, and put them in the sunshine or other warm place to dry. The dirtiest brushes will come out of this bath white and clean. For medicinal purposes ammonia is always unrivaled. For headache it is a desirable stimulant, and frequent inhaling of its pungent odors will often entirely remove catarrhal cold. There is no better remedy for heart-burn and dyspepsia, and the aromatic spirits of ammonia is especially prepared for these troubles. Ten drops of it in a wine-glassful of water are often a great relief. The spirits of ammonia can be taken in the same way, but it is not as palatable. In addition to all these uses, the effect of ammonia on vegetation is beneficial. If you desire Roses, Geraniums, Fuchsias, etc., to become more flourishing, you can try it upon them by adding five or six drops to every pint of warm water that you give them; but don't repeat the dose oftener than once in five or six days, lest you stimulate them too highly. So be sure and keep a large bottle of it in the house, and have a glass stopper for it, as it is very evanescent, and also injurious to corks,

SUCCESS OF AN AMERICAN VEGETABLE.—

The Early Rose Potato has won a triumph even in Australia. In one place a single pound of seed produced 105 pounds in yield; another lot of two pounds of seed produced 300 pounds within seven months.

GROWTH OF THE FRUIT TRADE.

The domestic fruit trade of this State is increasing in a healthy way year by year. We hear now and then that the fruit business don't pay. In some instances it does not; but this results, we suspect, from poor management. We hear the old story of fruit decaying on the ground, or not paying for boxes, freight, and commissions. This class of facts can be gathered up in any fruit-growing region, East or West. Probably, those who have made fruit-growing a specialty have realized the most satisfactory returns. They watch the markets, and they know what varieties sell best. As evidence that the fruit trade is in a prosperous condition, we have the facts that new orchards are set out every year, and at this time preparations are making for the setting out of fruit-trees on an extensive scale, not only in the bay counties, but in other parts of the State. Besides Pears, Apples, Peaches, Cherries, and Plums, orchards of small fruits, as Blackberries, Currants, and Gooseberries, will be set out.

The Sacramento *Union* makes the following showing of the fruit business which centres in that city: "It is impossible to get correct data of the total sales and exportation from this city. It will, however, be but little, if any, short of \$750,000. A large proportion of this has been disposed of and forwarded from here by W. R. Strong, A. H. Cummings & Co., R. Levy, and Lyons & Barnes, fruit and commission merchants, Sacramento, and by C. W. Reed, an extensive grower in Yolo County. One firm, A. H. Cummings & Co., Sacramento, shipped for their share, during the fruit and vegetable season, 2,028 tons of fruit, 300 tons of vegetables, 45 tons of seed, 30 tons of

dried fruit, and 400 dozen ($2\frac{1}{2}$ lb. cans) canned fruit. Of the above, 400 tons of fruit were sent to Chicago and New York, and the balance to Nevada, Utah, Montana, Idaho, Wyoming, Colorado, and Nebraska. Another, the house of R. Levy, shipped 6,000 boxes of Apples, 6,500 boxes of Pears, 2,500 boxes of Peaches, 1,500 boxes of Plums, 1,250 boxes of Nectarines, 2,000 boxes of Apricots, 16,000 boxes of Grapes, 5,000 boxes of Cherries, 2,000 boxes of Currants, 6,000 boxes of Strawberries, 3,000 boxes of Tomatoes, and fifteen carloads of assorted fruits and vegetables. Wolf & Adams, during the year 1873, shipped of Cherries and Plums 5 tons; of Blackberries and Strawberries, 10 tons; Peaches and Apricots, 25 tons; Pears and Apples, 60 tons."

The business of drying fruits and canning, both for home consumption and the Eastern markets, is carried on more extensively in San Francisco and in this vicinity. It is yet in its infancy, but is growing rapidly every year. A good fruit-orchard—that is, one which is stocked with the best varieties of fruit—yields a very certain income. The owner can sell the crop on the trees if he does not care to box and ship it to market. Many large sales are made in this way; the purchaser in the early part of the season buying the crop in bulk on the trees, and taking the chances of a good turnout and a good market. Those who maintain that the fruit business is overdone in this State will see that interest more than doubled during the next ten years.—*Bulletin.*

THE British Museum has cost the British Government nearly \$20,000,000, and it now costs nearly \$600,000 a year to maintain it, or more than a dollar for every person who visits it.

HOW TO PLANT PECANS AND CHESTNUTS.

There are very few species of our native nuts that will grow after they have once become thoroughly dried, consequently fall is the time to plant. But in case it is not convenient to plant at that time, the nuts may be preserved in moist sand or soil until spring, and then sown in drills or wherever it is desirable to have them grow.

The Chestnut is probably one of the most delicate of all, requiring careful handling in order to succeed in making the nuts grow; but if taken fresh from the trees or before they get dry and shriveled, and placed in pure sand and then buried in the open ground where they will be kept cool and moist until spring, there is little danger of failure, provided they are not planted too deep and in heavy soils. We have found it a good plan to scatter the nuts in shallow drills and merely cover them with sand or sandy soil, and then spread a little hay, straw, or some such light material over the bed. Not more than a half inch in depth of soil should be put over the nuts.

Pecan and other species of Hickory nuts may be treated in the same manner, although they will withstand considerable hard usage and still grow. Pecans which have been kept in stores since last autumn may be made to germinate next spring if taken now and put in moist soil and placed where they will freeze during this month or next. The freezing and thawing open the pores of the shell, admitting moisture to the germ within.

the Government Gardens at Washington has for some time past been making a collection of all accessible varieties of Oranges, and that he now has over fifty varieties, of which but three kinds have yet been distributed, viz: Tangerine, Maltese, and St. Michaels. It is proposed to have the different varieties tested, and when their qualities are ascertained, to distribute the best kinds for cultivation in the South and on our Pacific Coast. This branch of Horticulture is one which has made rapid progress within the last few years, and we are glad to note that Mr. Saunders is thus assisting it."

MOUNTAIN FARMING.

The *Amador Ledger* has been giving some interesting items of actual results of farming in the foot-hills of that county. This week it gives the actual product of the ranch of Mr. C. J. Ruffner, situated at the north-western foot of the Butte Mountain, three miles east of Jackson. Mr. Ruffner owns 160 acres, with Government title; 20 acres of the tract is cultivated to grass, producing one ton per acre without irrigation. Hay is never worth less than \$25 per ton; income from hay produced, \$500. Eight acres are planted in fruit-trees and Grape-vines, and two acres in vegetables. The fruit-trees embrace Apple, Pear, Peach, Plum, Apricots, Quince, and Nectarine. From the orchard last year were taken and sold the following products: Eight tons of Apples, at 2 cents per pound, \$320; 2 tons Peaches, Pears, Plums, and other fruits, 3 cents, \$120; 18 tons Grapes from 7,000 vines, 2 cents, \$720; 1,000 pounds raisins cured and sold, 20 cents, \$200; from eight acres fruits and vines, \$1,360. From the two acres cultivated in vegetables, the

COLLECTION OF ORANGES.—Says the *Journal of the Farm*: "It is not generally known that the Superintendent of

following sums were realized: 4 tons of Tomatoes at 2 cents, \$160; from the sale of Cucumbers, Beans, Peas, Cabbages, Beets, and other vegetables, \$300. Product from 2 acres, \$460. Whole amount realized from 30 acres, as follows: From 20 acres to hay, \$500; 8 acres of fruits, Grapes, and raisins, \$1,360; 2 acres to vegetables, \$400. Total sum realized, \$2,320; being \$25 per acre for land cultivated to hay, \$270 per acre for land cultivated to fruit and Grapes, and \$230 per acre in vegetables.

THE EUCALYPTUS.—Dr. William H. Gibbons, of Alameda, says of this tree: “Don't trim them. The Eucalyptus, in its natural localities, attains a height of from 300 to 400 feet, with a diameter of 40 feet. The first two years of its growth from the seed is largely employed in making root. Cut off its side branches and you cut off the organs which supply the root with food. Dwarf the root and you produce an ill-shaped, ungraceful tree, which, having no firm hold in the ground, is liable to be blown over by every high wind. Our gardeners ball up the roots of the Eucalyptus like a mass of worms, and sell them in this condition; the purchasers dig a small hole and cover them up. They grow awhile, blow over, are trimmed, reset, and replanted, to look as much like a Eucalyptus-tree as a jackass does like a philosopher. The hole for a tree should be always from eighteen inches to two feet square, and of like depth; it should be filled to within eight inches of the top with good vegetable mold or compost; the roots should be trimmed and spread out so as to have no accumulation of twisted roots, and the tree when planted should be about an inch below the earth line. So planted, it will rarely blow over.”

THE OREODOXA REGIA PALM.

The splendid and luxurious flora of Brazil produces nothing more graceful than the lofty palm known as the *Oreodoxa regia*. Straight and slightly tapering for over sixty feet in height (when fully grown), the tree then separates into a frond of remarkable beauty, as complete in form as the capital of a Corinthian column. A grove of these trees is to be seen in the public Botanic Garden at Rio de Janeiro, and it is difficult to imagine an object more beautiful to the eye of a lover of nature. The trees are said to be between forty and fifty years of age. The trunk of each of them is about four feet in diameter at four feet from the ground, and it goes on tapering gradually to a length of more than fifty feet, when it becomes united with another smooth thinner trunk, from ten to twelve feet in height, formed of the bright green foot-stalks of the leaves, which again measure some twenty feet or more.

In young vigorous trees the leaves are considerably longer. The great beauty of this Palm is its elegance and cleanliness of aspect; no ragged leaf beats about in the wind, even at that great height; the over-ripe yellow leaves unsheathe themselves of their own accord, and the trees look as clean as if they had been trimmed by hand. The color of the stem is of a whitish gray, like that of light stone in dazzling sunshine; and although from top to bottom it is covered with lichens of all the colors of the rainbow, yet so small are they that you only perceive them by approaching the tree closely.

In the same grounds, says *The Garden*, exists the parent of these Palms, which was planted during the last year of the last century, and is now about 120 feet in height. It is a noble tree,

and, as it stands singly and at a considerable distance from other plants, its beauty and height can be seen to the best advantage.

Strangers from northern countries are invariably struck with the appearance of this avenue, which is unrivaled for its regularity, extent, and beauty. It forms a colonnade of natural columns, whose graceful bright-green capitals seem to support an overhanging dome of bright blue sky.

FRUIT-GROWING AND FRUIT-CURING.

The following view on this new industry is from the *Marysville Appeal*, of February 14th:

“California has already gained a national reputation as a fruit-growing country, though fruit culture in our State may be said to be in its infancy. We have no accurate data as to the aggregate crop of our various fruits, but one fact seems to be demonstrated by experience, that our crops of green fruit are already in excess of home consumption, and that fruit-growers who are increasing and extending their orchards yearly, must resort to drying and canning, and that the coming year will find our fruit-growers making preparations for disposing of their surplus in this way. Our attention has been called to this matter at this time by observing that extensive orders have been recently received from the East for dried Apples, at nine cents per pound; and also, that during the month of December last, about 35,000 pounds of dried fruit were shipped by rail from San Francisco to the East. California is wonderfully adapted by its climate and soil to fruit-growing, and is already the greatest pomological State in the Union. But our people are yet to learn

much about fruit-raising and fruit-curing—learn how to utilize by economy, industry, and foresight, and adopt various modes of preserving and getting to market their fruits. Every novice in California can plant a tree, gather its fruit, and sell it for what it will bring in the nearest local market. But necessity compels us to learn how to do better than we have been doing the past few years. Early and late fruits are the only varieties on which our orchardists now realize good profits, and this demand lasts but a few weeks at the beginning and close of each season. The great bulk of our fruits ripen in midsummer, and are necessarily rushed upon the market, and bring but small prices, and frequently barely enough money to pay the expenses of picking, boxing, and freight. At this particular period of the season the general interests invite some other way for the disposal of the surplus fruit, and it is plain to see that there is but one course left, and that is to preserve or dry our Peaches, Pears, Plums, Apricots, etc. Every extensive fruit-grower must therefore provide ways and means for drying or preserving—and it is generally conceded that there will be most profit in drying. Then follows a secondary necessity, which may be termed economy in labor. The work of picking, paring, and drying must be done with cheap labor—and what better employment for our boys and girls who are dependent upon some kind of occupation for their support? Fruit-drying can be made profitable when the people settle down to the conviction that they must labor in California as in other States, and rigid economy is adopted in every department of the business. There will be a market for every pound of dried fruit we can put up in good shipping order. By drying our best fruits—for

the best is that which ripens in the middle of the season—the home market will be relieved of the surplus of green fruits, and millions of pounds will be saved which would otherwise rot or be fed to animals. We therefore believe, considering the increasing demand for dried fruits in the East, that our orchardists may safely anticipate that a better time is coming.”

PLANTING SHADE-TREES IN SAN JOSE
—AN EXAMPLE.

San José is, says the *Sacramento Record*, we believe already the best shaded city in the State. The streets leading out of the city for miles, in almost every direction, are lined with shade-trees to a greater extent than are the streets leading out of any other city in the State. The shade-trees in the streets of San José and along the roads leading into the country are the remark and admiration of every visitor to that section, and have done more to attract permanent settlers and capital to that county than any other one thing. The land is no better in that county than in many others in the State, and produces no more to the acre. Nor is the county any better situated as to market facilities than many other counties, and yet the farms are held at a much higher price and are in demand at higher rates than in most other counties. One of the principal reasons for this fact is found in the better taste and more enterprise displayed by the citizens in the ornamentation of their city lots and farms in the country. Suppose, for instance, that all the citizens in the several towns of Yolo and Solano counties, and all the farmers, were this season to plant out shade-trees along the line of all the public streets leading through or past their property, and should give

them the necessary care to secure their thrifty growth, can anyone tell the appreciation of real estate that would take place in the county in the next four years? The trees themselves, for the wood alone, would be a good investment, but the value they would add to the land could scarcely be estimated in dollars and cents, though we feel confident that this additional value would scarcely be less than from 25 to 50 per cent. over and above the amount of increase that would accrue to the land without such improvement. How long will it take for the farmers of all the counties to learn the value of shade-trees in a country like this? If good judgment were used in selecting the trees, in ten years from the time of setting them out trees thus set along the highways of a county would, from the prunings alone, furnish their owners with a good supply of fire-wood. One hundred Cottonwood-trees would, after they should have attained the age of ten years, furnish from the limbs alone ten cords of wood per annum. The pruning could be so managed as not to interfere with, but rather preserve the beauty and symmetry of the tree. This is the season to plant trees, and we would urge all our readers to plant them wherever they have appropriate places, whether along the line of the streets or division fences, or in cultivated fields.

AMMONIA FOR VERBENAS.—The sulphate of ammonia is an excellent manurial liquid to apply to Verbenas or other plants, giving the foliage a dark green, luxuriant, and healthy appearance. It is economical, clean, and easily applied. Prepare it in the evening before using, by dissolving one ounce of ammonia in two gallons of water. It may be applied once a week.

THE PROTECTION OF PLANTS BY
ARTIFICIAL CLOUDS.

The practice among gardeners of protecting vegetables from the effects of frost, by lighting fires at such points that the wind will carry the heated air and smoke over the plants, is not new, and in some countries is one of the commonest agricultural operations. In Chile, where large vineyards exist upon the slopes of the Cordilleras, the plan has been found of the greatest value in saving the vines from the cold wind which sweeps down from the mountains; and it is stated that even the tenderest shoots are defended from the frost, at temperatures as low as 21° Fahrenheit.

The most recent experiments in this direction, and perhaps also the most extensive of late date, have been carried on by M. Fiabre de Rieunègre, one of the largest vine-growers in France. It may be remembered that about a year ago we briefly adverted to this subject, and said that it had elicited commendation from a congress of vintners in the above mentioned country. Since then, however, M. de Rieunègre's experiments have been made, and with such remarkably good results, that the matter is invested with a new and at this season of the year timely importance to all engaged in the cultivation of the vine in our Northern States. The investigator in the record of his researches considers that fires of tar or heavy oils are not suitable, notably from the fact that cheaper and more efficacious material can be obtained, and also that, in order to keep the former burning over a considerable period of time, an amount of attention is required which eventually becomes very onerous. The chaff of Wheat, he says, answers the purpose better than any substance he has used, as it burns slowly, produces

large quantities of smoke, and costs but very little. Moss, saw-dust, or worthless hay may be employed when chaff is not conveniently to be obtained. The material is piled in heaps of about eight feet in diameter and forty feet apart. Three fires thus disposed are sufficient to protect two and a half acres of vines.

In describing his mode of experimenting, M. de Rieunègre says that, having selected a night when the thermometer appeared to be rapidly falling, he collected all his laborers, together with a large concourse of neighbors from the surrounding country. As soon as the mercury fell to 32° Fahrenheit, a signal was given, and the match was applied to 300 heaps of chaff and straw. The flames were carefully kept under, and in a very few minutes a dense cloud of smoke had settled over a plain of 360 acres. The fires were continued until the thermometer had risen above the freezing point of water, but were renewed within twenty-four hours, when one of the coldest nights of winter set in, with a strong breeze blowing from the north-east. New heaps were kindled in the direction of the wind, the great cloud was again formed, and, although it is stated the vineyards of the surrounding country presented after the frost a scene of desolation, those protected by the smoke were unharmed. Thirty thousand dollars worth of plants were saved by the operation, at the sole expense of a quantity of worthless chaff and straw.—*Scientific American*.

HERE is the latest prescription for the destruction of squirrels: Boil one-third of a pint of vinegar; add to this one ounce of fine pulverized strychnine, stir it well, put it into six quarts of water in an old tin pan. Half of this dose was sufficient to kill sixty-two squirrels in three days in Alameda County.

Editorial Portfolio.

BAY DISTRICT HORTICULTURAL SOCIETY.

—At the regular monthly meeting of this Society, held at their rooms on the 28th ult., notice, in conformity with the fundamental laws, was duly given, that at the regular meeting of Saturday, 30th of May next ensuing, the Constitution of the Society would be taken under consideration, with the view to the alteration and amendment of each and every clause thereof.

This is a very necessary measure, as, owing to the somewhat precipitate manner in which the original document was framed, many crudities and incongruities were embodied. Several wise and healthy amendments have been suggested, and it is hoped that each and every member will carefully read his copy of the Constitution and By-laws, and make it a point of conscience to attend and assist at the deliberations. As some few of the members are slightly in arrears, it will be expedient for them to communicate with Mr. F. A. Miller, the Secretary, in the meantime, so that a full vote may be obtained on this important measure.

WOODWARD'S GARDENS.

Many important alterations are now in progress in these Gardens, and many excellent improvements are contemplated. The unpropitious weather has held much in check, but the genial influence of spring is visible everywhere in the grounds; trees and shrubs are putting forth their new leaves and blossoms, and the Acacias make the air redolent of fragrance. Animals and birds are benefited by the advance of the season; and the aquarium has received accessions of new fish. In the conservatories and tropical houses there is much

improvement, and many choice plants are profusely in flower, filling the air with rich perfume, and delighting the eye with their elegant forms and brilliant coloring.

CATALOGUES RECEIVED.

We have received from William Bull, of King's Road, Chelsea, London, his exceedingly copious and well-illustrated *Retail List of New, Beautiful, and Rare Plants* for 1874. The descriptions are full and interesting, and much valuable information is supplied, making the catalogue a very desirable addition to the book-shelf of every amateur and nurseryman, while the prices are temptingly low. We have also from the same establishment a retail list of *Select Flower, Agricultural, and Vegetable Seeds, and New Plants*, for 1874; this is equally worthy for the same reasons as the above mentioned list.

Messrs. Miller & Sievers, of 27 Post Street, San Francisco, have handed us their *Catalogue of California and Foreign Seeds, Bulbs, and Plants*. We recommend this list to the attention of nurserymen and amateurs, as containing much valuable material for the flower garden, at reasonable prices.

The Southern Fine Stock Company, of Gallatin, Tennessee, have forwarded us their *Catalogue of Blooded Stock, etc.*, well worthy the attention of our agricultural and stock-raising friends.

FAVORS RECEIVED.

Report of the State Board of Agriculture to the Legislature of Kansas. We are indebted to Alfred Gray, Esq., Secretary to the State Board of Agriculture, for this report for 1873. Much valua-

ble and interesting information is contained in this volume.

The April number of the *Overland Monthly* has particularly interested us with several of its articles, among which "Wild Sheep of California," "Rambles of an Ornithologist," "Nature and Art," "Industrial Education in Country Schools," deserve special mention. "Etc." and "Current Literature" are as usual good and telling.

A WRITER in a French horticultural journal relates this suggestive experience: "After sunset I place in the centre of my orchard an old barrel, the inside of which I have previously well tarred. At the bottom of the barrel I place a lighted lamp. Insects of many kinds, attracted by the light, make for the lamp, and while circling around it strike against the sides of the barrel, where, meeting with the tar, their feet and legs become so clogged that they fall helpless to the bottom. In the morning I examine the barrel, and frequently take out of it ten or twelve gallons of cockchafers, which I at once destroy. A few pence worth of tar employed in this way will, without any further trouble, be the means of destroying innumerable numbers of these insects, whose larvæ are amongst the most destructive pests the gardener or farmer has to contend against."

TO KILL OSAGE ORANGE HEDGE.—Cut off the hedge close to the ground, and then turn a furrow away from each side, after which take an axe and cut off the roots at the bottom of the furrow. In this way the hedge can be cheaply and entirely killed, and no other way that I ever saw tried will succeed. There will be almost wood enough to pay for the work.—*Exchange.*

NEW AND RARE PLANTS.

Another New Bouvardia.—Of late years the Bouvardias have taken a high rank among the class of plants generally cultivated for cut-flowers in winter. These small, delicate, tubular-shaped flowers being produced in compact clusters, are exceedingly convenient for arranging either in large or small bouquets. Besides, they are quite firm, retaining their form and colors well after separation from the parent plant. Most of the species and varieties bloom profusely and continuously through the winter months, and need only to be planted out in the open ground through the summer, to be in fine condition for blooming again the succeeding season. Until within the past half-dozen years, we had no free-blooming white sort, and this may have had something to do in lessening the popularity of these plants. The old *Bouvardia jasminifolia* would sometimes yield a few very good clusters of white flowers, but they were neither sufficiently abundant nor certain to warrant extensive cultivation. We had plants of scarlet and crimson sorts, and the great desideratum appeared to be a white variety, with flowers equal in size, substance, and abundance to Hogarth or Leiantha; this was happily supplied in the *B. Davidsonii*, introduced a few years since, and several times referred to in our columns at the time and since. The flowers of this splendid variety are pure white, of large size, and produced in great abundance. Another new white variety, known as the *B. Vreelandi*, soon followed the former, our florists thereby being furnished the most excellent white Bouvardias. The introduction of these varieties increased the popularity of the entire genus wonderfully, and set all of our florists on the

lookout for other variations from original types. Now we have the Bride, flowers slightly tinged with flesh color, and Bridesmaid, a delicate pink color, and Rosalinda with a salmon-pink tinge; and now we have another new variety to add to the list, raised by Henry E. Chitly, of the Bellview Nurseries, Paterson, N. J. It has been named *Bouvardia elegans incarnata*, and is a sprout from the well known *B. elegans*. The flowers are of a delicate flesh color, or what is usually termed among florists, *incarnata*. They are large, and produced in the greatest profusion. The plant is a strong and vigorous grower. We bespeak for this new sort a cordial welcome and high appreciation by all lovers of beautiful winter-blooming plants.

New Double Poinsettia.—A new variety has been introduced in New York, and is now in the possession of Isaac Buchanan. The flower cluster is stated to be often fourteen to eighteen inches in diameter, and about six inches high. In the opinion of *The Agriculturist*, "It will certainly take high rank for conservatory decoration, especially as it holds its color so long, and for florists and bouquet-makers the clusters of small and brilliant bracts will be invaluable. It was discovered by Louis Roezl, who found it in a small Indian village in the State of Guerrero, Mexico, in May, 1873.—*Horticulturist*."

Blue King is the name of a new and really good blue-colored bedding Pansy, just introduced in English gardens. The flowers are described as fine in form, of a deep vivid blue color, with a bright and conspicuous yellow eye. It is not liable to sport, nor to be scorched by the summer's sun.

A Rare Plant.—The *London Garden* describes the *Godwinia gigas*, lately in

full flower for the first time in that country. It is an Aroid, with a large leaf and flower. The flower, or more properly, spathe, was nearly two feet long and a foot and a half in circumference, on a stem only eighteen inches high. It came from Nicaragua, where it is stated the petiole is often ten feet long.

A GOOD OUTLOOK FOR RAISIN-GROWERS.

—The value of the raisins imported into the United States in 1873, valued at the port from which they were shipped, was \$2,498,457. Spain produced, in 1873, 2,000,000 boxes. Of these there were purchased for the United States up to January 1st, last, 1,032,605 boxes, against 1,009,270 boxes in 1872. Estimated stock on hand in Spain, January 1st, 1874, 265,000 boxes, against 565,000 boxes on hand same time in 1873. There have been lately sold for the United States 80,000 boxes at 25 reals or \$3.12½ per box of 25 lbs. for common layers, and 25 to 27 reals or \$3.25 to \$3.37½ per box for loose Muscatels. The duty on raisins is five cents per pound, which adds to the purchase price \$1.25 per box; add to this the freight and commission, insurance, etc., and these imported raisins must come very high—not less than \$5 per box—to the consumer. We have, also, the information from Malaga that the price of raisins has gone up since the last transaction above referred to, to 31 and 33 reals per box. This is certainly a most encouraging exhibit for our California producers of raisins, and should give an impetus to the planting of vines of the approved raisin varieties. Those who have large vineyards of common varieties should feel encouraged to graft them to the White Muscat of Alexandria, White Muscatel, and other good kinds.

FLORAL REVIEW.

BY F. A. MILLER.

After three months of almost constant rain, the latter part of March has become more kindly and genial, and the effect of the last few clear and pleasant days upon the vegetation of plants and trees is plainly visible everywhere, both within and out of doors. The spring-time is upon us, and if the change is not so remarkable here as in the colder climates of the East and North, we are nevertheless quite willing to bid farewell to a long and dreary "rainy season."

There have undoubtedly been planted not less than 250,000 evergreen trees, for shade and ornament, during the winter just past. Three-quarters of these consisted of *Eucalyptus globulus* (Blue Gum), *Pinus insignis* (Monterey Pine), *Cupressus macrocarpa* (Monterey Cypress), *Cupressus Lawsoniana* (Lawson Cypress), and Acacias. It is pleasing and significant of prosperity to see this growing disposition to plant trees, and I hope to see at no distant day our barren valleys and hills covered with these monuments of industry and civilization. When our farmers begin to plant trees, they will ere long ornament their homes with flowers and vines, and their dwellings, once barren and desolate in appearance, will soon show signs of happiness and comfort.

So far, the trade in flowering plants has been very dull, but this must be attributed to the lateness of the spring season, and I hope to see many thousands of them planted out during April and May.

This is a good time to plant Roses and other flowering shrubs; bedding plants, also, such as Verbenas, Petunias, Pansies, Pinks, Geraniums, Fuchsias, etc. Gladioluses, Dahlias, Tube-

roses, and other summer flowering bulbs, should be planted at once.

I am often asked, "What shall I do with my Hyacinths after they have done flowering?" I advise to plant them in the ground, where they will thrive and flower for years to come. The Hyacinths which have flowered with us during the winter of 1872-3 were planted in the open ground, and received no attention whatever. They flowered finely during these last winter months.

All kinds of annuals may be now sown. Some of the most desirable kinds are: Asters, Balsam, Phlox Drummondii, Delphinium (Larkspur), Zinnia, Stock Gilly, Sweet Pea, Portulacca, Mignonette, Candytuft, Gypsophila, etc.

Cut-flowers have continued to be scarce during the month of March, and our florists had hard work to supply the demand, particularly for fine flowers. The supply from the greenhouses consisted chiefly of Camellias, Azaleas, Epiphyllums, Hyacinths, Heliotropes, Cinerarias, Eupatoriums, Chinese Primroses, Abutilon (*vexillarium*), Lilies of the Valley, Orange-blossoms, and Cyclamens. From the open air, the bulk of flowers was made up of Violets, Roses, Pinks, Pansies, Forget-me-nots, Hyacinths, Narcissuses, Antholyza (*bicolor*), Tulips, Candytuft, Stock Gillies, Fuchsias, Gypsophilas, Habrothamnus (*elegans*), Laurustinus, Polygalas, Diosma (*alba*), Ericas, Sweet Alyssum, and Abutilons.

The prospect for an abundance of flowers during the month of April is good. Under glass we may expect, in addition to those already enumerated, the following: Agapanthus (*umbellatus*), Begonias, Cactuses, Cape Jasmines, Eucharis, Torenia, double Geraniums, Streptocarpuses, Dentas (*carnea*), Aphelandras, Astilbe (*Japonica*), Chozemas, Allamandas, and Rhynchospermums; and

in the open air, Roses, Pinks, Deutzias, and other hardy flowering shrubs and plants, will furnish their full quota.

Of rare plants, I noticed in bloom during last month, *Strelitzia reginae* (Bird of Paradise), which is always admired for its most peculiar and effective flower, which remains in perfect condition for a long time; also, *Phajus grandiflorus*, a very showy Orchid, which has remained in constant bloom with us for about two months. This Orchid is of easy culture, and should be in every collection.

APPLICATION OF LIQUID MANURE IN HOLLAND.—The Hollanders are noted for their application of liquid manure directly to growing crops. It is applied particularly to transplanting crops, especially to Cabbage, and it is the secret of their great success in raising Cauliflowers. The application in these cases is made but once, and that at the time of setting, immediately when the plants are to start, but allowing it to settle away before setting the plants.

To fruit-trees it is applied in the following manner: An iron-shod stake of about three inches in diameter, with a spur on one side, to place the foot on, is used to make a circle of holes just under the ends of the branches, about eighteen inches or two feet apart, and from twelve to fifteen inches deep, and the liquid manure poured into them. After the liquid has settled away, the holes are filled up again, so that the liquid can not be evaporated, or the earth baked by the heat of the sun. In wet weather the liquid manure is applied alone, but in dry weather it is diluted with an equal quantity of water. The application is made from time to time, commencing when the fruit is well set, and ending when the fruit begins to mature.—*Alla*.

REMARKS ON FRUIT CULTURE, AND REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPER.

As the season for planting out small fruits is not yet passed, I would urge on every family having a small garden-plot in the country, or even in the towns where the climate is favorable, to raise at least a portion of their own fruit. There is no greater enjoyment than to get berries fully ripe (oftentimes a failure in the markets), and freshly picked, on the table, instead of the much handled and often stale market fruit. Every farmer at least ought to have his home patch of Strawberries, Raspberries, Grape-vines, etc., enough to supply the table, and can or preserve for winter use. Three or four hundred Strawberry plants, set out one by one and a half feet apart, kept free from runners, and well attended to, will fully supply any family. I would advise to plant either of the following kinds, for early as well as late use: Longworth's Prolific, Triomphe de Gand, or Victoria, Jucunda, Agriculturist, Kentucky Seedling, and Wilson's Albany. The Strawberry is one of the healthiest and most luscious fruits, and no family under favorable circumstances for it, would be without a small patch, after once properly trying it.

Raspberries ought to follow, and a hundred plants, three by four or two by four feet apart, planted in hedge form, would give a fair supply. Let only three to four shoots grow to the stock; stop the growth of the principal shoots at about four feet, and of side shoots at six to eight inches. Manure yearly in the hill if the soil be rather poor or clayey, and, of course, keep the plants free from weeds. The Red Raspberry is generally, and especially in California

and Europe, considered better flavored than the Black. Here I would recommend the Falstaff, Red Antwerp, Orange, and Blackcap. These are superior varieties, but all kinds are hardy enough for this country.

Farmers gather their Blackberries in the fields and woods generally, but they would get better fruit with as little trouble, by planting from fifty to seventy-five shoots, six by six feet apart, in their gardens, and cultivating them the same as Raspberries. Though the Kittatinny, Dorchester, and Wilson are perhaps preferable for marketing, as they are ripe when they color, yet, when fully ripe, no Blackberry is as good as the old and well-tried Lawton—none surpasses it in flavor, sweetness, or appearance.

If a farmer, or a horticulturist in any way, has no vineyard, he ought to have an arbor, or at least a few vines raised near his house, or on some of his buildings, where they take away no space, and give fair returns for little labor; but the kinds suited for arbors and buildings are the Catawba and Isabella, and a very few of the foreign descriptions.

I would urge once more, upon every farmer and those who have even small yards in cities, to make a beginning at once, and start a small patch of Strawberries and Raspberries immediately, before the rainy season is entirely over.

Success in fruit culture, as in everything else, depends upon certain conditions. If these conditions are met, we are sure to succeed. Our climate is certainly right, and our soil generally is right, so as to make success attainable in every part of our State.

Blackberry as well as Raspberry bushes should be well cut back as soon as convenient after bearing, to about four or five feet in height, and all side shoots pinched off at the tips every two or

three weeks, down to August; all suckers should be kept down, and all old wood removed. This will make them hardy, and the fruit will be earlier, larger, and more abundant. The Blackberry is a most valuable and neglected fruit, and far more worthy of attention for wine-making than it receives.

If we consider the large amount of fruit that might be annually shipped by express and railroad companies, it seems strange that those corporations are not more ready to meet the wants of the public, or more awake to their own interest, in inducing still larger shipments than have hitherto been made, by allowing better living rates. By reducing the charges from the present extravagant tariffs to more reasonable figures, shipments would be more than double, and profits likewise. Our large fruit-raisers should, by united action, take steps to induce such modifications in freight rates as are necessary.

Regarding the markets, the spring season is exceedingly backward. Last year, Strawberries and various kinds of early vegetables were in the market about the middle of March. New Potatoes were in from the Presidio weeks earlier than they are this year, but this season's crop of early new Potatoes has been destroyed by frost. The infamous practice of palming off on credulous housekeepers volunteer Potatoes for new, at prices the latter would presumably command were they in the market, has been extensively carried on by the retailers. A little care in the examination of the eyes and skin of the Potatoes offered for sale as new, will enable the purchaser to detect the fraud in time to prevent being victimized. Lots of genuine new Potatoes were offered for sale at 8 to 10c. per lb., but were very small and watery. They were readily recognized from the false tubers,

through the pale color and tenderness of their skins. Puget Sound Kidneys, old crop, sell at 4c., and Mendocino and Humboldt at 2½c. to 3c., per lb. String Beans and the new crop of Green Peas ought to have commenced making their appearance in the market by this time, but the prospects are not good for any for at least two weeks to come, and not even as early as that, unless we have warm weather in the meantime. Old crop Green Peas are offered at 20c. to 25c. per lb. Cabbages are scarce and dear. Mission Cabbages are very inferior. The best lots are now received from the San Pedro rancho, in San Mateo County, whence some very large heads have been lately received, weighing as much as forty pounds, and selling readily for 50c. each. The range is 10c. to 50c. each. Spring Cabbages will soon be in the market. Asparagus is now plentiful; white from Sacramento is quoted at 20c. to 25c. per lb., and green from Centerville, Alameda County, at 25c. to 40c. Cabbage Sprouts have advanced to 15c. per lb. Horseradish is 20c. per lb; Red Pepper, 50c. per lb.; Green Artichokes, 75c. per dozen; Jerusalem Artichokes, 8c. per lb.; Rhubarb, the first of the season, 25c. per lb.

The fruit market remains about the same. Oranges continue at the head of the list. Recent extensive importations of the new crop of Oranges from Tahiti have had no perceptible effect upon the market. The prices of Loreto and Los Angeles Oranges have undergone no change, while they continue to command public favor. Following are the present retail prices of this kind of fruit: Los Angeles, 15c. to 75c. per doz.; Loreto, 50c. to 75c.; Tahiti, 50c. Bananas are still selling at from 50c. to 75c. per doz.; Preserved Bananas, 25c. to 37½c. per packet; Lemons, 25c. to

\$1 00 per doz.; Citrons, 15c. each; Coconuts, 12½c. each; Dates, 25c. per lb.; California Raisins, 25c.; California Dried Figs, 25c. to 30c.; California Walnuts, 25c.; Eastern do., 25c.; Almonds, soft-shell, 40c.; do., hard-shell, 25c.; Butternuts, 25c.; Hazelnuts, 30c.; Peanuts, 25c. There have been some large receipts of choice Apples from Oregon during the week, which are now retailing at 6c. to 10c. per lb. Shipments from the mountain districts in the interior are daily expected.

Apples and Pears are very scarce, and a really good article commands a fancy price. It is unusual for the supply of Pears to give out at this season of the year. The reason is said to be the liberal shipments to the East last fall. Large consignments of Oregon Apples are received by each steamer, but they are inferior to the California fruit in consequence of being impregnated with the flavor of the pine boxes containing them. Oranges and Lemons are the only varieties of domestic fruit that are abundant. Los Angeles Oranges are now coming forward in liberal quantities, but the weather is rather cool for a large consumption, and they are selling slowly. We quote Bananas at 50c.; Smyrna Figs, 35c. per lb.; Apples, by the box, delivered, \$2 to \$3 50; Italian Chestnuts, 50c. per lb.

The weather during the last week of March was more favorable than it had been, yet Spring vegetables made their appearance but slowly. New Potatoes, however, came up plentifully, but the price held firm at 8c. to 10c. per lb. Volunteer or bogus new Potatoes were sold to the uninformed for 4c. per lb., but the experienced would not touch them at any price. Old crop Potatoes were all the way from 2½c. to 4c. per lb. Asparagus became plentiful and cheap, and sold at 15c. to 25c. per lb. The

abundance and cheapness of this vegetable were the means of reducing the price of old crop Peas (which ruled the latter part of the month [March] at 20c. to 25c. per lb.), to 15c. @ 20c. Probably we shall not have any Strawberries in market until about the middle of this month (April). The tardiness of the arrival of this delicious and healthy fruit is one of the strongest evidences of the backwardness of this season. Last year we had the first Strawberries in pretty good supply about the 12th of March. During the last of March there were several lots of Apples received from the Sacramento Valley foot-hills which sold at \$1.50 to \$2 per box. Other fruits remained (27th March) the same as in the middle of that month.

At the beginning of this month (April) vegetables were more abundant and cheaper. Asparagus dropped to 15c. @ 25c., and is still declining. Rhubarb is very plentiful, and 10c. lower than ten days since. Potatoes were firm the beginning of April, with no prospect of a decline for a week or two. Spinach is retailing at 6c.; New Potatoes, 8c. to 10c.; Lettuce, 20c. to 25c. per doz.; Salsify, 8c. to 10c. per bunch; Potatoes, by the sack, delivered, \$2.25 to \$2.50 per 100 lbs.

About the first week in March the frost ruined the then nearly ripe Strawberries. The market is plentifully supplied with Los Angeles and Tahiti Oranges and Oregon Apples at former rates. We quote Bananas at 50c., and Smyrna Figs 35c., per lb. Apples by the box, delivered, at \$2 to \$3.50; Italian Chestnuts, 50c. per lb.

SIR SAMUEL BAKER says that fire can not advance through grass, even when it is blowing a gale, faster than six miles an hour.

Correspondence.

VIGOROUS CONDITION OF STOCKTON PLANTS.

MR. EDITOR: Some time ago we were exceedingly pleased to notice the fresh, healthy, and vigorous condition of a large climbing Rose, which a friend, who is an amateur cultivator, invited us to inspect on that account. It came from Stockton, and is undoubtedly identical with some one of those prolific growers which flourish around the Asylum located in that city. It is almost incredible, but we are assured that the plants and fruit-trees in the rich loamy soil of Stockton and vicinity—and this may also be said of San José—make a growth of four and five feet in a single season, and that many bear fruit the very first year they are transplanted. It is rather strange, though, to notice that all kinds of shrubbery do not thrive so well in this region, the growth being slow—not more than an inch or so a year—while in this city (San Francisco) the contrary rule prevails, the humidity of the air and the evenness of climate no doubt combining to produce so good a result.

While on this subject of shrubbery, and being a novice, we would ask information about a shrub which years ago was very common in the gardens of the interior of Pennsylvania, and in all the Middle States. It was in every garden of any pretensions, where all the vegetables of the farm home were cultivated, with the flower-bed in the centre. In the midst of this flower-bed flourished the favorite "Shrub-tree," whose fragrant little compact buds, of a deep purple color, could be carried in one's vest pocket for a week or more without losing their pleasant odor. We have never seen this shrub in California,

and would be pleased to gain some information about it. Perhaps it will not thrive here.

KEYSTONE.

CALIFORNIA LILIES.

Editor California Horticulturist:

Within the last few weeks my attention has been called to repeated statements, appearing in print, in regard to the number of distinct species of California Lilies, all which statements seem to originate from one source. I have no fault to find with the veracity and good intention of the author, but think he would have come much nearer the mark if he had stated that *he* only knew four species. There are many good and desirable plants in California, not yet described by botanists; and, notwithstanding the statements referred to, I insist upon the fact that six or seven varieties of Lilies have been found on this coast. There may not be sufficient distinction, so far as the structure of the flower is concerned, between *Lilium Humboldtii* and *Lilium Bloomerianum ocellatum* of Santa Rosa Island, to induce a botanist to establish two species; but, as a florist, I certainly can perceive a very remarkable difference in the roots, foliage, and flowers of the two species above named. If the author referred to did not meet with more than four species of Lilies in his limited travels, some one else may have done so, and ought to be pardoned for bringing to notice a fifth or even a sixth species, if he happened to discover them. FLOREST.

A FINE CORAL TREE.—In a nursery at Dorking, England, there flowered this summer a fine specimen of the *Erythrina cristagalli*. It is supposed to be over fifty years old, and its stump was eighteen inches in diameter. The plant bore thirty spikes of bloom.—*Horticulturist*.

Editorial Gleanings.

PRESERVING ZOÖLOGICAL SPECIMENS FROM INSECTS.—The difficulty of preserving zoölogical specimens from the depredations of insects is a matter of regret and anxiety to every collector, and various methods have been proposed for accomplishing this desirable object. The compositions into which arsenic and corrosive sublimate enter are well known to be very effectual when properly applied; but unless used with caution, they are apt to injure the natural pliancy of the skins, and are hardly effectual in protecting collections of insects. I have known these substances, even in the hands of the most expert, to produce such tenderness of the skins as to form a considerable obstacle in setting up specimens. To render them effectual they must be carefully applied to each specimen, by which the labor of collecting and preserving is considerably increased.

Every substance which I have tried seems inferior in efficacy and ease of application to the rectified oil of turpentine, and my method of using it is as follows: I put the turpentine in a bladder, the mouth of which is firmly tied with a waxed string; and nothing more is necessary than to place the bladder thus prepared in the box with the birds, or to tie it to the pedestal on which the birds are perched in a case. If there are any maggots on the birds, I have invariably found that they will soon be dislodged from the feathers, fall to the bottom of the case, and die in the course of two days. I have also made the experiment of introducing the common house-fly, the large blue-bottle fly, and moths, into a case of birds so defended, through a small hole in the bottom of the case. The moment the flies enter the box they be-

gin to vomit a whitish, glutinous matter, they are much agitated, and the largest of them dies in a few minutes. I have repeatedly introduced, in like manner, active cockroaches; and these strong insects soon became uneasy, often rubbed their sides with their hind feet, and usually died in about an hour and a half. I next got a bird-skin full of living maggots and placed it in my defended case; in about three hours, they were seen coming out in all directions, and fell to the bottom of the case, where they died. For large cases of birds, a pig's or sheep's bladder is sufficient. The turpentine evidently penetrates through the bladder, as it fills the case with its strong smell.—*Scientific American.*

THE WEeping SOPHORA OF JAPAN.—As yet we do not know the full value of weeping trees. It is a peculiarity of most weeping trees not to show their full beauty of character till they have attained a considerable age. Who knows anything of a Weeping Beech who has seen only a young specimen recently planted? Why, it is passed by as a mere curiosity. But give it a generation, and it becomes as picturesque as a gale-tossed ship. So it is with the weeping Mountain Elm. Some species, it is true, show their beauty from an early age; but the above named marked examples point to the probability that we can not judge of the effect that will finally be produced by kinds obtained in recent years.

One of the most beautiful of all weeping trees is the weeping form of that fine tree, the Japanese Sophora, (*Sophora japonica pendula.*) When well developed, it is attractive in winter or summer. It is more picturesque in outline than the Weeping Willow, while the shoots hang most gracefully. It is

rather a slow grower, its only fault; like the normal form, it would thrive well on dry soils.

As to the position suited for this tree, says *The Garden*, there is no fairer object for isolation in some quiet green bay of the pleasure-ground or lawn. It should never be crowded up in a plantation or a shrubbery with a number of ordinary trees, which, if they do not rob it at the root, or shade it at the top, will prevent its beauty from being seen.

TREES AS HISTORIANS OF THE PAST.—It may have taken a French *savant* years to ascertain what is a matter of common knowledge with wood-cutters. I have understood for more than thirty years that a thin ring indicated a cold season, and a thicker one a correspondingly warm season. Another point which I have observed (and which is not mentioned in the Gros article) is this: In trees that are in an open field, or even in the forest where there is no particular protection from the north wind, the rings will be thinner on the north side than on the south side of the same tree. The heart is seldom found in the centre of the body. I have no doubt that you would find a tree cut four or five feet from the ground will give a true record of the general meteorological condition of each year of its life. I have often sat down by a newly cut stump of a tree, to count the rings, to note the difference of thickness, and to point out the thin rings to those with me, as indicating a cold year.

While speaking of trees, I will mention another fact, which I have not seen in print, but which I got from an old gardener. It is that all trees that are not trained out of natural shape will exhibit a profile in exact correspondence with the fruit. For extremes, take the Greening Apple and a long slim

Pear. The leaves, even, have a general resemblance to the fruit.—*Scientific American*.

LAGERSTRÆMIA INDICA.—Though not so often found in collections as it ought to be, this is one of the finest and most profuse flowering of greenhouse or half-hardy shrubs. It blooms freely in the Palm-house at Kew, where the ends of even its smallest branches terminate in a mass of rosy-purple flowers. Individually, the blossoms are about the size of a shilling, and have six long-clawed, curled, or crumpled petals, not unlike those of the scandent yellow-flowered *Stigmaphyllon ciliatum*. When well grown this plant is one of the greatest ornaments one could desire, either for a plant-stove or cool conservatory. It will grow and flower freely, even when planted under a sunny wall in the south of England, and during the past summer we have seen it flowering very freely out of doors in several of the gardens around Paris. When grown in a pot or tub indoors it makes a shrub eight or ten feet high, and flowers freely every summer or autumn if cut back after blooming. It should have a moderately fresh sandy soil, and should be thoroughly drained. It requires a liberal supply of water when growing. In America it does well out of doors, and a plant of it stood fifteen degrees of frost in the Botanic Garden at Brest. It is a native of China. One species, *L. reginæ*, grows to a large size, and is much used in India for boat-building and similar purposes, as it lasts well when submerged.—*London Garden*.

EVAPORATION BY LEAVES.—The following by an Austrian scientist is old, but it may aid our friends who are investigating the influence of trees on climate: “Experiments made by Von Pettenko-

fer on the amount of water evaporated from an Oak-tree, show that atmospheric humidity, in so far as it depends upon the presence of forests, is promoted rather by the roots of trees drawing moisture from the earth, than by attraction exercised on rain-clouds by the leaves. The latter serve rather as outlets through which the moisture drawn from the soil passes into the air. The Oak-tree observed by Pettenkofer was estimated to have between 700,000 and 800,000 leaves, and the total amount of evaporation in a year was computed to be $8\frac{1}{3}$ times more than that of the rainfall on an area equal to that covered by the tree; the moisture exhaled by the leaves being equal to 211 inches, while that from the rain-fall was but twenty-five inches.

THE HONEYSUCKLE AS A STANDARD.—A writer in the *Villa Gardener* thinks that the Honeysuckle is one of the most regularly flowered climbers in cultivation, taking rank for effect, and surpassing in many points—odor, for instance—even the gorgeous colored Clematises which are in every modern garden. As a standard, the Honeysuckle merits the very foremost place in our villa gardens. “We have seen it with thousands of flower umbels in pale yellow and pale pink, decorating villa grounds in a way that no single plant in the month of July can do.” It is scarcely possible in words to portray its extreme beauty and effectiveness. Buy a plant of it, train or tie it to a stout stake, as one would do a standard Rose; prune it, not too severely, but in the way a hybrid China Rose ought to be pruned; give it a good soil to grow in, and it needs no further attention. It will grow into a plant that will astonish, by its flowering capacity, thousands who have not seen it so trained.

JUTE.—Jute is a fibrous plant that grows to a high stalk varying from six to twelve feet high. It is raised in the lowlands of the East Indies. The Jute plantations are operated somewhat on the system of the Rice plantations. The water used for flooding purposes is taken from rudely constructed reservoirs filled by the melting snow of the Himalaya Mountains. The plant is kept growing in about eighteen inches of water, which prevents the parching rays of a tropical sun from destroying it. When the stalk has attained its full growth, it is pulled up by, or cut off near, the roots. It is then laid out in bales like Wheat or Rye, and prepared for market.

The bark is removed, the root is cut off where it is pulled up with the stalk, and where the root is not originally kept, the hard lower end is cut off and thrown into a class commercially known as Jute butts. The remainder is then assorted with regard to length, strength, fineness, and lustre of fibre. The first quality is a beautiful, clear, long fibre, much of it resembling in appearance blonde hair. This is especially used for chignons, but it is also used in Scotland in the manufacture of fine Jute cloths.

CHARCOAL FOR POULTRY.—Fowls of all kinds are very fond of charcoal, and will eat it with great relish if properly prepared. Pounded charcoal is not the shape in which fowls usually find their food, and consequently is not very enticing to them. To please their palate the charcoal should be in pieces of about the size of grains of corn, and if these are strewed around their quarters, they will readily eat thereof. Corn burnt on the cob, and the refuse (which consists almost entirely of the grains reduced to charcoal, and still retaining

their perfect shape) placed before them, makes a marked improvement in their health, as is shown by the brighter color of their combs, and their soon producing a greater average of eggs to the flock than before.

A GROWING DEMAND FOR THE EUCALYPTUS-TREE.—At a recent meeting of the Board of Trade of Albany, Ga., the Eucalyptus-tree was taken up for special consideration, and letters concerning the utility of the tree and its value as an absorber of moisture in malarial districts, received from residents of New York and San Francisco, were read and discussed. Four trees, the gift of Sonntag & Co., of this city, were exhibited for inspection during the discussion, and, after the adjournment of the meeting, an order for trees was telegraphed to this firm at the expense of the Board. We have frequently called attention to the adaptability of this tree to California, and its increasing popularity in this State.

*** RETAINING THE NATURAL COLORS OF DRIED FLOWERS.**—Puscher recommends sticking the stems in the neck of a glass funnel, leaving the flowers in the wide portion, but leaving about an inch from the top unfilled. The funnel is then to be inverted over a few drops of *aqua ammonia* on a plate. In a few minutes most blue, violet, and crimson flowers change to beautiful green, dark crimson to black or dark violet, and white to yellowish. If they are then immediately placed in fresh water, they will retain their new color from two to six hours, according to the amount of ammonia taken up, but will gradually regain their original tints. The customary way of treating blue, violet, and red Asters for winter bouquets with nitric acid gives irregular results, on account

of the wax on the leaves, and it is preferable to expose them to the fumes of hydrochloric acid, by hanging them, tied in pairs by their stems, heads downward on strings drawn across the interior of a close wooden box, upon the bottom of which are several plates with hydrochloric acid, and with two glass windows, on opposite sides, through which the progress of the coloration may be noticed, so that the flowers may be removed as they acquire the desired tints, and hung in the same manner in airy, shaded rooms to dry. They should be preserved in a dry, dark place.

POTATOES FOR PLANTING.—Professor Nobbe has published the following experiment: He has placed the potatoes intended for his experiment in a well-lighted and heated room until they become wrinkled and greenish in color. At the same time they were planted he also planted Potatoes taken direct from a heap that had been protected by straw and dirt. At the harvest the dried plant Potatoes produced thirty per cent. more in quantity, twenty-two per cent. more in number of Potatoes, and twelve per cent. more eyes. Similar results have been obtained at the Agricultural College of Worms. The reason for this result may be ascribed to evaporation of moisture, by which the sap of the cells is concentrated, enabling it to develop itself with a greater sprouting power. Similar observations have been made with seeds. The *Landman's Blad* publishes a trial that has been made with Flaxseed, which gave most positive results in the same direction.—*Danish Paper.*

An interesting question in plant-geography is that as to the transport of seeds by ocean currents, and in other ways independent of human agency.

M. Thuret has been experimenting on this in Antibes. Having tried two hundred and fifty-one different species, he knows of only two kinds of bare seed which are capable of floating, Maurandia, and Phormium. A long immersion in sea-water does not always destroy the vitality of seeds. Out of twenty-four species immersed more than a year, at least three germinated afterward, as vigorously as seeds kept quite dry.

The noted Wolfskill vineyard, in Los Angeles County, is being uprooted to make room for an Orange orchard.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING MARCH 31ST, 1874.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office.)

BAROMETER.

Mean height at 9 A. M.....	30.11 in.
do 12 M.....	30.11
do 3 P. M.....	30.10
do 6 P. M.....	30.10
Greatest height, on the 31st at 9 A.M. and 12 M.....	30.26
Least height, on the 16th at 6 P. M.....	29.86

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.....	50°
do 12 M.....	55°
do 3 P. M.....	55°
do 6 P. M.....	50°
Greatest height, on the 27th at 3 P.M.....	64°
Least height, on the 9th at 9 A.M.....	40°

SELF-REGISTERING THERMOMETER.

Mean height at sunrise.....	42°
Highest point at sunrise on the 1st and 31st.....	47°
Lowest point at sunrise on the 6th and 18th.....	35°

WINDS.

North and north-east on 4 days; south and south-east on 4 days; south-west on 11 days; north-west on 5 days; west on 7 days.

WEATHER.

Clear on 8 days; cloudy on 11 days; variable on 12 days; rain on 15 days.

RAIN GAUGE.

March 1st.....	0.58	inches.
.. 3d.....	0.24	"
.. 4th.....	0.04	"
.. 5th.....	0.13	"
.. 7th.....	0.31	"
.. 10th.....	0.04	"
.. 11th.....	0.40	"
.. 12th.....	0.57	"
.. 13th.....	0.05	"
.. 14th.....	0.51	"
.. 15th.....	0.07	"
.. 25th.....	0.14	"
.. 26th.....	0.13	"
.. 27th.....	0.20	"
.. 28th.....	0.14	"
Total.....	3.55	"
Previously reported.....	18.97	"

Total rain of the season up to date.....22.52 "
A short sharp earthquake shock occurred on the 5th at 4h. 53m. A.M.; direction from south-east to north-west.

T H E

California Horticulturist

AND FLORAL MAGAZINE.

VOL. IV.

MAY, 1874.

No. 5.

STEMLESS LADY'S SLIPPER.

(*Cypripedium acaule*, Ait.)—SEE FRONTISPICEE.

BY DR. A. KELLOGG.

There are several species of Lady's Slipper found in California; for example, the white (*C. pubescens* var.), the yellow (*C. Californicum* n. sp., Pro. A. A. of A. and Scs. 1867), and the red or purple rose-colored one here figured. We have devoted much time and labor in order to furnish some adequate outline, by sketching, engraving, and electrotyping with our own hands, and coloring this plant, in aid of those who might have misgivings from a mere description, which, however plain to the describer, often proves to another exceedingly vague, apart from the form and color.

The plant, as its name implies, has no branching or leafy proper stem, but only a flower-stem, with two oblong root-leaves. The pink or purple lower lip has a somewhat closed fissure down its whole length in front. The scape is one-flowered, bract greenish, and sepals more or less colored. Flowers in May and June.

The roots of these plants are used as a nervine, being a good substitute for

Valerian, which also abounds in California. The exhilarant effects are very similar to those of Vanilla, one of the most delightful aromatics known, and which also belongs to the same family. Where venous congestion exists from irritation and loss of nervous energy rather than from repletion, it is of great service. Yet, after all, it is its charming *beauty* that burns while it chariots the soul up in the blue—buoying the laggard body too aloft, balloon-like—prophetic of the good time coming, when all regions may be more safely navigated. Beauty forever, like the beloved bird of the ark, native of the skies, flies heavenward when rapine and dangers impend. So also the thoughts of æsthetic uses we most admire: these on willing wing oft seek serener realms to circumspect this petty, pestered, sin-worn world below; therefore, every natural object that lures and aids one feeble, faltering step from the sordid mire is an angel sent to Lot, that he may, at least, reach the little city.

The ruddy beauty, nymph-like, hides beneath sheltered and shady evergreen groves of freshening forest, far northward along the colder wind and fog line of the coast, and similar isothermal

regions of the interior. The species must be rare, for, although it is said by an English collector to be found here, we, at least, have never been fortunate enough to meet with it. Should any one of our readers know of its locality, they would confer a favor on the writer by addressing to him a note (Post-office box 2350), and also much oblige many horticultural friends.

Many rare Orchids are found near San Francisco: two *Cypripediums*, *Calypso*, *Epipactis*, *Habenarias*, *Platantheras*, *Spiranthes*, and others.

LAC AND ITS PRODUCTS.

Lac is a resinous substance formed on several different kinds of trees in the East Indies, and produced by the punctures of an insect (*Coccus lacca*), and by its formation of the exuding juices into cells for its eggs.

These adhere to the branches in grains, completely incrusting them, and are either imported in that form, and called *stick-lac*, or the grains are gathered from the branches, their coloring matter extracted, and formed into flat cakes, still preserving the granular appearance, and called *seed-lac*, or the seed-lac is melted up into masses, and called *lump-lac*. Finally there is *shell-lac*, which is seed-lac further purified by being put in bags of fine linen, and melted over a charcoal fire until it passes through them. The bags are squeezed and passed over a smooth surface of wood, on which the lac is deposited in thin layers. If pure, this kind of lac will take fire on a hot iron, and burn with a powerful smell.

By pouring warm water on stick-lac a crimson coloring matter is obtained, which is made into square cakes for sale, and is called *lac-dye*, *lac-lake*, or *cake-lake*. These cakes when broken

are dark-colored, shining, and compact, but when scraped they yield a bright red powder approaching carmine. The cakes of lac-dye from India are stamped with certain marks, the best being D. T., the second best J. McR., the third C. E., which are the initials of different manufacturers. The cakes do not in general contain more than 50 per cent. of coloring matter, the rest being resin 25, and alumina, plaster, chalk, and sand 25.

The dye above referred to, and which constitutes much of the value of lac, is due to the insect which makes the cells, and which is of the same family as the cochineal insect. The parent lac insect, after laying her eggs, becomes a mere lifeless bag, of an oval shape, containing a small quantity of a beautiful red liquid. The young insects feed on this liquid, and their bodies assume the same hue, so that the branch which bears them appears to be covered with red powder. The cells of gum-lac which shelter them are more or less deeply tinged with the same color, and the best time for gathering stick-lac, so as to secure the coloring matter, is before the insects have made their escape. Previous to the discovery of the true cochineal, the coloring matter of the lac insect was universally employed for dyeing red. The crimsons of Greece and Rome, and the imperishable reds of the Brussels and Flemish schools, were obtained from this source. The best quality of stick-lac is obtained from Siam; that from Assam ranking next. Of late years lac-dye has been again substituted for cochineal on account of its greater cheapness, and also on account of its being less affected by perspiration than cochineal.

So abundant is the supply of lac among the uncultivated mountains of India, that it is asserted a consumption

ten times greater than the present might be readily met.—*Cabinet Maker.*

THE ALDER.

BY E. J. HOOPER.

The Alder (*Alnus glutinosa*, natural order *Betulaceæ*) is one of the largest and most picturesque of the aquatic trees. Its very name points out the situation most congenial to its growth. Some writers have considered it to be derived from the Celtic *al*, near, and *lan*, edge of water. There are several species of this tree. They are found in most parts of the north temperate zone, and are principally distinguished from one another by variety in the form or color of the leaves. They all prefer a moist soil, and generally are found by the side of water. Its average height is forty or fifty feet, though in a rich and damp soil it has been known to exceed sixty feet. The bark is of a blackish color, and as the tree advances in age this becomes rough and seems full of clefts. The leaves are of a deep bright green, from three to four inches long. The natural color of the wood is white; it is soft, easily worked, and extremely perishable if exposed to the weather. It can be applied to many domestic purposes, being soft, and easily worked into spinning-wheels (in old times), trenchers, bowls, dairy utensils, kneading-troughs, etc. The timber of the old trees is full of knots, and hardly inferior in beauty to the Maple. The bark possesses astringent qualities, and almost any part of the tree can be used in dyeing.

The Alder is the most aquatic tree of the Sylva, even more so than the Willow or Poplar. A damp marshy spot is most congenial to its growth; but though moisture is necessary, a rich

soil is equally indispensable. If planted in a dry and elevated situation, it dwindles to a dwarf stunted shrub. It is then by the standing pool, and the dank, cool marsh, the limpid brook, the full deep-flowing stream, and in the "cool, green, shadowy river nook," that we must seek if we would find the Alder. With such scenes and spots it has become as it were identified, and its dense shade and bright green foliage well harmonize with the surrounding scene, and invite beneath their welcome shelter the wanderer or angler oppressed with heat and blinded by the rays of the summer sun. The poet Wordsworth has thus depicted it:

—"I looked around, and there,
Where two tall hedge-rows of thick Alder
boughs
Joined in a cold damp nook, espied a well
Shrouded with Willow flowers and plummy
Ferns."

It is rare to meet in any country an old Alder, as they are generally cut down before they have attained perfection. General Fremont, in his narrative of his journey across the western plains, notices a species of green Alder (*Alnus viridis*) on the banks of some of the rivers he crossed. In England there is one seventy feet high, the diameter of the trunk four feet, and that of the space shaded by the branches sixty-five feet.

The Alder is propagated by cuttings of the root, layers, or seeds; this latter method appears to succeed better than any other. It is well calculated for planting in parks, and for ornamental aquatic scenery, not only from its picturesque form, and the vivid color and density of its foliage, but the length of time it retains its leaves. It is useful in such situations, for the shelter it affords is beneficial to the grass beneath it, and grateful to cattle, while they

will not touch its leaves if other food is within their reach.

Some authors have characterized the Alder as "an ugly, melancholy tree," and too many pass it by ignorant of its value and utility. But "in nature there is nothing melancholy," and with equal truth, I think, I may add, nothing without utility. The Alder does not hang over the limpid stream, or the reed-grown pond, merely to derive from them the sustenance it requires, cumbering without benefiting the spot. Its numerous fibrous and creeping roots serve to strengthen and support the bank on which it grows, and some writers have considered that, like the *Eucalyptus globulus*, now so much grown in California, it exhales properties which correct the unhealthy miasma generally prevailing in low and marshy grounds. On these accounts, the Alder is often planted, when not naturally found in such spots, to serve as a remedy for the injuries which floods often produce. Like a true and attached friend, it repays, according to its power, the benefits received; and hence poets, both ancient and modern, have adopted it as the emblem of gratitude and devoted affection:

— "There the Alder, darkly green,
In such fixed attitude doth fondly lean
O'er the clear brook, as t'would not lose one
tone
Of its sweet parley as it journeyed on.
And then, what time the soft winds gently
stirred
Its darkling leaves, it too would breathe some
word
Of answering kindness. Ah! in by-gone
hours,
When fancy, proud to try her new-born powers,
From all she saw or heard stole some sweet
thought,
Oft has that tree some theme for musing
brought.
If harsh of mood, too hardly would she deem
'Twas in self-homage bending o'er the stream,

Like beauty o'er her mirror, pleased to find
Its image in the glassy stream enshrined.
Anon, repenting of a thought so rude,
'Twould seem to her the type of gratitude,
Shading the brook that fed it, lest the sun
In mid career should gaze too fierce thereon;
And then a softer image it supplied,
Forever bending o'er that crystal tide,
Forever listening to its liquid chime.
Though all the sights and sounds of summer
time—

A sky all glory, and an earth all bloom,
Gales breathing only music and perfume,
Seemed all intent to win its love—but no!
It marked alone that streamlet's gentle flow."

INFLUENCE OF THE STOCK ON THE CION, AND VICE VERSA.

BY JOSIAH HOOPES.

Both theory and practice teach us that the relationship existing between the root and the top of a tree can not be impaired to any great extent by any artificial intervention of man. The very moment that an inserted bud or graft commences to granulate and then unite, that moment the two parts of the embryo tree struggle, as it were, for the mastery. That is, certain idiosyncrasies, inherent either in the branches of the one or the roots of the other, will form a leading feature in the mature plant. Abundant proof of this is afforded by examining the roots of nursery-grown Apple-trees, whether budded or grafted. Take, for instance, some well-known variety, as the Bellefeur, and the roots will be found uniformly long, slender, and very fibrous; other kinds will prove exactly the opposite. If we place a graft of some well-marked variety upon any ordinary stock, say five or six feet high, in a few years certain peculiarities of the bark will be found extending down from the branches to the body of the tree; as is instanced in the Newtown Pippin Apple, and Van Mons Leon le Clerc Pear. Another

curious feature respecting the influence of the cion upon the stock is noticeable in some of the so-called "sports," or variegated-leaved plants.

During the past season a Mountain Ash, upon which was budded a variety with variegated leaves, commenced to push forth young shoots from the main body of the tree, below the point where the bud was inserted. In every case these have variegated leaves. Now in view of the fact that these *adventitious* buds were there in advance of the original variegated bud, the presumption is that they were created green, and their normal condition yielding to the controlling influence of the new branches, caused the change to occur by the flow of sap from above.

A case still more remarkable than the one above cited, was related some time since by a correspondent of the *London Garden*. He states that he procured cions of a diseased Horse Chestnut with yellow leaves, and worked them upon strong, healthy young trees. Some time thereafter, upon examining the stocks where the cions had failed, young shoots were found down the body bearing the identical yellow-hued foliage; and yet, where the buds originally inserted had "taken," they produced perfectly healthy green leaves.

The disease, for I hold that all variegation is in some manner unhealthy, had evidently been communicated from the bud or cion to the stock before the death of the former, and for a short time, during its vain struggle for existence, contaminated the parts below.

The Scientific Committee of the Royal Horticultural Society of England also records a like case with a yellow-leaved Laburnum. After the inserted bud had died, variegated shoots were noticed issuing from the stock, both below and above the inserted point.

And Dr. Masters, the English botanist, has stated that an *Abutilon* had thrown out variegated shoots after grafting with a variegated variety, but ceased to do so after the inserted graft died.

But, in some instances, the stock exerts a marked influence upon the cion, thus showing the co-operative system in use between them. The *Gardener's Chronicle* mentions the instance of a couple of Muscat vines worked on the Black Hamburg, in the same house with a Muscat on its own roots. Those worked on the Hamburg start fully five or six days in advance of the one on its own roots, although they are nearly a fortnight behind the Hamburgs they are worked on. It is a curious fact that there has never been seen any difference in the ripening season, nor any effect on the fruit.

As we stated in the commencement, certain marked peculiarities will, sooner or later, always make themselves known; sometimes it will be one thing, and again another and totally different feature assumes the superiority. The governing cause, involved in mystery as it is to a certain extent, affords us a clue by means of which we may study a very useful lesson in plant life.

We know that all vegetable growth arises from a cell, and what is termed young shoots, leaves, blossoms, etc., are, in fact, but an accumulation of cells, which, in time, develop woody fibre and other organs. The propagator of new varieties knows that a single bud, or a section of a young branch, may be inserted in a different tree, and these will unite and produce fruits and flowers similar to the kind from which the bud or graft was taken. Now, let us inquire into the changes that occur during this growing process, or, as horticulturists term it, "taking." Between the wood and bark is where active

growth takes place, and the layer of young cells found here is known as the *Cambium layer*. All growth, of whatever nature, is by cells, the origin of which is, however, at present unknown. But this cell-growth is accomplished by small protuberances making their appearance on the walls of the older cells, and these rapidly increase, and again, in turn, assist in the formation of others, and this is carried on so long as growth takes place. Without going into a long dissertation upon the subject of cell-growth, which would form a long essay in itself, I will merely state that the question has been asked in relation to a budded tree, Can the cells, at the point of union, be partly of one variety, and a part belong to another? My theory is, that a cell, singly, is entirely a component part of the variety from which it originates, either from the cion or stock, and is invested with all the powers and principles inherent in that part. A single cell can not be of two varieties; but a collection of cells, as, for instance, the *cellular tissue*, may be formed partly of both. The *vascular* or *fibrous tissue* is governed by the same laws; each separate, but the little bundles of woody tissue, uniting by their outside covering or walls, thus form a compact mass of wood, and the bud or graft has taken, which ultimately forms the future tree.

A bud is, in fact, an embryo tree. It contains within its protective covering all the elements of tree growth, with all the organs of vegetation and reproduction intact. Therefore, when a bud is inserted beneath the bark of another plant, the cellular growth at once takes place on both sides; these unite by their outside walls, and the so-called sap commences to circulate in the inter-cellular passages from one to the other. It is, therefore, no wonder that certain

peculiarities embraced in the root may be found developing in the cion or top, and *vice versa*. That the cion is enabled to reproduce its kind is due to the fact that its young growth is merely an increase of cells already formed, and the variations alluded to at the commencement of this paper are the result of constant currents of sap flowing between the two remote portions of the tree, and at the same time imbuing the one with certain marked characters which were contained previously in the other.

Thus, in a somewhat hurried, and I fear very imperfect manner, I have alluded to the influence of the stock upon the cion, and *vice versa*.

This interesting subject is by no means all theory, as many suppose, but is the result, for the most part, of close examination by means of the powerful lens. Future investigation will, undoubtedly, reveal many novel features which we now know not of, and to accomplish this fully the patient student of Horticulture is asked to join the botanist in the pleasant task.

But there is another and more popular aspect to this subject—the relative advantages of certain stock for particular species of plants. Under this heading we may take for example the Plum worked on the Peach. Prejudice and distrust, on the part of many cultivators, have done this operation great injustice. To the owner of a heavy soil, where the Plum root thrives luxuriantly, Peaches should be planted with caution; but on the other hand, in the great Peach districts, with a light mellow soil, the Peach root will succeed far better than the Plum. Peaches always make a large number of strong fibrous roots, and return to the top a vast amount of nutrition. The junction in certain varieties of Plum on

Peach roots is perfect, and the tree is long-lived and healthy.

The testimony of some of our most noted pomologists go to show that the practice is correct, and a careful examination plainly indicates that the theory is faultless as well.

The subject of dwarfing fruit-trees is not properly understood. The Pear worked on Quince roots certainly dwarfs the tree to a certain extent and for a few years, but is the process caused by some inherent property contained in the Quince? We think not. Once allow the Pear to throw out a few roots above the point of junction, and the tree becomes a standard. The abundance of sap or nourishment gathered up by the roots and forwarded to the top, causes in most cases a larger and finer growth of fruit, thus showing that the Quince is adapted to these kinds; but take an uncongenial variety, and mark the result. The fruit is often in such cases worthless. Years ago we were told that budding Cherries on the Mahaleb stock would cause the trees to become dwarf. Little did these propagators know that when they annually pruned their trees, this was what dwarfed them, and not the root. The junction in this case is always perfect, and it is a well-known scientific fact that excessive pruning causes debility in a plant, and that, when vitality is checked, the tree becomes dwarfed, as a matter of course. Excessive growth and productiveness seem to be generally antagonistic. A dwarf tree, after the first vigorous growth is over, will, if healthy, produce good crops and mature a reasonable amount of new wood. Some certain varieties of Pears, as for instance, the Bartlett, never unite properly on the Quince stock—the cellular tissue of each never seems to make a perfect union. Very many trees that we have

examined under a strong lens reveal a marked line between the cell-growth of the two, and not, as is the case with other kinds, a lengthening of both cell-growths, one up and the other down, so that it is very difficult to determine where the exact point of insertion really is. There are causes, over which we have no control, that debar us from dwarfing some varieties, but science has not yet solved the mystery.

GOLDEN GATE PARK.—The Legislature has granted permission for the issue of thirty-year city bonds to the extent of \$250,000 in aid of the next two years' work on the Golden Gate Park. This is but half the amount which was desired; but, upon the old principle that "half a loaf is better than no bread," we should be thankful that we will have even that much. Few of our citizens who have not visited this Park during the winter have any idea of the improvements which have been made. A fine road has been run down through the sand-dunes, almost to the ocean beach. The hitherto barren hills of white sand have been covered with a rich green mantle of hardy Lupines which will effectually check the drifting of this unstable surface, and in time reclaim it for other and still more ornamental growths of vegetation. The drives have been extended, new flower-beds laid out, a great number of trees and shrubs planted, and now exertions are being made to improve the approaches to the Park. Already, at an outlay which seems almost insignificant when compared with the expenditures of some Eastern cities for their public grounds, and in view of the gigantic obstacles which had here to be overcome, we have a really beautiful Park, which is a credit to the city, and gives

good promise of being, at no very distant day, one of the finest in the land. Its benefits will be more fully appreciated by the masses when street-car lines are so extended as to render it easy of access, and this will be done at least by the time that the new race-track is completed, which will be within a few months.

CISTUS LADANIFERUS.

BY F. A. MILLER.

It is with much satisfaction that I call the attention of the reader to this remarkable evergreen flowering shrub—one which, I am certain, will soon become a favorite in our gardens, judging from the success we have had with it during the last winter.

The *Cistus ladaniferus* (known popularly as the "Rock Rose") is a native of Portugal and Spain, where it covers large tracts of land, and has been cultivated very extensively in European gardens, but to my knowledge is rarely met with in the Eastern United States, while it is entirely new to the Pacific Coast. A pink-flowering species of *Cistus* was introduced here some time since; but in every respect it is inferior to the one now referred to, the flower of which is about three inches in diameter, of a pure white color, with deep purple blotches at the base of the petals. The flower is very showy and effective, and of an entirely different character from any of the flowering shrubs cultivated in our gardens. The blooms are produced in great abundance, and there seems to be no limit to its flowering season in our climate.

It is a free-growing shrub, and will do well anywhere, without any attention whatever. It probably will not require any watering at all, which would be a

great point in its favor. It is readily propagated from cuttings, and strong plants can be produced in one year. However, they will not flower until the second or third year from cuttings.

While in other varieties the flowers will not last more than four to five hours, I have noticed that the petals of this species remain in perfect condition for two days.

The *Cistus ladaniferus* is also of commercial value as a medicinal plant. A gum is collected from the leaves and branches, well known as "Ladanum."

The shrub is perfectly hardy; and as an ornament to our gardens it has few superiors, if any.

PLANT OLIVE-TREES.—We have often wondered, when we consider how completely the Olive is adapted to the soil and climate of this country, that more orchards are not being put out. The reason is, perhaps, that it requires years' patient waiting to realize from them. Suppose it takes ten or fifteen years to get a crop, even then the investment of a little time, money, and labor in a few hundred trees would pay largely, for it must be remembered that young orchards, though not in bearing, will in a few years add very materially to the ranch upon which they are planted. It will pay to plant Olives, Oranges, etc., even if one does not expect to eat the fruit off the trees himself; if he does not, his children may, or some one else who will be willing to pay a good price, too, for his young trees. The importance of planting orchards is not appreciated by our citizens. No investment will pay a greater interest than young orchards. Eastern men will come along this season, and next, who will be willing to pay well for trees set and in good growing condition.—*Ventura Signal*.

FRUIT CULTURE.

We extract the following remarks on "Fruit Culture," from the pen of Wm. H. Nash, Esq., from the *Napa Register and Reporter*:

"Having devoted much attention for many years to this particular branch of culture, and feeling deeply interested in its success, we have prepared the following essay to supply it at least in part. The subject of this treatise is one in which almost all classes of the community are more or less engaged and interested. It is the desire of every man, whatever may be his pursuit or condition in life, whether he live in town or country, to enjoy fine fruits, to provide them for his family, and if possible to cultivate them in his own garden with his own hands.

Fortunately, the climate and soil of California being so favorable to the production of fruit, farmers, if they are not already, must become truly a community of fruit-growers. People are but beginning to learn the uses of fruit and to appreciate its value. The rapid increase of population alone creates a demand to an extent that few people are aware of. The city of San Francisco has added one hundred thousand (100,000) to her numbers in ten years; and see what an aggregate annual amount of new consumers it presents.

After twenty years of experience in fruit-growing in California, we think it will be excusable in us if we presume to offer to the farmer a few suggestions relative to the soil and climate best adapted to the growing of fruit; as well as some suggestions as to the proper season and manner of planting the trees. In our Californian climate, our winters being so mild, it will do to plant any time from the commencement of the first rains till the first of March.

It has now become a well-known fact that many varieties of fruit, when planted near enough to the coast to be exposed to the winds from the ocean, are almost total failures; but when this cause of defect is removed by planting these same varieties in the orchard lands of the interior, they become not only thrifty and productive, but the fruit is unsurpassed in its size and flavor. All trees should be selected with reference to the climate and soil where they are to be planted.

The Pear-tree in California is much more hardy than the *Apple-tree*, and will grow and produce good fruit in almost any locality, but succeeds best in a deep, rich, and moderately dry soil.

The Peach-tree succeeds best where the climate during the summer months is warm, ranging from 60 to 90 degrees, and the soil rich, moist, and loose. In a cool place this fruit is often of an inferior quality, juicy, but insipid.

The Plum-tree should have a rich, moist soil, and when planted in poor land, manure should be used unsparingly.

The Cherry-tree may be grown to the highest state of perfection, when the soil is a deep, rich, sandy loam, the water at no time standing nearer than eight feet of the ground, where the temperature during the summer months ranges from 40 to 80 degrees. On Mahaleb stock the Cherry can be grown quite successfully where the soil is much more wet and heavy.

The Quince.—Valuable for preserves and jelly; can be grown on moderately low and wet land, and will yield enormous crops.

The Almond.—We have been experimenting with two varieties of this tree, for a few years, and have fruited to some extent. Like the *Apple*, it succeeds best when out of reach of the coast

winds, but can not stand the heat nor the late frosts of some of the interior valleys. We know of no better recommendation than to say that, as a general rule, where table Grapes can be grown the Almond will flourish.

The Grape may be said to do well in almost any location in California; that is, out of the damp winds and fogs that prevail along the coast; even in some sheltered locations very near the coast they may be grown quite successfully, but not of the best quality for wine.

The Currant is one of the most valuable of all the small fruits, and is being used extensively for jelly as well as for table fruit and pies. Like the Cherry, it should have a good summer climate, and a loose rich soil.

The Gooseberry should have a warm and moderately dry soil, with plenty of manure and good cultivation. If grown in cold damp places, the fruit will be subject to blight and mildew. The Hawton's Seedling, however, may be grown in almost any location.

The Blackberry should have a warm, moist soil to succeed well. Plow the ground at least twice, and as deep as possible; the subsoil plow may be used to a great advantage, and when the ground is hard, its use should not be omitted.

Pruning the Trees at the Time of Transplanting.—This important part of tree planting should be carefully attended to. The ends of the roots, that are always more or less bruised in digging, should be cut off with a sharp knife, and the branches should all be cut back to a bud within two to four inches of the main stem, leaving them in a proper shape for the formation of the top.

Planting.—Will give our method of planting, and think it will do to work by, as a general rule. Dig the holes circling, three feet in diameter and two

feet in depth; the rich soil of the surface should be thrown out on one side, and the balance on the other side of the hole. In refilling the hole, throw in the surface dirt first, which will leave the richest part of the soil where the tree will receive the most benefit from it; fill up the hole to a proper depth to receive the tree without binding the roots, keeping it about the same depth that it stood in the nursery. Fill in about the roots with loose dirt until the ground above the tree is level, then the planting is done. From the time of planting, the ground should be kept well tilled and free from grass and weeds. A crop of Carrots, Beets, or Beans may be grown between the trees, but should not be nearer than four feet to the trees, until after they have grown at least one year, or Currants or Gooseberries may be planted between the trees in the same manner; and may be allowed to grow until the trees are ten or twelve years old.

The distance the trees should be planted apart:

	Feet each way.
Standard Apple.....	24
“ Pear.....	18
“ Heart Cherries.....	24
“ Duke “.....	16
Almonds, Peaches, Plums, and Nectarines,.....	20
Apricots.....	24
Gooseberry, (Eng).....	3x5
Hawton's Seedling.....	6x8
Currants.....	2x5
Blackberries.....	8x8
English Walnut.....	40
Grape-vines.....	7x7

Manuring.—The very common practice in regard to manure, is to apply a very large quantity immediately around the trunk of the tree, which is decidedly wrong, as it creates an excess of heat and enfeebles the growth of the tree. The proper way is to apply a sufficient top-dressing broadcast between the

rows; this should be well plowed in where it can reach the extremities of the roots. There are many rich soils where manure is unnecessary.

Mulching.—This should be practiced in very dry soils, and only with newly planted trees. Would recommend sand to be thrown around the tree to the depth of three or four inches, and about six feet in diameter; it should be applied early in May.

Protecting the Trees from the Heat of the Sun in Summer.—It is only necessary to protect the trunk; this may be done by means of two boards set together, forming an angle; then place them on the south-west side of the tree.

ORANGE CULTURE IN SANTA CLARA VALLEY.—The culture of the Orange is attracting great attention from the fruit-growers in this valley, many of whom have been planting extensive orchards this season. Mr. Babb has set out between seven and eight hundred trees, General Smith a hundred, J. A. Buck two hundred, and various other parties a greater or less number. Mr. Buck, whose ranch adjoins the tobacco fields in the southern portion of the county, has just returned from an extended inspection of the orchards, climate, and soil of Los Angeles, and says he is so confident that Oranges can be grown here in greater perfection than there that he proposes to spend a good many thousand dollars in their culture. The hearty growth of the few isolated trees set out for ornament around our city demonstrates their successful cultivation in this valley. The average net profit to an acre of bearing trees in Los Angeles is about \$4,500 in a favorable season; here it would be much greater, on account of our superior facilities for irrigation. Mr. Buck says that there is no

better soil or climate for the Orange than that of our foot-hills and mountain sides.—*San José Mercury.*

ON MANGROVES.

BY DR. H. BEHR.

While in the temperate zone all arborescent growth seems to get crippled by the immediate neighborhood of the sea, it never fails to strike the mind of the traveler, who for the first time enters the realms of the tropics, to see the luxuriant forests extending far beyond the shore out into the salt water itself.

The trees that compose these littoral forests are usually comprised by the name "Mangrove," which name by no means infers that said trees are botanically related among themselves.

The word "Mangrove" means nothing but a certain character or form of vegetation, in the same way as, for instance, the word "Heath," as it is in common use, does not exactly confine itself to *Erica*, but expresses a certain effect of landscape produced by a form of vegetation imitating or resembling in external structure an *Erica*.

The word Mangrove comprises, first, the *Rhizophoreæ*. This is a group intermediate between *Onagrasia* and the myrtaceous plants. It contains but few genera, viz: *Rhizophora*, *Kandelia*, *Ceriops*, and the genera themselves are exceedingly poor in species. All are strictly littoral. Second, the genus *Aegiceras*, belonging to the primulaceous plants; subdivision, *Sapotaceæ*. It is a near relation to *Diospyros* (the Persimmon-tree). Third, genus *Avicennia*, belonging to the labiate plants; subdivision, *Verbenaceæ*.

These trees, either mixed together, or one species excluding all others, form the vegetation of the Mangrove districts.

There is no herbaceous vegetation whatever found beneath these trees; but clams, oysters, barnacles, and other marine animals, fixed on roots and branches, are substituted in the strangest way for the turf, the creepers, and parasites of common forests. It is no exaggeration that the traveler, standing in his boat, may pick oysters from the overhanging boughs.

There is little difference in the general appearance of the Mangrove, *Rhizophora*, *Aegiceras*, or *Avicennia*. They are all evergreens, with round, dark-green, shining leaves, resembling in growth our Alder (*Alnus*). All of them partake of two striking peculiarities; the one is the peculiar growth of their roots, by which the trunk of the tree is lifted to high water mark, and is supported by a system of roots that spread like a gigantic broom, and produce at low tide the strange aspect of a forest on stilts. At high tide, of course, when these roots are not visible, the Mangrove forest looks like any other inundated forest. The cause of this peculiar organization is easily to be understood, as the elevated trunk is intended to adapt the tree to the changing tides, whose currents would exercise a considerable pressure on solid trunks, which certainly would be injured by them, while the many channels between the divergent roots allow the currents to pass without any harm to the tree.

The second peculiarity of the Mangrove is the circumstance that their seeds are never in a dormant state. As soon as they are ripe they begin to grow. In the *Rhizophora* and its relations, *Ceriops* and *Kandelia*, the seeds germinate even before they are separated from the tree. The name *Rhizophora* (bearing roots) evidently is derived from the strange aspect of a tree from whose

branches and twigs thread-like roots hang down and elongate themselves until they reach the marsh, where they fix themselves and form new trees. The seeds of the *Aegiceras* and *Avicennia* do not, at least as far as my experience goes, germinate before they are separated from the tree, but they separate the moment in which their development is complete. They then either fasten immediately in the mud, and grow like other plants, or they are carried about by currents in a state of preliminary development; that is, in the shape of a pair of fleshy cotyledons, resembling the shells of bivalves, and a *radicala* imitating in appearance the *sipho* of a *Pholas* or a teredo.

There is scarcely any kind of Mangrove endemic; they are more or less cosmopolitan between the tropics. Frequently the same species are found equally spread over the Old and the New World. The *Rhizophora* group scarcely ever transgresses the tropics. The *Aegiceras* does, but not as much as the *Avicennia*, which, of all Mangroves, extends to highest latitudes.

Prof. Davidson states that he has seen *Avicennia tomentosa* in Magdalena Bay. I have seen the gerontogeic species *Avicennia officinalis* at Port Adelaide, South Australia, latitude 35°; at the coast of New Zealand luxuriant forests of the same species extend as far as latitude 40°. Now this Australian, or rather gerontogeic species, certainly would grow well on overflowed marsh-ground in our bay. It would yield considerable fuel, would protect the ditches of reclaimed lands, and could be used for the manufacture of sod.

The only difficulty in introducing this tree is the peculiarity of all Mangroves, the circumstance of their seeds never being in a dormant state. It is next to impossible to obtain them in growing

order, and it is only the last invoice of seeds that inspires me with the hope to introduce this valuable tree.

VINEYARD INTERESTS.

We noted the other day the fact that some large vineyards in Los Angeles County had been uprooted because they did not yield a profit to the owners. The room was wanted for Orange-trees. There are many vineyards in the State which have not met the expectation of proprietors. They have not failed in production. But they have not, on the other hand, yielded a satisfactory revenue. Either they are too remote from markets or the Grapes are not of the most desirable sorts. Probably the most satisfactory returns have been realized by owners of small vineyards, stocked with the choicest varieties of table Grapes, and in such proximity to the city that the Grapes could be placed in market within four or five hours after shipping. But there is a limit even to this trade. Prices come down as choice Grapes become abundant. The market can be easily overstocked.

C. D. Brooks, of El Dorado County, writes to the *Rural Press* as follows: "I have seen several inquiries in the *Rural* for information in regard to raisins. I send you a sample of those I raise and cure. The raisins are made from the "Malaga Muscat," or Muscat of Alexandria; and, after a long and close investigation, I am satisfied in my own mind that this is the raisin of commerce, and no other Grape will make a raisin at all, but will simply be dried Grapes when cured, except the "Royal Muscadine," which makes a fair raisin, though smaller and the seed larger. I have had several hundred boxes of these raisins in market the last two years,

and have had many letters of commendation and inquiry in regard to them. I find it to be a profitable business. They have brought in the San Francisco market, this winter, fifteen cents per pound, wholesale. I am extending my vineyard of them every year; grow them on hill-slopes. What cuttings I don't use I have been giving away for several years. I paid \$12 per hundred for the first I set, and then cultivated for raisins. The habit of the Grape will have to be closely observed by the cultivator. I have been prompted to write these lines, because it is too bad for a person to set vineyards for raisins, and cultivate them for four years, and then have nothing but dried Grapes, that he can hardly sell at any price."

The larger part of the raisins produced here last year was of the second and third qualities, but these have been desirable for cooking purposes; while the really good raisins have brought good prices. An old vineyard can be grafted with the new varieties, which will come into bearing the second year from the graft. A vineyard once reconstructed in this way, all the troublesome questions about remoteness from market and over-production are disposed of at once.

It is certain that our vineyard men must seek other outlets for their Grapes than such as they have heretofore found. They want more satisfactory returns, and something, also, to compensate them for waiting a great many years for only theoretical profits. It is not everyone who can turn his vineyard into an Orange orchard. But he can exchange inferior productions for the best in a short time. Where the Orange comes to perfection, the Muscat Grape also ripens, and only needs a skillful touch to turn it into the best raisin of commerce.—*Bulletin*.

THE FRUIT PROSPECT.

The prospect for an immense fruit crop in this valley the present season is most propitious. The orchards, for the last two months, have been a cloud of blossoms—first the Almond, next the Peach and Apricot, then the Cherry, and now the Plum, Prune, Pear, and Apple. The yield promises to be beyond all precedent, and hundreds of tons of choice fruits would be left to perish upon the ground, as in times past, but for the increased facilities for preserving and shipping it.

Two years ago, Mr. Dawson, then recently from the East, a gentleman of foresight and ability, conceiving the idea of starting a fruit cannery on an extensive scale, determined to preserve fruits in such a manner and of such a quality as would necessarily commend them to public use. He put up the first year 10,000 cans. His fruit was selected with great care, all imperfect fruit being rejected. It was carefully cleansed of all impurities, none but neat and tidy women being employed in its preparation, and preserved in the best possible manner. This fruit found a ready sale, and demonstrated the future success of the enterprise. Last year he erected suitable buildings for the business, and put up in like superior manner 100,000 cans. But this is scarcely a priming to what the business will grow to in his hands. The present year he will probably preserve a quarter of a million cans.

But we need in addition to this a fruit-drying establishment—in fact, a number of such establishments. The Alden process, now coming into use extensively in the East, could not fail of meeting with success here. It preserves the fruit in all its perfection of flavor by simply expelling the water,

and retaining all of the valuable properties of the fruit. Last year our fruit-growers shipped a hundred car-loads of fruit—Pears mostly—from this valley to the East. By the Alden process they could save moving this immense bulk—finding it more profitable first to expel the useless water.

We regard fruit culture as the most important industry that our farmers can engage in, wherever the land is well adapted to the business. With skillful management we believe it can be made to pay thrice the profit of grain growing.—*San José Mercury*.

NITROGEN AND VEGETATION.—Our foreign journals bring the usual number of accounts of agricultural investigations, particularly in the experiment stations, of which some new ones have been lately established in Germany.

Ritthausen and Pott, of the station at Poppelsdorf, in Prussia, have lately been studying the influence of manures, rich in nitrogen, upon the composition of plants fertilized by the same. Ritthausen concludes that by increasing the amount of nitrogen in the food supplied to the plant, the percentage of nitrogen, both in the plant as a whole and in its different parts, may be increased.

Dehérain has investigated the relations of atmospheric nitrogen to vegetation by experiments on the absorption of nitrogen by carbonaceous matters, as glucose, decayed wood, etc., mixed with alkalis. He concludes that atmospheric nitrogen can, either in the cold or at the temperature of the soil, fix itself on carbonaceous matter analogous to that which is found in vegetable decomposition, and that the presence of oxygen is unfavorable to this reaction. He infers that carbonaceous matter in manure is advantageous, since it liber-

ates hydrogen in decomposing, and renders the conditions for absorbing nitrogen more favorable by removing oxygen from the air confined in the soil.—*Harper's Magazine*.

FOREST TREES FROM SEED.

Every year advances our knowledge of forest culture, and convinces those who give the subject any attention that it possesses all the importance claimed for it. Those most directly interested are the dwellers on the treeless plains of the West, but the people of the East are waking up to the fact that their forests are going, and that they must bestir themselves if they would have shade and timber, to say nothing of water. There is no use in thinking that a plantation of young trees can in all, or even most cases, be raised without much care. There are a good many chances that a young tree, whether it be transplanted or grown from the seed, will fail to reach maturity, but raising from the seed is attended with less first cost, and this, at least, is an attractive feature. We find in the *American Agriculturist* the following condensed statement of the properties and habits of various tree seeds, most of which may be obtained from any dealer who keeps a general assortment:

“*Evergreens* we can not advise the ordinary farmer to undertake to raise from seed, they require so much care in shading and otherwise, and small plants are sold by those who make a business of growing them at such low rates that we are sure that 90 in 100 will find it much more satisfactory in the end to purchase. We therefore confine our remarks to deciduous trees.

Tree Seeds that must be Sown as soon as Ripe.—Soft or Red, and Silver Ma-

ple, Elm, and Red Birch. If kept exposed even for a few days after they are gathered, their vitality will be destroyed. These seeds are generally kept by seedsmen; though some take orders in advance, to be filled when the seeds ripen. Those who wish to sow seeds of these should arrange beforehand with some friend to gather them, or dealer to supply them, and be prepared to sow the day they are received. The plants come up at once, and make nice young trees by fall.

Tree Seeds to be Sown in Place—that is, the seed is to be sown where the tree is to stand—include the different Hickories, the Butternut, and Black Walnut. The seeds are collected in fall, made into heaps, and covered with sods, over which are thrown several inches of earth. In the spring the nuts are sown in place, putting in two or three near together; and if all start, remove all but one.

Seeds of Trees that may be Sown in Fall.—Ash of various species, Liquidamber or Sweet Gum, Tulip-tree, Cucumber, and other Magnolias. These may also be sown in spring if properly kept through the winter in sand.

Seeds better Sown in the Spring (they should be carefully kept through the winter in sand).—Maples of all kinds, including the Ash-leaf or Box Elder, and excepting the Silver and Soft; Birches, except the Red; Bass-wood; Kentucky Coffee-tree; Ailanthus; Catalpa; Paulownia.

Seeds needing Preparation before sowing in spring.—Osage Orange, scald and keep warm and moist until it sprouts; Button-ball, soak; Honey Locust, and Common or Black Locust, scald.

Seedling trees require just as much thinning and weeding as a crop of Carrots. If they suffer from the heat of

the sun, stick brush with the leaves on all over the bed sufficiently thick to give a proper shade, or use a screen of laths."

WILL CRANBERRIES GROW IN CALIFORNIA?—We answer, yes, if properly cultivated on suitable soil. There is but little such soil in this State as they use East for Cranberry culture. There are many Cranberries now produced in the boggy soils in Oregon and Washington Territory. In some of the high mountain valleys are those natural bogs, that might be reclaimed and made profitable for Cranberry culture, and we believe that by a few years' flooding in dykes, a suitable bed for Cranberries might be made upon our ordinary soils. The New York *Horticulturist* thus tells how the culture is managed East: "A subscriber having asked us what were the cost and profits of Cranberry culture, we answer him as follows: 1. A good cranberry marsh must be made out of boggy, peaty land; sand must be carted upon it to the depth of six inches, and then the plants set out. The bed must also be so situated that a stream of running fresh water may be turned upon it at the proper time to flood it entirely, to prevent attacks of insects and frosts, and be as quickly shut off and drained. 2. The lowest cost per acre is \$300 for a bed well prepared. From this upward to \$600 and \$1,000 per acre have often been expended. 3. The yield in bushels increases gradually from twenty bushels the first year up to 100 or more in the fifth year. Average price of Cranberries, \$3 per bushel to the producer. It requires three years' time to get a good bed well planted in a producing condition, and the income is from \$60 to \$200 per acre for three years after that; after the sixth year, \$300 to \$600 per acre."—*Russian River Flag*.

ARROWROOT. — The Arrowroot most esteemed in this country, is that grown and prepared in the Bermudas, whose salubrious climate more nearly resembles that of Persia, with the peculiar and agreeable addition of constant sea-breezes, and which appears best adapted to produce the tubers in perfection. As the extent of these isles—nearly 500 in number—is only about 12,000 acres, occupying a space of scarcely twenty miles in length by six in breadth, but a small proportion of our supply is derived from them, and Jamaica Arrowroot, being nearly equal to it, comes largely in competition with genuine Bermuda. The East Indian is not so highly valued, it being too often adulterated with substitutes for the genuine. The cultivation has also been profitably conducted in Africa, and in the southern United States, where a large quantity, though of inferior quality, is annually produced. Sir S. W. Baker, in his journey through Arabia, speaks of a peculiar bulb resembling a Sweet Potato, but exceedingly long and thin, which was known to the Arabs as "baboon," and from which he "made excellent Arrowroot," in a somewhat primitive manner. The Arabs simply roast the roots on embers, and eat them as we do potatoes.—*N. Y. Mercantile Journal*.

HOW TO MEASURE THE LENGTH OF A TREE.—Take a forked stick; measure the length so that it will come exactly up to your eyes; then measure the length of the timber wanted—say forty feet—in a line out from the tree, and allow for the stump; then set up your stake, and lie down on your back with your heels at the stake; look through the stake, and the place where the eye strikes the tree will be the length of the timber. The ground ought to be level; if not, allowance can be made.

ACACIA GROVES ON THE UPPER NILE.

The rich and varying vegetation of the valley of the Upper Nile is a constant source of delight to the botanical traveler. The shore on either side presents a picture of tropical beauty; brilliant colored flowers toss their gay blossoms in the breeze, whole forests of Tamarisk and Acacia cover the hillsides, and even the surface of the water is beautiful with the broad rich leaves and fragrant flowers of many varieties of aquatic plants. The Acacia groves extend over an area a hundred miles square along the right bank of the stream. They produce gum in such unlimited quantities that, in the interests of commerce, they are specially worthy of regard. In the winter-time, with the greatest ease, in the course of a day, a hundred-weight of this valuable article could be collected by one man. It is a curious fact, however, that the gathering of this gum is much neglected, and the merchants of Khartoum are never able to supply a sufficient quantity to meet the demands of Europe. These Acacia-trees are called by the natives "soffar," a word signifying a flute. From the larvæ of insects which have worked a way to the inside, their ivory-white shoots are often distorted in form, and swollen out at their base with globular bladders measuring about an inch in diameter. After the mysterious insect has unaccountably managed to glide out of its circular hole, this thorn-like shoot becomes a sort of musical instrument, upon which the wind, as it plays, produces the regular sound of the flute. In the winter season, when the trees are stripped of their leaves, the boughs, white as chalk, stretch out like ghosts, and the wind, sighing through the insect-made flutes, fills the whole air with soft, mel-

ancholy tunes. One who has seen these "soffar" forests in a breezy moonlight night can never forget the strange and weird effect produced upon the imagination.—*Harper's Magazine*.

WONDERFUL TREE IN AUSTRALIA.—The Brisbane (Australia) *Courier* of Dec. 30, 1873, publishes the following official telegram from Mr. Walter Hill, the Government botanist, dated from Cardwell on the 27th, and received by the Queensland Secretary for Lands:

"Since the 20th of November we have examined the banks of the Mulgrave, Russell, Mossman, Daintree, and Hull rivers, and have been more or less successful in finding suitable land for sugar and other tropical and semi-tropical productions. The ascent of the summit of Bellenden Kerr was successfully made by Johnstone, Hill, and eight troopers. At 2,500 feet in height we observed an undescribed tree with crimson flowers, which excels the *Poinciana regia*, *Colvillia racemosa*, *Lagerstroemia regia*, and the *Jacaranda mimosifolia*. At 4,400 feet a Tree-fern, which will excel in grandeur all others of the aliboreous class. A Palm-tree same height which will rival any of the British India species in gracefulness. On the banks of the Daintree we saw a Palm-tree Cocoa, which far exceeds the unique specimen from Brazil in grandeur and gracefulness. While cutting a given line on the banks of the river Johnstone, for the purpose of examining the land, an enormous Fig-tree stood in the way, far exceeding in stoutness and grandeur the renowned forest giants of California and Victoria. Three feet from the ground it measured 150 feet in circumference; at fifty-five feet, where it sent forth giant branches, the stem was nearly eighty feet in cir-

cumference. The river Johnstone, within a limited distance of the coast, offers the first and best inducements to sugar cultivation."

THE JOYS OF A GOOD GARDEN.

Let any farmer take say an acre of land, more or less, according to the size of his family, fence it so as to keep out fowls and all other depredators, make it thoroughly rich, and then plant one-half to Grapes, Blackberries, Raspberries, Gooseberries, and Strawberries, Currants, Asparagus, and Rhubarb or Pie-plant. On the other half let him plant, as soon as the ground is fit, Peas, Onions, Lettuce, Radishes, and a few early Beets; also sow some early Cabbage and Tomato seed for early plants, being careful as soon as they are up to cover them at night, to prevent injury by frost. Peas, Onions, Radishes, Lettuce, and Beets will stand considerable frost with little or no injury. Later, as danger from frost ceases, plant more Peas, Snap Beans, Parsnips, Carrots, late Beets, Summer, Fall, and Winter Squashes, a few hills of early Cucumbers, and any other vegetable that the family may like. Sow late Cabbage seed, and later in the season plant Cucumbers for pickles.

After the small fruits have come into full bearing, let us see what this acre of land will furnish a table. Very early in the season he will have Asparagus to whet his appetite on. Soon after, Radishes will be large enough to use. Anon, Currants and Gooseberries will have grown large enough to stew. He will soon after have the pleasure of eating green Peas and Beans, with Onions for seasoning; and a few early Cucumbers, to put him in the humor for Strawberry shortcake, cream, and Strawberries. And by the time he has finish-

ed these the Raspberries will be waiting his pleasure. If he is now tired of fruit, he can have some early Beets and Summer Squashes. The early Tomatoes should now be ripe, and Carrots and Parsnips large enough to dig, for a change. His Blackberries should now be ripe, soon to be followed by the delicious Grapes. If he is fond of a good baked Squash, let him now try the fine Boston Marrow or the American Turban, and he will have it.

Let the surplus small fruits be dried or canned for winter use. Put up a keg of Cucumber pickles; can, preserve, or put up in some way the surplus Tomatoes; make a barrel of kroust from part of the Winter Cabbage. Holding up the remainder of the Parsnips, Carrots, and Fall and Winter Squashes, have an endless variety of green and good things, that will last all through the long and dreary winter. Some may think this a fancy and overdrawn picture; but let such try the experiment, and see if they do not then say, with me, that in no other way can they have so good, so healthful, and so cheap living.—*Exchange*.

CALIFORNIA COFFEE.—It has been recently discovered that the foot-hills in the northern portions of this State, notably in Placer County, are covered with a hardy wild shrub, which, upon investigation, turns out to be a Coffee plant. Those familiar with the genuine cultivated Coffee shrub grown in South America and the West Indies pronounce this unquestionably a plant of the same species, of course inferior, since it has been neglected and grown only in a wild state, but presumably susceptible of development to such a degree of perfection as to constitute its product a valuable article of commerce.

It is, at least, well worth the trouble of experiment to demonstrate the possibility of such a result. Even should this wild Coffee bush resist the kindly influences of cultivation and refuse to yield good berries, it may still prove of service in suggesting the experiment of introducing the cultivation of the real Coffee. So far as we are informed, no attempt has been made to test the suitability of our soil and climate for this crop, and it is too important a matter for the suggestion to be permitted to pass unheeded. Should it be found that we are able to produce a fair article of Coffee, a branch of agriculture will have been opened more profitable than any now known in the State.—*Chronicle*.

ORANGE CULTURE VS. VINE CULTURE.

We have lately published some interesting communications upon the subject of Orange culture in California. The facts set forth in the communications prove beyond a doubt that the Orange may be cultivated in nearly all parts of the State as successfully as the Apple, Peach or Plum. They also prove that the cultivation of the Orange, wherever engaged in in the State, has proved more profitable than the cultivation of any other fruit.

The cultivation of the Orange in some of the Southern Atlantic States seems to have been attended with the same pecuniary success as here. In Georgia the introduction of this fruit, and the great success which has attended it, have raised the value of land adapted to its culture to the sum of \$500 an acre. In Los Angeles, the home of the vine, a locality in which the vine flourishes, and produces a wine equal to the most renowned wine-growing districts of the Old World, so great has been the success in Orange culture, and so profita-

ble has its culture proven, that owners of the oldest and best vineyards are digging up the vines and planting the land in Orange-trees. The Los Angeles *Express*, in announcing this fact, says: "It makes one sad to see vineyard after vineyard torn up by the roots, and the fine old trunks cut up into firewood. The Wolfskill vineyard, one of the finest in the county, planted thirty-five years ago, is among those that have been dug up. On account of the low price of Grapes during late years, this vineyard has been maintained at an actual loss of \$2,000 a year to the proprietors. The manufacture of wines and brandies from the Grape have been so weighed down by taxation and the oppression and annoyance of government red tape, that capital has been actually driven out of the business, and when last fall the Grape crop ripened, there was no market for the vintage. Grapes were sold at from fifty to fifty-five cents the hundred pounds, a price which barely covers the actual outlay. It is not to be expected that people will continue to suffer this loss when they can appropriate their lands to the cultivation of a fruit which is enriching all who have a few acres of bearing trees. Hence the movement to which we allude. It will take time for the trees to grow, but it is better that the lands should yield nothing for a few years than they should be an actual source of loss, and in this respect we can not but view the action of the vinemen as sound."—*Sacramento Record*.

M. BERT states that compressed oxygen is not only destructive to animal life, but that it also hinders the germination of seeds, the putrefaction of fragments of muscle, the change of starch into sugar by saliva, and the development of *mycoderma aceti*.

CEREUS GRANDIFLORUS—THE NIGHT-BLOOMING CEREUS.

How often have I been delighted to visit the collection of the intelligent cultivator of plants, to be warmed by his enthusiasm, to impart mutual instruction, and to share the pure pleasure arising from the contemplation of the floral beauties of nature. When we take a view of the floral display of the vegetable kingdom, how can the human mind be otherwise than interested? The grotesque forms of some excite our wonder, the gorgeous display of others our admiration, the graceful and elegant bespeak our esteem, and the fragile and lowly command our care.

When the magnificent flowers of *Cereus grandiflorus* are expanded they attract the admiration of everybody; it never opens its blossoms whilst under the direct influence of the sun's rays, and they close never to open again as soon as the beams of the morning sun glance upon the house in which it is grown. I prefer growing this *Cereus* in a pot to which is affixed a cylindrical trellis from three to four feet high. The plant can then be moved to the positions in the house best adapted for its growth, or when at rest during winter for the maturation of the sap; and when in flower it may, with facility, be removed to the drawing-room. When in a growing state it delights in a warm, moist atmosphere, where it will lengthen its stems, or produce new branches from one to two feet in length in one season. These should be tied to the trellis as regular as the contorted habit and brittleness of the stems will permit. As the stems advance in growth, numerous roots will be protruded from their under side, which will evidently reach the soil in the pot, and they will

materially assist in the future growth of the plant, and the development of the flowers. As it is no easy matter to remove a plant of this description from one pot to another when once established on the trellis, care should be taken at first, to select a pot of sufficient size.

The soil should be a rich and friable loam, mixed with one-third well-rotted and thoroughly dried stable-dung broken into small lumps, to which should be added pieces of old mortar, to secure a good and sufficient drainage until the pot becomes filled with roots. When the plant has finished its growth for the season water should be gradually withheld, but it is by no means necessary to keep it so dry as to cause its succulent stems to shrivel. It should be placed during winter near the back wall of the house, and, that it may have the full influence of the sun, the top of the trellis should be about eighteen inches from the glass. As the spring advances, the old and well-matured stems acquire a purple tinge, the color being more intense about those parts where the flower-buds develop themselves. About the middle of May small fissures will be observed on the upper part of the stems, from which protrude what at first appear to be small balls of coarse white hair, but in which is inclosed the rudiment of the flower; the enlargement of these balls goes on very slowly, becoming gradually more lengthened until they assume a conical shape. At this period the plant should receive a generous treatment; a more liberal supply of water may be given, with occasional applications of liquid manure. The foot-stalk of the flower will now grow rapidly until it attains the length of from seven to nine inches, when it will appear as if covered with scales, bristled all over with hairs. From the middle to the latter end of June the first flow-

ers generally expand, but much depends on the previous brilliancy of the weather. The flower usually begins to open about five p.m., but in dull weather it may be as late as eight or nine o'clock. It is an object of interest to the curious to watch the progress of the expansion of the flower. The calyx or outer segments may be seen to move with a start or spring, now one, then another, until they are free from each other; they afterward expand imperceptibly, each segment standing apart and their points slightly recurved, forming a circle from eight to ten inches in diameter. In the meantime the petals slowly expand, and are disposed in the shape of a bell at the tops; but they gradually lessen downwards like a funnel, at the bottom of which is inserted the numerous stamens. These are beautifully arranged around the corolla, but the greater part lie on the under petals and surrounding the pistils. The time from the commencement to the full expansion of the blossom is from an hour and a half to two hours. The appearance of the flower is peculiar and grand; the numerous narrow segments of the calyx, which are yellow inside, appear like rays surrounding the corolla, which is itself a pure and delicate white, changing to green toward the bottom of the tube. It possesses a perfume which will fill the whole house in which it may be grown. The plant, after the flowering season is over, should have a short period of rest to recover its exhausted energies, and should afterward be stimulated with a moist and high temperature to promote its growth, and to fill its sap vessels with nutritious sap, to be elaborated in due time for the production of its splendid flowers.—*Gardener's Record.*

A GARDEN well kept is easily kept.

CASTOR OIL AS A LEATHER PRESERVATIVE.—A correspondent of the *German-town Telegraph*, who says he has tested all the patented preparations and popular recipes for preserving leather, prefers castor oil to all of them. He adds:

“ We have had boots a year old that we have oiled with it, and the leather was soft, smooth and water-proof to the last time they were used. We apply it clear, without heat. A little lampblack might be used on old leather, but it is seldom necessary on new, as the oil itself seems to keep the blacking on, and renders the leather black and of fine appearance. Those who have been annoyed with hard, cracked, water-soaked boots, the surface of the latter rough, without blacking, and the leather shrunken and wrinkled, so as to chafe, gall, and otherwise punish the feet, will find castor oil, well applied, to be satisfactory. We have used it for wagons and buggies, and find it is in every way superior. It will wear longer, lubricate better, and is less objectionable than any thing we know of.”

CORN CULTURE.—The *Democrat* informs us that the Sonoma County farmers are generally turning their attention to the cultivation of Indian Corn by way of rotation with Wheat, instead of summer-fallowing their Wheat lands. It says: “ Land in this vicinity, on which the yield had decreased from forty to eight bushels to the acre by successive Wheat crops, has been restored by Corn culture to nearly its original productiveness. It is preferred to summer-fallow. Wheat land in the course of a few years becomes foul with weeds. The cultivation requisite in a Corn crop in a single season destroys them; a succeeding Wheat crop is free of weeds, and is otherwise improved in quality and quantity.”

Editorial Portfolio.

NOTWITHSTANDING the mildness and excellence of our climate in general, even in our rainy season of the year, the weather and temperature of our late winter and spring months have been quite exceptional. We certainly ought not to complain of the plenteousness and continual fall of the gentle and penetrating rains we have had, though they have somewhat interfered with our personal enjoyment, but the remarkable lowness of the thermometer from early in December to the present month (May) has been almost unprecedented in this State. Yet when we rightly appreciate the rain-fall, which has already up to date reached over twenty-three inches, the average fall in this city, and our almost complete exemption from late and sometimes destructive spring frosts, such as we had last year, we have every reason to feel thankful for the blessings we have mentioned, rather than to dwell upon the (for California) extraordinarily long cold spell we have experienced. All our agricultural and horticultural productions are now almost beyond any possibility of failure, and will be immense in the subsequent wealth they will create sooner or later on our coast.

WOODWARD'S GARDENS.

Great improvements have lately been made and are still in progress in this upon many occasions quite crowded public resort. After our late fine rains all the beautiful vegetation in these delightful and interesting grounds is in a most flourishing and healthy condition. A large portion of the walks have been laid down with asphaltum, and in dryness, solidity, and smoothness are a great improvement even upon the good

gravel pathways. The aquarium is being enlarged by some fine tanks near it on the outside. The bird, fish, and other animal departments are continually having new additions made to them.

CATALOGUES RECEIVED.

We have received No. 3 for this year of Mr. Vick's *Floral Guide*. It is replete with attractiveness and interest on many subjects useful to the horticulturist. Some of the topics in it are "The Government Seed Shop," "The Post Office," "Rustic Ornaments," "Cold Pits or Conservatories," "The Blue Gum," "Gold-fish and Aquariums," "The Lily of the Valley," "Cage Birds," "Preparation for Winter Flowers," and "A Little Gossip," on various matters useful to the florist and gardener.

We have received No. 7 (the April number for 1874) of the *Flower Garden*, a quarterly magazine, price \$1 per annum, published by Beach, Son & Co., of 76 Fulton Street, Brooklyn, N. Y. This is an excellent catalogue, possessing the especial advantage of many pages of excellent horticultural information, much of it original. Also, the April number of the *Illustrated Quarterly Floral Work* published by Briggs & Brother, Rochester, N. Y., well worthy the attention of the floriculturist.

We were exceedingly gratified to take Mr. JAMES VICK—the great seedsman, of Rochester, N. Y.—by the hand, the other day. This, we believe is his first trip to this coast. He comes to observe, and at the same time combine pleasure with observation. We wish him a most cordial reception and pleasant sojourn in our midst.

OUR EXCHANGE TABLE.

The *Gardener's Monthly* for May, published in Philadelphia, always welcome from its valuable contents, has come to hand. This is one of the few publications devoted to Horticulture which has existed and flourished for many years, and with the *Horticulturist* (New York), is one of our standard works of excellent, practical, and useful information for the florist, fruitist, and general horticulturist.

The *Cultivator and Country Gentleman* is also, as usual, on our table. This favorite and elaborately furnished vehicle of knowledge on Agriculture, Horticulture, and their kindred sciences needs no encomium from us. It has been long known and appreciated by all cultivators.

The *Ladies' Floral Cabinet* is a beautiful as well as an elegant and highly useful paper, devoted most especially to the home circle, with all the lovely adornments of the garden, the mansion, or the cottage, and their grounds.

Among other exchanges received are the *Rural New Yorker*, *Indiana Farmer*, *Texas Farm and Home*, *The American Farmer*, *The Willamette Farmer*, *Rural Press*, etc.

Señor Francisco P. Casanueva, Consul-General of Chile for San Francisco, for a copy of the circular announcing the projected Second International Exhibition of Chile, in September next.

The *Overland* is also at hand, with more than its usual amount of excellent reading matter.

A consignment of young Fig-trees, of the white variety, seeds of a peculiar kind of Locust-tree, and Egyptian Wheat, were received at Stockton a few days since, direct from Dalmatia, Austria.

FAVORS RECEIVED.

Monthly Report of the Department of Agriculture for April and May, 1874, on the condition of "Winter Wheat," "Farm Animals," "Diseases of Farm Animals," "French Schools of Agriculture," "Facts from Official Sources," "Entomology," "Chemistry," "Botany," "Microscopy," etc.

NEW BOOKS.

THE ILLUSTRATION HORTICOLE—Published at Ghent, Belgium, by Mr. Linden, and edited by Mr. Andre. This serial has had a world-wide reputation for the beauty of its colored plates and the excellence of its reading matter. Its circulation abroad has so increased that Mr. Linden now issues an edition in the English language, as well as the original in French. The number before us has a representation of *Oncidium fuscatum*, a great beauty—the *Ceroxylon andicola*, the Wax Palm of the Andes, and others, together with full accounts of the same.

THE GREAT WESTERN is the title of a new monthly published in Philadelphia. It is literary in character, but takes in science and art, Agriculture, Floriculture, and everything about which an intelligent person is supposed to care. It seems destined to take rank with the popular magazines of the day.

A SIMPLE TREE-PROTECTOR.—The *Ironmonger*, an English periodical, describes a simple contrivance to protect ornamental trees and plants from the effects of frost. It consists of a conical frame of galvanized iron wire supported at its apex by a wooden post driven into the ground beside the tree; it is only needed to cover the wire with cloth, or even news paper, to render the tree safe from the frost.

NEW AND RARE PLANTS.

Tacsonia insignis.—*Tacsonia* is a genus nearly allied to the Passion Flower, and some of our best winter bloomers are found among them. The *Florist and Pomologist* figures this species: It is from Bolivia. As many as a dozen flowers are borne from each hanging branchlet. The flowers are of a brilliant carmine, and are sometimes six inches across. The *Florist and Pomologist* thinks it will do well in a cool greenhouse.

The White Salvia splendens.—Mr. Jos. Meloon, Bergen, N. J., contributes the following note in regard to this plant: "I see in the January number of the *Monthly*, a communication from W. L. Akers, of Johnstown, Pa., in which he criticises the White Salvia as being a very inferior variety of Salvia. And while I agree with him in part of his description, I must differ from him in other portions.

"The sporting tendency of the White Salvia was most prominently presented by the specimens cultivated by us the past summer. But while the color of the flower is not of the purest, and the blooms drop more readily than those of *S. splendens*, still, it is nearest to the latter variety in all qualities combined, and bedded in alternate rows or masses makes a most brilliant contrast. With us the past season, its growth has equalled the most vigorous, and side by side with the *splendens* variety, the blooms stood until a very severe frost cut them both down. It also seeds quite freely, although the seed is apt to shed before fully ripe.

"In cases of sporting, when the red mingles with the white on the same blooms, it is much handsomer than pure white or red specimens are, as the markings are very distinct.

"Taken altogether, the White Salvia, though not of great value by itself, is a superior bedding plant if used with the red varieties."—*Gardener's Monthly*.

Hybrid Begonias.—For some years attention was given to the improvement of the Begonia, with the view to the development of handsome foliage. Of late years hybridists have turned their attention to the production of novel colors, and other blooming attractions. Among these Mr. Bull announces in his new English catalogues:

"From the seed now offered, not only will most beautiful varieties be produced, but perfectly new kinds, for the flowers from which it was saved have all been carefully hybridized, pains having been taken that the varieties and colors were blended for that purpose.

The Begonias from which this seed was saved are new kinds of the handsome flowered bulbous-rooted section, many of them not yet sent out, and having been again hybridized, must give striking novelties of great merit. The flowers that this seed will produce will be of gigantic size, many of them as much as two inches in length by three inches in breadth, and the colors exceedingly varied: crimson, orange, pink, carmine, salmon, orange-scarlet, cinnamon, blush, lake, rose, vermilion, and various intermediate shades.

Brilliant, very rich bright orange, a fine showy flower.

Caroline, deep rosy pink, with broad petals.

Climax, deep rich rosy carmine, the two outer petals extremely broad.

Corsair, rosy salmon, profuse bloomer.

Dazzle, bright reddish crimson, a fine flower, with short broad petals.

Ensign, bright pink, a very elegant variety.

Gem, cream color, the reverse of the petals light pink.

Glitter, vivid orange scarlet, attractive.

Hermine, bright orange cinnamon.

Irene, salmon, distinct and good.

Lothair, deep rose, a fine flower, with short broad petals.

Magnet, beautiful light pink, the reverse of the petals deep pink.

Mazeppa, very light cream color, the reverse of the petals tinted with orange pink.

Meteor, intense scarlet vermilion, very bright and showy.

Phyllis, sulphur, shaded with pink.

Seraph, soft pink, the exterior part of the two outer petals suffused with rose.

Surprise, bright pink, a very pretty color.

Trojan, bright rosy pink, very distinct."

Calophaca Wolgarica.—This is a pretty little shrub with pea-shaped yellow flowers, which are very attractive, as are also the red-colored seed-pods. In its ordinary state it can not be regarded as a weeper, but when grafted about four or five feet high on *Caragana arborescens* it forms a pleasing object. Its branches do not quite reach the ground, therefore "worked" plants are well adapted for fronts of shrubberies, or for the decoration of rock-work.—*The Garden.*

Lilium Kramerii.—This is a beautiful new Lily from Japan, recently figured in the London *Pomologist and Florist*. It is not clear whether it is a hybrid, an evolution, or an original species. The flower figured is about six inches over, and of a beautiful rosy tint, with orange-red stamens.

Double Lilies.—There have been double kinds of Lilies known for some time. The double Tiger Lily is always appreciated. We understand a double *Lilium auratum* has appeared in England.

PRINCIPLES OF PRUNING TREES.—W. H. Nash, in an article recently read before the Napa Grange, set forth the following as the principles to govern in pruning trees: 1. The vigor of a tree subjected to pruning depends in a great measure on the equal distribution of sap in all of its branches. 2. Prune the branches of the most vigorous parts very short, and those of the weak parts long. 3. Leave a large quantity of fruit on the strong part, and remove the whole or a greater part from the feeble. 4. Bend the strong parts and keep the weak erect. 5. Remove from the vigorous the superfluous shoots as early in the season as possible, and from the feeble parts as late as possible. 6. Pinch early the soft extremities of the shoots on the vigorous parts, and as late as possible on the feeble parts, excepting any shoots that may be too vigorous for their position. 7. The sap acts with greater force and produces more vigorous growth on a branch or shoot pruned short than on one pruned long. 8. The sap tending always to the extremities of shoots, causes the terminals to push with greater vigor than the laterals. 9. The more the sap is obstructed in its circulation the more likely it will be to produce fruit-buds. 10. The leaves serve to prepare the sap absorbed by the roots for the nourishment of the tree, and aid the formation of buds on the shoots. All trees deprived, therefore, of their leaves are liable to perish.

WHEN Beans are preserved for the manufacture of sugar they give off carbonic acid and absorb oxygen. This result is owing to the oxidation of the sugar, and in the course of thirty days a very considerable portion of the sugar is lost.—*Scribner's for May.*

FLORAL REVIEW.

BY F. A. MILLER.

The mild and pleasant weather of the past weeks has wonderfully advanced vegetation in and out of doors, and the hills and dales are everywhere covered with luxuriant green, intermingled with every imaginable color and hue of our native flowers. Our gardens begin to look bright and cheerful; every day develops new attractions, and each plant is watched with more than ordinary care. It is true, our gardens need not be destitute of flowers during the winter months, if properly managed; but we do not find them so bright, perfect, and sweet as spring and summer makes them.

Acacias are in bloom, and fill the air with their sweet perfume. As ornamental trees, they have no superiors, and I am sorry to notice that they are much less in demand than they were some time since.

The Lilac attracts much attention, and seems to become more and more popular with our people, now that some of the specimens planted a few years since are sufficiently grown up to produce an abundance of flowers. While we meet the purple-flowering Lilac very frequently, the white seems to be as yet rather scarce. Both are most desirable deciduous flowering shrubs, and their flowers are delightfully fragrant.

The Snowball, the Deutzia, the Wiegelia, the Spiræa, and the Almond, are all in full bloom, and if these flowering shrubs have heretofore been neglected and scarcely sought after, their popularity will increase from year to year.

Roses are in their full glory, and continue to be everybody's pets. Unfortunately, the mildew, which has made its appearance on our Rose-bushes, seems

to become more annoying every year. In many gardens Rose-bushes are affected to an alarming extent; so much, that all the blooms are crippled and the foliage destroyed. Our florists must give this matter their serious and immediate attention, for the case is a grave one. Many remedies have been suggested, and have been previously published in these columns. The application of black sulphur mixed with water has the desired effect, if applied twice a month. Sulphurous acid, mixed with fifteen times its quantity of water, has been used successfully. As the cheapest and best method of curing mildew, we recommend the application of strong tobacco-water, which also has the good effect of destroying the green fly and other obnoxious insects. We put a lot of tobacco stems in a barrel, pour water over them, and after a day or two we sprinkle the affected bushes with the liquid early in the morning or late in the evening. The effect is as remarkable as it is successful. If this treatment is renewed every week or two, Rose-bushes can be kept clear of mildew.

Pinks are producing their full quota of flowers; they are very much in demand, and the varieties now cultivated on this coast compare very favorably with any collection in the East. Fine varieties are as yet scarce in the market; there seems to be some difficulty unaccounted for in the propagation of many of the choicest kinds.

The Clematis, Clianthus, Chorizema, *Solanum jasminoides*, and *Wisteria sinensis* are in bloom, and deserve notice as most desirable climbers.

In the way of herbaceous plants we have the Forget-me-not, the Auricula, the Bleeding Heart (*Dielytra spectabilis*), some hybrid Amaryllis, *Echium grandiflorum*, *Gypsophila elegans*, and others, in perfection.

In the greenhouse the Cape Jasmine is taking the place of the *Camellia*, which is rapidly going out of season. The very exquisite odor of the Cape Jasmine (*Gardenia*) makes it one of the most desirable plants under cultivation. To have it succeed well, it requires a warm temperature and somewhat moist atmosphere—a condition of things which can not readily be provided in this climate without artificial heat. It is for this particular reason, that amateurs do not succeed well with its cultivation. Otherwise the Cape Jasmine grows very freely and is easily propagated.

Azaleas, Rhododendrons, Cacti, Rhynchospermum, *Astilbe japonica*, Eranthemums, *Clerodendron Balfouri*, *Hoyas* (Waxflower), *Jasminum Calalonicum*, and Orange blossoms, are plentiful, and constitute the chief material for fine bouquets, etc.

THE MULBERRY AS A SHADE TREE.—The Sacramento *Record* says: "It is said that the *alba* and *moretti* varieties of the Mulberry make as pretty a variety of shade and ornamental trees as any that can be found," and gives many excellent reasons why they should be set out in preference to the Locust and other trees, to which more favor is shown. Among the reasons given why the Mulberry should be preferred, the fact that it bears a palatable edible fruit, good for domestic use, or to divert the birds from the Cherries or more choice fruits, is mentioned, and also the probable value in the future of the foliage for silk raising. The writer might have mentioned that the foliage will also furnish a rich fodder which is much relished by all domestic stock; and were all our roadsides shaded by well-grown Mulberry-trees, they could largely help out the supplies for stock in times of scarcity.

REMARKS ON FRUIT CULTURE, AND
REPORT ON THE FRUIT AND
VEGETABLE MARKET.

BY E. J. HOOPER.

Although Nature has beneficently bestowed upon man, just as they are, many minor wild fruits, such as Huckleberries and Cranberries, Persimmons and Papaws, etc., yet in many cases—such as the Crab Apple, Sloe, Pear, etc.—man may be said in many respects to have made the choicest fruits from these originals, and, always helped by Nature, has achieved wonderful triumphs of horticultural skill. Other fruits—such as Currants, Gooseberries, Raspberries, Blackberries, Chestnuts, and especially Strawberries—have been received by man with their complete original flavor, and only required him to improve their size and quantity, or prolong their time of bearing.

As the matter now stands, we owe most of our best fruits to what is called the Old World; but it is rather an interesting subject upon which to speculate, as to what will in the future arise from the improvement of some of the native fruits of this our New World, or America. There are our *Chicosa*, the Peach Plum, and our wild red and yellow *Prunus Americana*, which have already shown great capacity for improvement. It would probably be hardly worth our while to pay any attention to improving our Wild Cherry, as any seedling from it would not be likely to be as large as the sorts of Cherry we now possess, although their flavor might be good. Why should we not have manifold and most luscious varieties of Persimmon and Papaw? The former might become, by cultivation, engrafting, or budding, equal to the *Kaki* we have lately acquired from the far East. With regard to wild Strawberries, Cur-

rants, and Gooseberries, by attention to their culture we might be able to accomplish something, too, as we possess several promising species, differing from the European types, in different parts of the States and Territories. As to Blackberries and Raspberries, particularly the first, we have already achieved a good deal, and we are likely by careful attention to create an earlier development, as well as a diversification, in these our native species. Indeed, many of our very finest kinds of both have already sprung from our American types, *Fragaria Virginiana* with its varieties (which, as well as the Old World *F. vesca*, occurs all across the continent), and *F. Chilensis*, which is found all along the Pacific slope to Oregon, and probably to Washington Territory.

How many other fruits of value there are in this country yet undiscovered we can not tell; but it is to be hoped, if only for mere curiosity, we shall at some future time know of them.

As we in California, owing to our favorable climate, can successfully cultivate all the foreign Grapes, as well as nearly all the indigenous kinds of this continent, our wild varieties are not of so much importance to us as to the Eastern States; but if we needed them, they have such a start with these already in the East, and seedlings, whether from crosses or otherwise, can be so easily produced and selected, and reproduced in so short a time, that they have nearly arrived at a state of perfection, and we could if we wished avail ourselves of these.

Attention may be paid to the low Blackberry or Dewberry, and to the Sand Blackberry of the South, in order to lay the foundation of a greater diversity of excellent sorts.

Cranberries and Huckleberries will hardly admit of much improvement,

unless it be increase of size, or greater change with respect either to acidity or sweetness.

The *Asimina* (or Western Papaw) and the Persimmon are the chief of the wild fruits which have evidently many capabilities, that may in all probability be developed in the future. Several better varieties from spontaneous seedlings, of both Persimmons and Papaws, have been found, and can therefore be selected from. "The Custard Apple of the West Indies gives some idea," says a late writer on Pomology, "of what might be made of our Papaw, when ameliorated by cultivation and close selection from several generations."

Our climate and soil, and general freedom from noxious insects and the "black-knot," on this slope, are much in favor of our American Plums improving upon their wild forms, if they were systematically attended to.

In nuts, too, there is a considerable field for improvement; but we rather look, at present, for the older States to take the initiatory steps in these matters, than a new and most productive State like California, successful in so many varieties of pomological and other productions. This success and favor from Nature are apt to lead to contentment and supineness, and we are inclined to be very well satisfied with the advantages we so fortunately possess, instead of branching out toward further labor and speculation in the fruit way.

The first Strawberries of the season (two pounds) appeared in the market on the 13th of April. They were raised by R. Syer, of San Jose, and shipped by him to Levy & Co., 310 Washington Street, and sold at \$2 per pound. This is nearly a month later than usual, the first in 1873 having arrived on the 13th of March; but this fruit had not been received in any considerable quantity

up to the last of April, the present season, and will not be in abundance until the first week in May. On the 10th of April other fruits had undergone no change since the previous week. The California Orange crop showed but few signs of exhaustion up to the last of April. Tahiti Oranges were then plentiful at 25c. to 50c. per dozen.

Vegetables were rapidly improving at the end of April. Green Peas and Asparagus were abundant then, at greatly reduced prices. The former were quoted at 6c., and the latter at 5c. to 8c., per lb. New Potatoes were received in considerable quantities, much improved in size and quality; but prices continued firm at 5c. to 8c. per lb. Rhubarb was down to 6c. @ 8c. per lb. Other vegetables were at the prices of the previous week.

Another cargo of Tahiti Oranges arrived on the 10th of April, and, though prices were slightly reduced, they did not interfere to any great extent with the sale of the California product. Bananas sold at 50c., and Mangoes at \$1, per doz.; Smyrna Figs, 35c. per lb.; Apples, by the box, delivered, \$2 @ \$2½; Italian Chestnuts, 50c. per lb.

As late as the 20th of April, Marrowfat Squashes were very scarce, and prices high. Tomatoes from Mexico sold at 25c., New Potatoes 5c. to 6c., per lb.; Spinach 6c., Lettuce 15c. to 20c., per doz.; Salsify, 6c. to 8c. per bunch; Potatoes, by the sack, delivered, \$2 to \$2½ per 100 lbs.

A few pounds of Strawberries were received daily along the middle of April, but brought fancy prices. The crop is very late, and the demand unusually large, the prices up to the 20th of April being double those usually obtained for the first lots received. The delay in the Strawberry crop has been very favorable for the sale of Oranges. The

receipts from Los Angeles were liberal, and the demand active, notwithstanding the abundance of Tahitian fruit. Consignments of Eastern Cranberries arrived by rail during April, and met with fair inquiry. The Australian steamer brought a shipment of Sydney Lemons and a few boxes of Oranges. The market is still well supplied, and the venture did not prove very remunerative. About 400 pounds of Strawberries were received on the 21st of April, and sold from first hands at 35c. to 60c. per lb. About the 22d of April the weather set in warm, the berries ripened rapidly, and by the 25th liberal supplies of this delicious fruit began to come in.

During the last week of April the market was thoroughly glutted with Asparagus, and although prices were reduced to low figures, the supply was too large for the demand, and considerable quantities had to be dumped. The glut in Asparagus was due in part to the decreased consumption caused by the abundance of Green Peas. Rhubarb was plentiful, but, owing to the light supply of fruit, was in good demand. Marrowfat Squash was very scarce at that time, and prices further advanced.

On the 22d of April about fifteen chests of Strawberries were received, but the demand was very active, and prices were still high. The crop will, no doubt, be immense, and of good quality owing to the late favorable spring weather. The last of April the supply was plentiful enough to bring prices down to reasonable figures. Receipts of Los Angeles Oranges kept well up, about 600 boxes having arrived by steamer and many more expected. Asparagus was, towards the last of April, only one cent per pound.

Following are the quotations: Apples, choice, \$1 50 to \$2 50 per box;

common; 75c. to \$1 25 per box. Oranges, Tahiti, \$18 to \$20 per M.; Los Angeles, \$15 to \$45 per M. Lemons, Sicily, \$10 to \$12 per box; Malaga, \$10 to \$12 per box; Los Angeles, \$15 to \$30 per M. Limes, \$10 to \$12 per M. Bananas, \$2 to \$3 per bunch. Pine Apples, \$5 to \$8 per doz. Cocoanuts, \$7 per 100. Dried Fruit—Apples, 6c. to 7c. per lb.; Peaches, 9c. to 10c.; Pitted Plums, 16c. to 18c.; Figs, 6c. to 8c. per lb.; Strawberries, 20c. to 25c. per lb. Oregon Apples are in good supply. Oranges are plentiful, and of good quality generally.

During the first part of this month (May), Strawberries arrived in great quantities, the crop being very large and good in quality. Berries, Currants, etc., will be very plentiful ere long, the past rainy season having been greatly in their favor, and the lateness of the spring also being rather an advantage to all fruits than otherwise.

The receipts of Strawberries during the first part of May increased from 300 to 400 chests per day, but the demand still exceeded the supply. We expect that, in the height of the season, the shipments will reach 1,000 chests per day. The first Gooseberries of the season were received about the 1st of May from the Sacramento River, and were retailed at 25c. per lb. Cherries began to appear in small quantities the first week in May.

The last steamer from the southern coast brought over 200,000 Los Angeles Oranges—an unusually heavy shipment for this time of the year. The demand for this fruit, although it is very fine, has somewhat fallen off since the advent of Strawberries, and prices are a shade lower. In other fruits, no change.

ASHES invigorate all kinds of trees.

Correspondence.

CALYCANTHUS.

Editor California Horticulturist:

A correspondent—Keystone—in the April number of this magazine, in his communication on the "Vigorous Condition of Stockton Plants," makes inquiry about "a shrub which was very common in the gardens of the interior of Pennsylvania, and in all the Middle States, etc." This is undoubtedly what is popularly called "The Sweet-scented Shrub," or Calycanthus, (Allspice-tree, Linn., natural order, *Calycantheæ*), a small North American shrub, remarkable, chiefly, for the agreeable aromatic fragrance of its blossoms. There are five species; all are deciduous, and have chocolate-colored flowers, which, though destitute of petals, are not the less interesting, the loss being compensated in the large colored calyx. The plants are rather tardy of propagation, which is best effected by means of layers.

I have noticed in the small ravines of Sonoma Valley, a wild species of this shrub. This was in bloom when I saw it, though the flowers were smaller and not so delightfully odorous as our cultivated sort.

E. J. HOOPER.

SAN FRANCISCO, April 21.

ASPHALT paper is employed for wrapping silks and other articles to be protected from moisture. Tubes made of this paper are about one-fifth the weight of iron, and may be used for the conveyance of water.

SILKS are by some manufacturers treated with a solution of acetate of lead to increase their weight; poisonous properties are thus at times imparted to the tissue in question.

Editorial Cleanings.

FLOWERS FOR THE SICK.—In an upper room in a poor tenement-house lay a sick child, wasted with fever and the prostration which followed. It had seemed impossible to arouse him, or excite the slightest interest in anything. The young lady who had carried her flower-basket to the room selected a bunch of shining golden buttercups, and held them up before the child. The dull languid eye brightened, the tiny emaciated hand opened to receive them; too feeble for a spoken word, the smile that flitted across the wee white face was eloquence enough. The fingers closed tightly over the simple flowers that were like yellow sunshine to the little sufferer. When a second visit, with fresh flowers, was made on Thursday, the boy's mother said, "Jimmy would not lay the flowers out of his hand while he was awake; only when he slept could I put them in water to freshen a bit, for he must have them in his hand again as soon as he waked." Sure enough, the little fellow still held his withered treasures, which had been more to him than doctors' visits or prescriptions. Fresh flowers from the basket brought a smile and look of grateful recognition to his face; the long, weary hours of convalescence were lightened and brightened for one little sufferer by the Flower Mission.—*Harper's Magazine.*

THE NEW "INSECTICIDE."—Hot alum-water is a recent suggestion for insecticide. It will destroy red and black ants, cockroaches, spiders, chintz-bugs, and all the crawling pests which infest our houses. Take two pounds of alum and dissolve in three or four quarts of boiling water; let it stand on the fire until the alum disappears; then apply

it with a brush, while nearly boiling hot, to every corner and crevice in your closets, bedsteads, pantry shelves, and the like. Brush the crevices in the floor of the skirting or mop-boards, if you suspect they harbor vermin. If, in whitewashing a cellar, plenty of alum is added to the lime, it will also serve to keep insects at a distance. Cockroaches will flee the paint which has been washed in cool alum-water. Sugar barrels and boxes can be freed from ants by drawing a wide chalk-mark around the edge of the top of them. The mark must be unbroken, or they will creep over it, but a continuous chalk line, half an inch in width, will set their depredations at naught. Powdered alum or borax will keep chintz-bugs at a respectful distance, and travelers should always carry a package of it in their hand-bags, to scatter over and under their pillows, in places where they have reason to suspect the presence of such bedfellows—*German-town Telegraph.*

ALMOND ORCHARDS IN MARYSVILLE.—The *Appeal* says: "There are several young Almond orchards in this vicinity, and all of them appear to be in the most prosperous condition. The largest orchard is owned by Mr. Taylor, of Washington, Yolo County, and is situated a few miles north-east of the city, near the terminus of Brown's Valley grade. This orchard covers several acres. The trees are now four years old, and are in full blossom, and apparently will yield largely. Ex-Alderman Blodgett has also on his lot, corner of I and Seventh streets, a fine orchard of Almond-trees, three years old, and which are very promising. The Almond has been quite extensively planted in this city and vicinity, and the experi-

ment is proving a great success. The soil and climate is as favorable as for Peaches and Apricots, and at no distant day large crops of Almonds will be grown hereabout."

ASPARAGUS.—Among the profitable shipments which have been made to Eastern markets within the last three or four years is that of Asparagus. This vegetable can be grown here so as to place it in the Chicago market nearly three months in advance of that grown on the other side. One man in the vicinity of Sacramento has a field of not less than twenty acres in Asparagus. Most of his shipments are made to Chicago, a car-load being made up for a single shipment. His Asparagus field has yielded him a net profit of a thousand dollars an acre for some time. It will probably be good for a like profit for many years to come.—*Foot-hill Tidings, April 20.*

DR. WOODS relates the following circumstance, which appears to show that sometimes, at least, malarial poison is to be found in water, and not in the air: Two ships were dispatched simultaneously with troops from Algeria to France, both under similar circumstances, with the exception that the supply of water had been drawn, in one case, from the low, marshy lands where ague was prevalent, while the other ship had taken water from a locality situated at a greater elevation, and where the disease was unknown. The passengers on the first transport were generally seized with remittent fever, whereas no case of illness occurred on the other vessel.

A Fig orchard at Mormon Island, in Sacramento County, contains 1,000 bearing trees of the White Smyrna variety.

THE Fresno *Expositor* has the following from Borden: "Friedlander & Chapman are planting the largest Almond orchard in the world—30,000 trees. They have ninety acres of Alfalfa, which is looking very fine. They are growing Flax, Tobacco, Buckwheat, Castor Beans, and have the finest garden in the valley, in which they have growing Oranges, Almonds, Dates, Sugar Cane, etc."

THE *Garden* relates that cuttings have been taken from England to Victoria, and worked with success nine months after they were separated from the parent plant.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING APRIL 30TH, 1874.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office).

BAROMETER.

Mean height at 9 A. M.	30.18 in.
do 12 M.	30.18
do 3 P. M.	30.17
do 6 P. M.	30.16
Greatest height, on the 14th at 12 M. and 15th at 9 A. M.	30.36
Least height, on the 10th at 6 P. M.	29.89

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	56°
do 12 M.	61°
do 3 P. M.	60°
do 6 P. M.	55°
Greatest height, on the 22d at 3 P. M.	71°
Least height, on the 10th at 6 P. M.	49°

SELF-REGISTERING THERMOMETER.

Mean height during the night	45°
Highest point at sunrise on the 30th	56°
Lowest point at sunrise on the 6th	41°

WINDS.

North and north-east on 5 days; north-west on 4 days; south-west on 7 days; west on 14 days.

WEATHER.

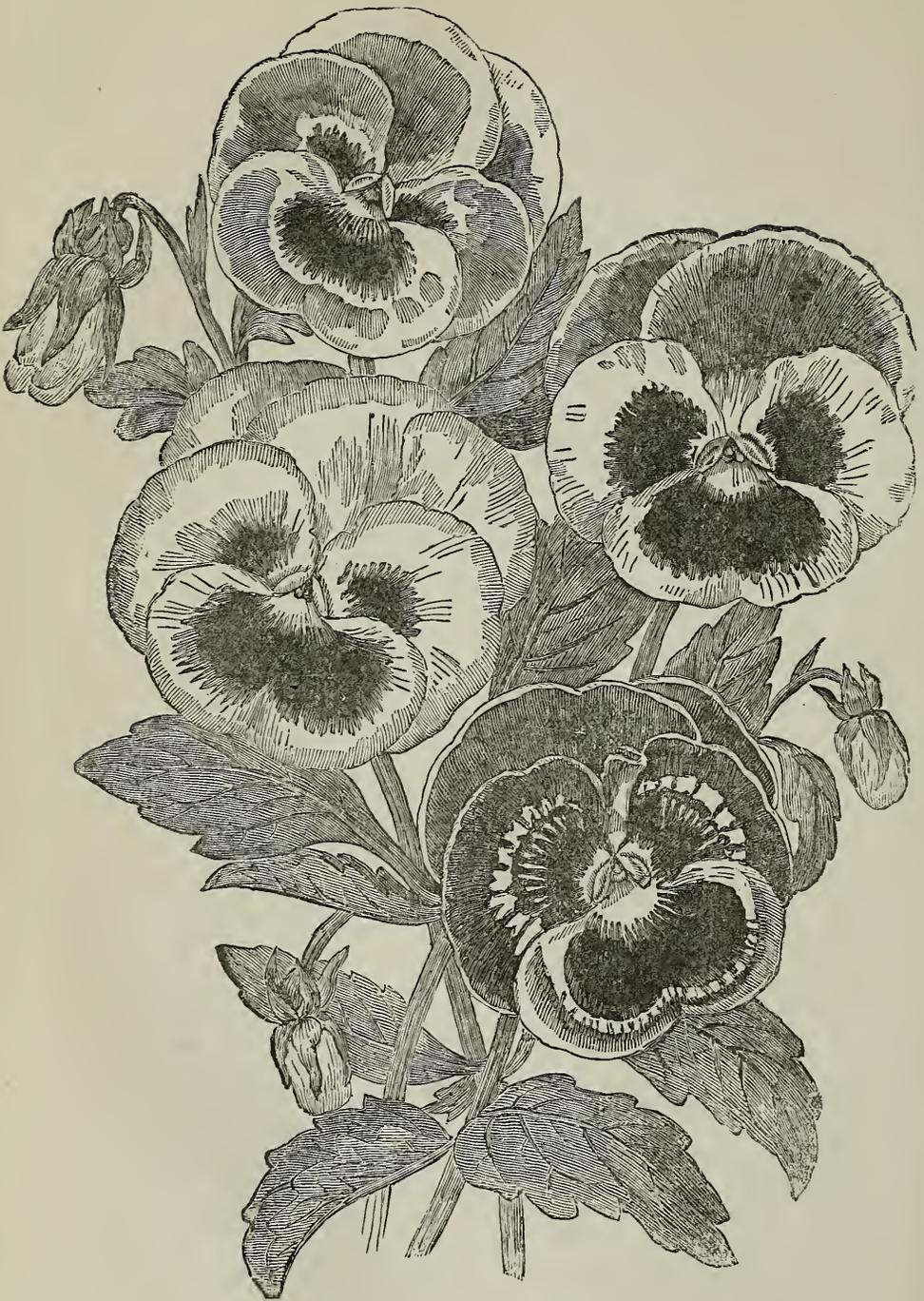
Clear on 12 days; cloudy on 7 days; variable on 11 days; rainy on 7 days.

RAIN GAUGE.

April 2d	0.02 inches.
.. 4th	0.08 "
.. 5th	0.01 "
.. 10th	0.03 "
.. 12th	0.62 "
.. 13th	0.03 "
.. 30th	0.25 "

Total	1.04 "
Previously reported	22.52 "

Total rain of the season up to date.....23.56 "



PANSY (*Viola tricolor*).

T H E

California Horticulturist

AND FLORAL MAGAZINE.

VOL. I.

JUNE, 1874.

No. 6.

PASSIFLORA (PASSION-VINE.)

BY F. A. MILLER.

Nearly all the varieties of the Passion-vine can be grown successfully in the open air; and, considering the beauty of their flowers, it is surprising that so few of them are cultivated here—the old variety of *Passiflora cœrulea*, with here and there a specimen of *P. edulis* or *P. coccinea*, being nearly all we see. They are fast-growing climbers, ever-green, and can not fail to give general satisfaction. Several varieties produce edible fruits, such as *P. edulis*, *P. alata*, *P. incarnata*, *P. quadrangularis*, etc.

As to the origin of the name, I extract from the *Treasury of Botany* the following interesting paragraph:

“These singular and beautiful plants are chiefly natives of tropical America, a few being indigenous in Asia. The name was applied from the resemblance afforded by the parts of the plant to the instruments of our Lord’s Passion and its attendant circumstances. Thus, the three nails—two for the hands, one for the feet—are represented by the stigmata; the five anthers indicate the five wounds; the rays of glory, or some say the crown of thorns, are represented by

the rays of the ‘corona,’ the ten parts of the perianth represent the apostles, two of them absent—Peter who denied and Judas who betrayed our Lord; and the wicked hands of His persecutors are seen in the digitate leaves of the plant, and the scourges in the tendrils.”

I further note the following remarks from the same author, on the edible fruits which some varieties bear:

“The part that is eaten is either the fleshy axil attached to the seeds, or the juicy pulp in which they are imbedded. This pulp has an agreeably cool taste in some species, and a sweet mawkish flavor in others. In the West Indies the pulp is sucked through a hole in the rind. Fruits of the *Granadilla* and some other of the edible species are commonly seen in the Paris markets, and occasionally in Covent Garden, as they not unfrequently ripen in this country.”

Although so many of the species furnish edible fruits, they are nevertheless not devoid of useful qualities in other parts. Thus the root of *P. quadrangularis* is stated to possess powerful narcotic properties, and to be used in the Mauritius as a diuretic and emetic; the roots of *P. contrayerva* and *P. normalis*

are considered as antidotes to poison, and the flowers of *P. rubra* are stated to be used in the form of a tincture, for their narcotic effects, in the West Indies. *P. fetida* has a reputation as an expectorant, and as a remedy in hysteria and female complaints; its leaves are also employed for poultices in inflammatory affections of the skin. The bitter and astringent leaves of *P. laurifolia* are used as anthelmintics, while those of some other species are mentioned as being employed in intermittent fevers. But, aside from all these qualities, I would recommend the cultivation of the Passion-vine for ornament, and particularly some of the new varieties produced by hybridization, the flowers of which are really grand and beautiful. I cultivate the following varieties, and they are doing well:

Passiflora alata, the flowers of which are dark red and very fragrant; the ray or crown is white, spotted black and purple. A most exquisite variety.

P. Decaisneana, a hybrid with large scarlet flowers.

P. quadrangularis, found in Jamaica; flowers large, rosy red, green upon the outside.

P. cœrulea grandiflora, native of Brazil; flowers white, with a blue crown; a fine variety, and very hardy.

P. princeps (*P. racemosa*), from Brazil, an exceedingly fine variety. The flower is of a fine scarlet, its crown dark rich blue, borne in racemes. This is one of the most effective varieties.

P. trifasciata, cultivated mainly for its beautiful variegated foliage. This variety may be considered a greenhouse plant, as it does not seem to succeed well in the open air here.

All of these named varieties may be freely propagated by cuttings at almost any time, provided that the wood be sufficiently hardened.

TREE-FERNS.

The Balantium or *Dicksonia Antarctica* is the most noble and stately of all the species of Tree-ferns. The stems are both tall and stout, attaining, in its native country, as we are told, from thirty to thirty-five feet in height, and measuring from one to two feet in diameter. Upon the summit of these stately stems is borne a grand crown of dark green, plume-like fronds, ranging from three to ten feet in length. The young fronds are beautifully arched, but with age they bend over and become pendulous. It is a native of the mountain gullies and ravines in Tasmania and Australia.

Tree-ferns are a genus of stately and beautiful plants, of which about two hundred distinct species are known to botanists, though few have, as yet, found their way into our conservatories. Most of those which we have are imported from New Zealand, Australia, and Tasmania. The expense of importation and their slow growth have, thus far, made them costly luxuries. They serve a double purpose, however, in decorating the conservatory in the winter and the lawn in summer. When warm weather is upon us, the tubs in which they are grown may be set out of doors, thus making an ornament than which there can be none finer or more highly prized.

A writer in *The Garden*, speaking of the best way to construct a Fern-house, says: "If no natural ravine or dell exist in the garden, make one; for there is no necessity that a Fern-house should have high glass sides, or any light at the sides. Therefore I would have the bottom several feet below the surface. By this means, height is obtained at little expense, and the plants will not outgrow their accommodations. It is not absolutely essential that Tree-ferns

should be grown in such a house. They will thrive admirably in any ordinary conservatory, and are especially adapted to those places where, from want of sunlight and other causes, any other class of plants would not live. Avoid over-potting. There is no necessity for the annual moving that soon makes them unwieldy. In Germany large Ferns and Palms are seen growing in comparatively very small tubs or pots. The secret of their being kept in good health lies in a little extra supply of water."

In potting Tree-ferns use equal parts of good peat and loam, mixed with sharp sand. They thrive best in a moist air, and the stems should be frequently sprinkled with the syringe.—*The Flower Garden.*

THE ELM (ULMUS CAMPESTRIS).

BY E. J. HOOPER.

The Elm (natural order *Ulmaceæ*) is universally allowed to rank second only to that undisputed monarch of the forest, the

"Lord of the woods! the long surviving Oak."

The majesty, dignity, grace, and beauty of its form, the rapidity of its growth, the ease with which it may be propagated and cultivated, its adaptability to the soils most prevalent among us, and the value and almost universal applicability of its timber, have all so combined in its favor, that it would be difficult to name any tree more generally prevalent both in Europe and in the United States, especially the eastern portion of the latter.

This species of Elm will grow, and even thrive, on very inferior land; but a dry, rich, and strong clay or adobe soil is that in which it most delights.

On such, though the rate of growth is less rapid than on lighter lands, the timber produced is more valuable, being of very close and tough texture, and almost the weight and strength of iron, and it is applied to many economical and agricultural purposes. Its twigs yield excellent charcoal. The bark is used occasionally as an astringent medicine, and, like that of the Lime-tree, is sometimes manufactured into ropes and mats. The inner bark of the American Slippery Elm is well known for its external and internal applicability as a softener and soother in sores and coughs. This tree produces its leaves so abundantly as fully to justify the epithet applied to it by Virgil:

"Fruitful in leaves, the Elm."

They were used by the Romans as fodder for their cattle, and are spoken of as superior, in this respect, to those of any other tree. It is said that twenty pecks of these leaves dried, will go as far as thirty pounds of hay.

Few, if any, of our timber trees exceed the Elm in height, and the epithet "lofty" is peculiarly applicable to it. It averages from seventy to one hundred feet in height, and often attains a yet greater altitude, with a trunk of four or five feet in diameter. The branches of one kind partake of an upright, and those of another an elegant drooping character. The spray is light and slender, and spreads in alternate angles from the branch. The leaves, which are smaller and more numerous than those of most trees of equal size, are rough and harsh to the touch, having small gutters in them; of deeper green when fully matured than those of many other trees, and rather glossy on the upper surface. The blossoms are formed upon the shoots of the preceding year, in the form of a spicated ball,

about the size of a nutmeg, and of dark crimson (or purplish) color. This bloom sometimes blows in such profusion as to thicken and much enrich the spray. It appears very early in the spring, some time before that of many other trees.

The Elm is rather deficient in the distinctness of character which distinguishes the Oak and the Ash, and this is a good deal of a defect, for strong characteristics in vegetation are a great source of picturesque beauty. But though it may want the twisted massive limbs, the stupendous trunk, the thick expansive head of the one, and the easy graceful stem and drooping airy foliage of the other, yet, in the dignity of its form, in the loose yet light masses of its foliage, in the beauties of its spring and autumn tints, the Elm possesses characters peculiarly its own, and those which render it one of the principal ornaments of our fields and pleasure-grounds. Its shade is said to be rather beneficial than injurious to surrounding vegetation, and its lofty and umbrageous growth furnishes a protecting shelter and screen to pasture-grounds in exposed districts.

Elms are often planted around cemeteries. In such localities it is even more prevalent than the Yew. Grey associates the Yew and the Elm in his Church-yard Elegy:

“Beneath those rugged Elms, that Yew-tree’s shade,
Where heaves the turf in many a mouldering heap,
Each in his narrow cell forever laid,
The rude forefathers of the hamlet sleep.”

The Elm as a shade tree in the very heart of our cities is a great acquisition, as may be seen in our post-office lot, and gives a peculiar beauty and interest to the sidewalks and streets, as it does in the rural districts, blending its

high form, and spreading its light and verdant and sometimes drooping canopy alike beside the stately mansion, the humble cottage, the church-yard, and the highway. Milton says:

“Not always city pent, or pent at home
I dwell; but when spring calls me forth to roam
Expatriate in our proud suburban shades
Of branching Elm that never sun pervades.”

This species of Elm (*campestris*) produces abundance of suckers or shoots from the root, and by these it is readily propagated, though it is generally increased in nurseries by layers from stool plants. These, when rooted, can be at once removed to their destined site, and after that require very little attention. I will close this notice of an ever favorite tree by giving some appropriate lines by a good poet:

—“To the sylvan realm
I turn my steps; and see! yon glorious Elm
Proffers so close a shade, that e’en the dew
(As if cool morn still o’er the greensward threw
Her sheltering veil) within the chalice flower
Lies safe, unconscious of the noontide hour.
Here, then, where scarce a straggling beam
invades
The leafy twilight; here, where eve’s soft shades
Seem stealing on mid-day, embowered I lie,
Till Phœbus’ steeds shall gain the western sky;
And thoughts, like lights and shadows o’er the
grass,
As bright, as transient, o’er my mind shall pass.”

RECENT experiments have demonstrated that by putting cut-flowers in a vase, with a little water, under a glass shade, they will be preserved for a long time in fresh beauty. Some Maiden-hair Fern thus treated was as perfect at the end of a fortnight as when it was first placed under the glass. It is suggested that this blooming might be still further prolonged by inserting the flower stems in wet sand instead of in water alone.

THE WILD SHEEP OF CALIFORNIA.

I have been greatly interested in studying their habits during the last four years, while engaged in the work of exploring these high regions. In spring and summer the males form separate bands. They are usually met in small flocks, numbering from three to twenty, feeding along the edges of glacier meadows, or resting among the castle-like crags of lofty summits; and, whether feeding or resting, or scaling wild cliffs for pleasure, their noble forms, the very embodiment of muscular beauty, never fail to strike the beholder with liveliest admiration. Their resting-places seem to be chosen with reference to sunshine and a wide outlook, and, most of all, to safety from the attacks of wolves. Their feeding-grounds are among the most beautiful of the wild Sierra gardens, bright with daisies and gentians, and mats of blooming shrubs. These are hidden away high on the sides of rough cañons, where light is abundant, or down in the valleys, along lake-borders, and stream-banks, where the plushy turf is greenest, and the purple heather grows. Sweet grasses also grow in these happy Alpine gardens, but the wild sheep eats little besides the spicy leaves and shoots of the various shrubs and bushes, perhaps relishing both their taste and beauty, although tame men are slow to suspect wild sheep of seeing more than grass. When winter storms fall, decking their summer pastures in the lavish bloom of snow, then, like the blue-birds and robins, our brave sheep gather and go to warmer climates, usually descending the eastern flank of the range to the narrow, birch-filled gorges that open into the sage plains, where snow never falls to any great depth, the elevation above the sea being about from 5,000

to 7,000 feet. Here they sojourn until spring sunshine unlocks the cañons and warms the pastures of their glorious Alps.

In the months of June and July they bring forth their young, in the most solitary and inaccessible crags, far above the nest of the eagle. I have frequently come upon the beds of the ewes and lambs at an elevation of from 12,000 to 13,000 feet above sea-level. These beds consist simply of an oval-shaped hollow, pawed out among loose disintegrating rock-chips and sand, upon some sunny spot commanding a good outlook, and partially sheltered from the winds that sweep passionately across those lofty crags almost without intermission. Such is the cradle of the little mountaineer, aloft in the sky, rocked in storms, curtained in clouds, sleeping in thin, icy air; but, wrapped in his hairy coat, nourished by a warm, strong mother, defended from the talons of the eagle and teeth of the sly coyote, the bonnie lamb grows apace. He learns to nibble the purple daisy and leaves of the white spiræa; his horns begin to shoot, and, ere summer is done, he is strong and agile, and goes forth with the flock, shepherded by the same Divine love that tends the more helpless human lamb in its warm cradle by the fireside.—*John Muir, in Overland Monthly for April.*

THE influence of forests in drawing moisture from the heavens may be seen from the experience of San Diego, California. Previous to 1863, there was yearly a rainy season which made the soil nourishing and productive. In 1863 a destructive fire swept over the greater part of the country, cutting down the luxuriant chaparral, and blackening the hills. Since then there has been no rainy season at San Diego.

MOUNTAIN MEADOWS, LAKES, AND
PRAIRIES.

BY DR. HENRY DEGROOT.

WEAVERVILLE, TRINITY CO., CAL., MAY, 1874.

In my last letter to the HORTICULTURIST my remarks were mostly confined to a description of the forests, grasses, and farming resources of Trinity County. Let me now say a word of certain other products and natural features of this region, the most of which are common also to Klamath and Siskiyou counties. The entire surface of this north country consists of lofty mountains, skirted occasionally by a narrow margin of foot-hills, the whole being cut by numerous deep cañons, through which flow many large streams. There is but a limited amount of bottom lands along the streams, nor is the area of the foot-hills at all extensive. The prairies and natural meadows here are mostly found far up the sides and sometimes quite upon the tops of the mountains. In Trinity County we have a number of these meadows situated at an altitude of six or seven thousand feet. They generally consist of the low borders of little lakes, which, becoming the receptacles of innumerable rills, send off great streams that go bounding in cascades down the sides of the mountains. The water in these lakes, coming from the snowy heights above, is pure and cold, and so deep that it wears always a dark blue tinge. As the most of these lakelets have been appropriated by the ditch-builders for reservoir purposes, the beautiful little meadows that surround them are doomed to early extinction. But their loss will not be great, their situation rendering them unavailable for either hay-making or pasturage. Farther north, among the Salmon River and the Klamath mountains, there are many small prairies

which grow the blue bunch-grass in great profusion early in the season, at which time it affords excellent feed for stock. But this grass so dries up before the summer is over as to leave little nutriment, forcing the cattle to seek other localities for subsistence. Farther north and west we encounter

THE FERN LANDS,

none of which are found in Trinity or other places to the south. All over the State this plant is met with in the woods, but is of diminutive size and scattered growth. Only in these and still more northern regions does it attain a large size and take possession of extensive tracts of land to the exclusion of all other plants, and sometimes also of shrubs and trees. Over on the Klamath and westward along the coast these patches of Fern occur, covering often large areas. Indeed, the entire slope of the mountains along the northerly side of that river for forty miles above its mouth is covered with this worthless stuff; for nothing will feed upon it, nor has it ever been found of use for any other earthly purpose except as a shelter for the rattlesnake, which abounds here, or to hide the bears and rabbits that sometimes seek it for a covert. It might to be sure be used for the extirpation of still more worthless plants, if such there are, inasmuch as none could resist its destructive tendency were it suffered to extend itself among them. But the remedy would, however, be as bad as the disease, since, once rooted, it is exceedingly tenacious of existence, many deep plowings being required to destroy its vitality. While this weed does not so far inland nor anywhere on the mountains reach so large a size as along the coast, it nevertheless attains a height of three or four feet forty miles up the Klamath, and stands so thick that it is difficult

for a man to make his way through it. As it is always green, and covers the mountain sides with but little interruption, it imparts to the country, when viewed from a distance, a cheerful aspect. Seen a little way off, one ignorant of its character would take this growth to be a luxuriant coat of grass or crop of unripe grain. Even when aware of the hideous deception, the traveler through these vast and lonely mountains is betrayed into a sort of vague looking for farm-houses and other evidences of human habitation, where these great clearings open before him and so much rank verdure meets the eye. Only at long intervals, however, are any signs of improvement visible; these consisting mostly of the cabins of the *squaw men*, who support themselves and a numerous half-breed progeny by hunting, fishing, and the cultivation of a few acres rescued after a sturdy conflict with the all but irrepressible Fern.

Throughout the counties of Del Norte and Klamath, reaching south into Humboldt, there extends along the sea-coast a belt of Fern land having an average width of about one mile. The growth of this plant is here enormous, the stems being heavy and standing from six to eight feet high. The soil along this belt, as is generally the case with these Fern-growing lands, is very rich; producing, when once thoroughly reclaimed, abundant and unailing crops of vegetables, grass, and all kinds of grain except Wheat. Berries, and fruit save the Apple and Grape, also do well here. Owing to excessive dampness, there being much fog even in summer, the Wheat suffers from rust, and the Grapes are mildewed, while the Apples are insipid and spongy. But there is no better country for growing vegetables and the cereals other than Wheat, or for dairying purposes, in the State.

It takes three or four years to thoroughly exterminate the Ferns, after which there is no more trouble. Nor is there much difficulty even with the first plowing, unless the Ferns are very stout, since these plants keep the ground as friable as if it had been in summer fallow for years. Owing to its fertility and the ease with which it can be cultivated, the Indians of Oregon, Washington Territory, and British Columbia select this land for their Potato patches; and, though kept under steady culture for generations, it never fails to bring a good crop. There is then a likelihood that these Fern-clad mountains, now such absolute and lonely wastes, will some day be reclaimed and converted into productive pasture-land and grain-fields. The hills where now the worthless brake waves in perennial verdure may yet be yellow with cereal harvests, and purple with clouds of Peach and Apple blossoms—possibly white with bursting bolls of Cotton. The soil and climate of these northern counties may have capabilities of which we little know. The orchards of Trinity County ripen the Apple and the Almond, and the Rose blooms in her gardens all winter. The productive energies of nature reach here over a scale the range of which has not yet been fully tested. No experiments have been made with the more tender tropical plants and fruits; the farthest we have gone in that direction being to make trial of the Fig, Orange, and Almond, all of which have been perfectly matured in the open air. This entire region, with the exceptions named, is marvelously well suited for the raising of fruit. The snow upon the mountains, while productive of no severely cold weather—ice of any considerable thickness never forming in the valleys—has still the effect to keep the atmos-

phere at a low temperature, securing to the orchardist the benefits of a northern winter. The trees and vines, thus restrained from a too early budding, escape the later frosts, insuring for the crop greater certainty, and for the fruit superior flavor.

This county produces a variety of wild fruits and berries, some of the latter ripening early and possessing an excellent flavor. This is especially true of the Blackberry, which might therefore, no doubt be grown to advantage by our horticulturists; since, besides being prolific and hardy, their fruit would come into the market long before that of the cultivated varieties. The same might be true of the Gooseberry and Currant, also indigenous to this region. Besides these products, we have here the wild Peach, Coffee, and Nutmeg, while a little farther north and over on the coast we find the Whortle, the Sallal, and the Salmon berry. The wild Peach, Coffee, and Nutmeg bear only a partial, scarcely more than a fancied resemblance to the cultivated. It is even doubtful whether they belong to the same species, or whether they could by the most careful culture be rendered useful as a condiment of comestible purposes.

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ORNAMENTAL HEDGING.—The Hemlock is the evergreen *par excellence* for ornamental hedging. Combining as it does all the excellencies of other species, it will in addition thrive beneath the shade of trees where most kinds would fail. Those living near its native haunts may remove the young plants (say nine to eleven inches high) to their gardens; set them closely on the north side of a fence; erect a slight protection over them, and then at the end of two years they will answer for hedging in the full sun.—*N. Y. Tribune.*

OUR FRUIT MARKET.

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Soon our markets will teem with the new season's fruit, ripening now under the influence of a genial sun, and citizens and strangers will again wonder at the size and profusion of the pomological wonders of California. Everything has this year conspired to render the fruit crop remarkably abundant, and, uninjured by frosts or fierce winds, it will come into this market by hundreds of tons from all parts of the State, but especially from the fertile counties that surround the bay of San Francisco. In some localities the fruit crop of this year will be double that of 1873. From the valley of Santa Clara comes the most cheering intelligence, but all fruit-growing localities report an unusually favorable prospect. There is probably no State in the Union better suited for fruit culture than California. Out of upwards of eighty million acres there are at least twenty-five millions that might be devoted to it. Indeed, much of the land that is worthless for any other purpose will return a profit of hundreds of dollars per acre when planted with fruit-trees. We have, therefore, in our future fruit crops a source of untold wealth, beside which all the far-famed riches of our placers sink into positive insignificance.

The fruit season lasts for half the year, from July to December, though long before July the first new fruits make their appearance in our city markets. In fact, this season, though particularly late, Strawberries have already begun to come down in considerable quantities, suitable for eating, but not for packing. During the remainder of the year, between December and May, the market is occupied chiefly by foreign fruit—Oranges, Lemons, Bananas, Cocoa-nuts, etc.—from the islands of the

Pacific Ocean. During the regular fruit season, the lower part of the city, the streets, wharves and stores—particularly in the neighborhood of Davis and Washington streets—are filled to overflowing with fruit of all kinds, packed away in cases or baskets, or open for the inspection of purchasers, and of the water-front *gamins*, who are ever on the alert to make free but unbidden lunches. Here at least one-fourth of all the fruit brought to the city is wasted, having been damaged in transit or in handling. It sometimes litters the sidewalks and streets, and it is a pity that the idea of selling it cheaply by auction to poor families has not occurred to some one, long ere now. It would not only put thousands of dollars into the pockets of the growers, but would afford citizens of small means an opportunity of obtaining a cheap and wholesome addition to the domestic larder.

The fruit supplies of San Francisco come from widely distant portions of the State, but are, generally speaking, all derived from particular localities. The valley surrounding the Bay of San Francisco, and along the Sacramento and Old rivers, contain the most fruit-growers. The counties of Sonoma, Solano, and Napa to the north, of Santa Clara to the south, and of Alameda to the east, are the chief supply source near the bay. In the valley of the Sacramento, in the county of the same name, and along that river for a great distance, may be found some of the greatest fruit-ranches in the State. Some of these cover hundreds of acres, and contain thousands of fruit-trees. From the southern counties, particularly from Los Angeles, we used to receive large quantities of Grapes, but of late years our supply from this source has been diminishing. Its crops of Oranges and Lemons, of which were ship-

ped last year to San Francisco five million, and seven hundred thousand, respectively, do not sell so well in San Francisco as they otherwise would were the competition from Mexico and Tahiti withdrawn. The great bulk of the Grapes sold in San Francisco come from Sacramento, Sonoma, Solano, and Santa Clara. The Muscat, the Tokay, and the Mission are the principal varieties. The former have been introduced of late years, the latter nearly a century ago by the Spanish missionaries. Very few of the Sonoma growers send their Grapes to market; out of several hundred not more than half a dozen. The reverse, however, is the case as regards Solano, where comparatively little wine is made. Apples come from all parts of the State—the best from the northernly portion. Pears are shipped principally from Alameda, Napa, and Santa Clara, the Bartlett variety coming chiefly from the latter county. The Sacramento River and the Old River send us most of the Peaches that reach this market. Old River also sends us Apricots, as also do Sonoma, Napa, and Santa Clara. Thence also come Plums, which are likewise furnished in considerable quantities by Alameda. The Cherries sold in San Francisco grow principally to the north and east of the bay, in Alameda, Napa, Sonoma, and Colusa. Nectarines are grown extensively in Sacramento, Sonoma, and Napa, while some Quinces are raised in the counties surrounding the bay. The southern counties, of course, principally produce our Oranges, Lemons, and Figs, though they are grown in small quantities even as far north as Sonoma. Sufficient attention has not, however, as yet been given to the cultivation of Oranges and Lemons, the result of which is that we import immense quantities from Mexico and Tahiti, and shall

for a considerable period continue to do so.

The transportation to market of the fruit crop of the State employs during the season a great number of people. On the Sacramento river the steamers load from ranch to ranch, most of the fruit-ranches being contiguous to the river. From the Santa Clara Valley fruit is carried chiefly by rail; but the steamer *Reform*, which is able to carry several thousands of boxes, has already begun to make trips to and from Alviso, and will prove a formidable competitor of the railroad. Of course, all the Oranges and Lemons come by steamer, and are mostly loaded at Los Angeles. As before intimated, the amount of fruit damaged while being brought to market is very great, and it is surprising that means for its prevention have not been long since adopted. A great deal of the loss is caused by imperfect packing. Apples come in boxes of sixty pounds each, the receipts averaging 1,500 boxes per day during the season. The receipts of Peaches, in thirty-pound boxes, average 4,000 boxes per day. Pears are packed somewhat in the same manner as Apples, and average 1,500 boxes per day. Grapes are in boxes of all sizes, principally of thirty and forty pounds each. The quantity sent to the market is immense, individual growers sending as many as 10,000 boxes during the season. Receipts of Plums, in sixty-pound boxes, average 1,000 boxes per day. Fifteen hundred boxes of Apricots per day are received in the market. Cherries and small fruits come in boxes of twenty-five pounds each, and in chests containing from 120 to 150 pounds, in quantities not easily ascertainable. The prices on the wharf last year of the various kinds of fruit averaged as follows per box: Apples, 30

cents to \$1.25; Pears, \$1.25 to \$2.50; Peaches, 75 cents to \$1.25; Apricots, per pound, 4 cents; Plums, 3½ cents; Grapes from 1½ to 5 cents; Blackberries, 9 cents; Gooseberries, 7¾ cents; Cherries, 10 to 25 cents. Freight by steamer and rail was nearly as follows: Apples, 12½ cents per box; Peaches, 10 cents; Grapes, 10 to 12½ cents; Plums, 10 cents; Pears, 12½ cents, and the smaller fruits 35 cents per chest. What is the most notable in the matter of price is the immense discrepancy between wholesale and retail prices, it being sufficient to say, without entering into particulars, that the latter was from twice to five times the former. In this, as in other cases, the middlemen make immense profits. The value of the fruit crop of last year may be estimated in round numbers at two millions of dollars. From the tenor of the reports from all portions of the State the fruit crop of 1874 will exceed that of last year by about fifty per cent., and as the largely increased demand for packing will keep up the price, its value may be estimated fairly at three millions of dollars. Of the total yield, about one-fourth is packed throughout the State; from one-fourth to one-third is damaged by carelessness, and the remainder enters into consumption as fresh fruit. The export last year aggregated about two millions of pounds by rail and sea, of which two-thirds were packed. California fruit in an unpacked state has been shipped even to Great Britain. Fruit-packing forms now one of the most important of our industries; in a decade it will outstrip all. And when more attention shall be paid to Orange and Lemon culture, we shall be able to ship millions of boxes yearly to Eastern cities, which are now in great part supplied from the Mediterranean. —*Chronicle.*

VIOLA TRICOLOR (PANSY).

BY F. A. MILLER.

The Pansy (see frontispiece) is a universal favorite, known and admired by everybody, and for many good reasons it is deservedly called the "Pet of the Garden." The richness and endless variation in color of its flowers, its pleasing form, the easy manner in which it can be cultivated (producing an abundance of flowers both early as well as late in the season, and more particularly with us in California throughout the entire winter)—all of these excellent qualities make it indispensable to the garden. Quite a number of names have been given to it, irrespective of its botanical appellation. With the French the most popular name is "*Pensée*;" with the English, "Heart's-ease;" with the Americans, "Pansy;" with the Germans, "*Stiefmuetterchen*."

The Pansy is generally considered an annual, because it is every year raised from the seed, and flowers within two months from the time of planting the seed. With us it is a perennial; but I have always found that to have good Pansies, fresh seed should be sown at least every spring, and a much better result can be accomplished by planting twice a year, early in spring and in autumn. Pansies, if allowed to become old, are apt to degenerate in color as well as in size. They require a very rich soil, a good deal of moisture, and a cool atmosphere; it is difficult to have fine blooms during very warm weather. The best Pansies I have had were planted either in October or in April, although in the peculiarly cool temperature of San Francisco fine flowers may be had all the year round, provided that the soil is well manured and kept moist.

The most important matter in the culture of good Pansies is to obtain the

very best of seed; and frequent failures in obtaining first-class flowers must be attributed to the inferiority of the seed, which should only be gathered from the very finest and most perfect flowers—a precaution which seedsmen generally will not take. Purchase your Pansy seed from a house of well-established reputation. The seed may be sown in a box or pot filled with light sandy soil, and covered about one-eighth of an inch with the same material. Water well after sowing, and if you have any glass handy it will be conducive to the early germination of the seed to cover the box or pot with it, giving a little air during pleasant weather. The glass should be painted or whitewashed upon one side. After the plants are up, and have produced their second leaves, the glass may be taken off altogether; but a little shading from the sun during bright days is advisable, until the plants have become sufficiently hardened to be planted out wherever they are desired to grow and flower. Before planting, the ground should be well enriched, thoroughly spaded, and moistened if dry. Water gently after transplanting, and in a few days the young plants will be sufficiently established to take care of themselves.

Pansy seed may also be sown in the open ground, if the soil is well prepared and of light sandy quality. The former method, however, is the best and most certain.

At some future time I will say a few words as to the qualities of a good Pansy, and the varieties which are now considered the best.

THE best labels for plants and trees may be made by writing with a lead pencil on slips of zinc, and attaching these to the plants by copper wire.—*Horticulturist*.

CALIFORNIA ORCHARDS.

In the Marysville *Appeal* of a recent date appeared an account of the Briggs orchard near Yuba City, which is claimed as one of the foremost in the State. This may be, but it is surpassed by an orchard in Alameda County—that of Wm. Meek, at San Lorenzo. Mr. Meek may be said to be the pioneer fruitier of this coast, having as early as 1847 planted the first orchard of grafted trees in Oregon. In 1860, Mr. Meek commenced farming and fruit-growing at San Lorenzo, Alameda County, and is now the proprietor of 2,200 acres of as fine farming and fruit land as there is in the State of California.

Mr. Briggs is stated to have 210 acres under fruit-trees. Mr. Meek has 260 acres. Almonds he makes his specialty, of which he has 27,000 trees in the ground; he has also 225,000 Currant-bushes, 4,200 Cherry-trees, 3,000 Plums and Prunes, besides large numbers of the best varieties of Apples, Pears, Peaches, Apricots, etc. He has experimented with Oranges and Lemons, and this year has commenced raising from the seed quite a large number. He is confident of their success, as they have done well in the orchard of his neighbor and old Oregon partner, Mr. Lewelling.

Mr. Meek is equally successful as a grain-grower. In 1872 he had 30,000 centals of Wheat and Barley, and promises to have as large a crop this year. He is careful in the rotation of his crops, and pursues in this regard the following course: Pastures five or six hundred acres one year; the next year he sows it with Wheat and Chevalier Barley, part each, and the third year with common brewing Barley. Alameda Barley is the best in the market, and brings the highest price. This year, in

addition to his many other crops, Mr. Meek puts in 40 acres of Tobacco. His nursery embraces almost every variety of fruit-tree, and this season alone he has sold 20,000 Almond-trees. The Almond is subject to injury by frost, as it blooms early, but the crop promises to be the most profitable raised.

ORIGIN OF DOUBLE GERANIUMS.—Jean Sisley, a correspondent of the *Garden*, gives the history of the origin of double Pelargoniums, which was furnished him by M. Henri Lecoq, of Clermont-Ferrond, France. The first double Geranium is growing in M. Lecoq's garden, being, so far as known, an accidental seedling. Seeds from it, however, were sown by a horticulturist of that place, and several young double plants were produced, one of which was sold to M. Van Houtte, of Ghent. In 1869 M. Emile Chate, of Paris, went to Clermont-Ferrond, and, liking the young double Pelargoniums, purchased two. In June, 1864, he sent some flowers of one to M. Victor Lemoine, at Nancy, who immediately used the pollen of these flowers to fertilize *Beaute de Surresnes*, a pink Zonale. From this cross was obtained *Gloire de Nancy*. In 1867, by the same process, he obtained *Madame Lemoine*, the first double cherry pink Zonale, and Wilhelm Pfitzer, double scarlet; *Marie Lemoine*, one of the best double bloomers; *Le Vesuve*, double red, and *Victor Lemoine*. Many others, sold in England under different names, were raised from seed of Victor Lemoine. In 1872 Mr. Sisley obtained the first white double, *Aline Sisley*, by cross-breeding a white single with a double red seedling. Several choice double Geraniums have been grown at Ghent and in different places in France, but the origin of our best double flowers is given above by Mr. Sisley.

TREATMENT OF POULTRY, AND OTHER FARMING ITEMS.

BY MRS. A. HONKARENKO.

Last year, in the month of July, my husband, being disappointed in his city pursuits, proposed to me to retire into the country. We purchased a tract of eighty acres of land in the Eden mountains, Contra Costa County, Cal., where we only found a beautiful view and a plenty of rocks. In the month of August we built a small cottage. My husband found some old lumber, and put up a chicken-house of unique architectural proportions, but after being white-washed it looked quite neat. In September we bought three dozen chickens, paying \$21 for them. I have charge of the chicken department.

Many of the fowls are affected with scrofula in their feet and legs. This disease is contagious, and those that are suffering from it are not good layers, because they can not exercise enough. One of the hens died from the disease; we dissected her, and found her choked with yolks. We took a cracker-box and converted it into a hospital for fowls affected with scrofula. I made a salve of white beeswax, lard, and turpentine, and by rubbing their legs with this preparation once or twice a day for one week, they soon became well.

To keep fowls healthy, the chicken-house should be kept clean and dry, and the floor covered with sand. Morning and evening I feed them with cracked wheat or barley; in the winter with cracked barley, adding fat and a little pepper to make them lay. Several times I found eggs without shells, so I burnt some bones to supply lime, and gave it to the fowls to eat.

I have sufficient eggs for my own use daily, and, from the middle of September to Christmas day, I received \$18

from eggs that I sold during that time. I have also kept eggs for hatching, and now have the pleasure of feeding 100 beautiful fowls.

At the same time we purchased a cow with a young calf. She was a fearfully wild animal. We kept her staked, and when my husband milked her he had to tie her head and feet. Many times she has run over the hills like an infuriated tigress, until she was entirely exhausted. Now we have so domesticated her that she is like a kitten, and no trouble to milk. We had milk all winter from this wild animal, and made a little butter Christmas week.

Last November we planted Spinach, Lettuce, Peas, Radishes, and 130 hills of Potatoes. We had new Potatoes in the month of February for our own use, and the other vegetables all winter. Now we have planted vegetables of every kind, and soon expect to enjoy a fine vegetable garden. The ground is good; rocky in some places, but if the rocks are removed it is very fine land. We planted 250 Currant-bushes, 200 Grape-cuttings, Raspberries, Gooseberries, etc. They are all growing rapidly. We also put down some Olive-trees for experiment, and they are growing well.

[The foregoing indicates plainly what can be effected among our foot-hills, almost without means, even by inexperienced persons. There is no "Pike County" system of farming about such people. They work with Providence, and do not wait for Providence to do everything for them, as is too much the case in our prolific climate.—*ERROR.*]

In a report on the enamels employed to coat the interior of cast-iron cooking utensils, M. Poggiale states that many of these enamels contain lead, and dilute acids at the boiling point of water extract the lead in a majority of cases.

GRAFTING APPLE-TREES IN THE TOP.

An Illinois correspondent of *The Country Gentleman* gives the following very sensible views of top-grafting Apple-trees, which are of substantial practical value: "As a means of obtaining an early bearing and hardy Apple orchard, the following has been recommended by a friend of mine, a young and successful nurseryman and orchardist. Whether his advice should be followed or not, I am not so sure about; but it is possible some of the facts he gives, and the reasons he offers, are worth repeating. It is a fact that from twenty to thirty per cent. of the bearing Apple-trees in this part of the State have been killed within the past three years; and it is another fact, that of the young budded or grafted trees planted out at the same time, seventy-five per cent. are either dead or in a dying condition. Moreover, it is to be observed here that there is a wide difference in the development of trees of the same varieties, coming from different nurseries. Some trees make only a moderate wood growth, commence bearing early, bear continuously, and, it must be admitted, show early signs of decay; while others of the same varieties make a good deal of sprouty wood growth, a dense head, bear rarely before the tenth or twelfth year, never largely, and appear to be as much given to producing wood as the other is to making fruit. My friend thinks this difference in development is due to the difference in the mode of propagating adopted in the different nurseries. Trees from a small nursery, where the buds and cions for grafting are procured from mature and bearing trees, make trees that have very moderate wood growth, and bear early and heavily; others from large commercial nurseries, being ne-

cessarily propagated from the young and refuse sprouty growths of one, two, and three year old stocks, retain that habit when they get to be trees, and are therefore comparatively worthless. This striking difference in the character of trees procured from different nurseries, has never been sufficiently accounted for, and my friend's suggestion may help to solve the problem. His reasons, then, for recommending the setting out of seedlings, allowing them to remain one or two years in place and then top-grafting, are that native seedlings are undoubtedly hardier than those brought from a distance, and that since it is almost impossible to ascertain at the time of purchasing whether the young trees have been budded or grafted with buds or cions from bearing trees, or from the shoots or suckers of young ones, it is the shortest, cheapest, and surest way of procuring an early bearing orchard to procure cions from bearing trees and have them inserted. A seedling transplanted at three years may be grafted at four years and will bear two years after, while the average budded or grafted trees will not do as much at the tenth year.

NEW TUBEROUS-ROOTED BEGONIAS.

We feel assured that any plant bearing the name of Begonia will be received with favor by a flower-loving public. The easy culture, extreme beauty, and delicacy of the old varieties, have made them special favorites with amateurs. The new tuberous-rooted plant, the bulbs and seeds of which are imported this year for the first time, far exceeds in its size of flowers and brilliancy of colors anything of the kind that we have before possessed. The bulbs produce vigorous, branching, and at the same time sufficiently compact plants.

These are, generally, from twelve to eighteen inches high, and are covered, during the whole summer and until frost fairly sets in, with bright and elegant flowers.

B. Sedeni is, perhaps, the finest of these new varieties. It has large flowers, and is the most brilliant in color. Its reddish stems are furnished with a few long woolly hairs. The leaves are long, relatively narrow, unequal sided, and of a pale green color. The flowers have four to five petals—according to the sex—some of which measure an inch and a half or more in length. They are of a fine blood-red or flame color. If grown in a greenhouse or conservatory, it should have little heat and a great deal of air. It seems to thrive best in a rich, well-mixed soil of fresh earth and decayed leaves. It may be set out in the open border as soon as all danger from frost has passed, and it will succeed as well in the shade as in the sun. Although the flowering season lasts for several months, the plants should be taken into the house or conservatory as soon as frosty weather approaches. As our seasons in this latitude are somewhat short, we would suggest the keeping of the plants in a pot, which may be plunged in the flower border during warm weather, and taken up, at any time, without retarding their growth. As soon as the flowers cease to appear, the plant should be allowed a period of rest, and from this time they should be watered less and less, until the watering is stopped altogether. They should then remain undisturbed until the next season.

B. Sedeni may be increased by cuttings, but the method of doing this is somewhat peculiar. The cuttings must not be buried, as thus they would be apt to die without rooting. Place a little sod on slightly raised and partly

shaded ground, and there, in open air, prick the cuttings, and they will soon root themselves. If there is too much light, shade them with a sheet of paper, or other article. The cuttings should be started soon enough to have time for rooting and forming bulblets before the end of the growing season, as otherwise they would not endure the winter.

The origin of *B. Sedeni* is not certainly known. The generally accepted opinion makes it a hybrid of *B. Boliviana* and *B. Chelsoni*, but it is superior in beauty and much richer in color than either of them. The culture of the other tuberous-rooted varieties is about the same as that given for *B. Sedeni*.

The *Begonia Boliviana* has been longer and is better known than *B. Sedeni*. Its flowers are not so large, and they do not correspond so exactly in color with the stems as do other varieties of *Begonia*—its stem being of a more greenish tinge.—*The Flower Garden*.

DON'T NEGLECT THE TREES.—Take care of the old ones, they are the connecting links between the present generation and those who have lived before us. There is a certain sombre solemnity that broods over the aged forest patriarch. Among its gray old boughs we read of other days, of an unremembered past, and a sort of grandeur steals into our contemplations, and a feeling of awe, akin to reverence, casts its unsought and yet pleasing shadow upon our souls, and our thoughts revert back to the fitting generations of mankind which this old tree has so long outlived. And so in the young trees, which we care for so gently, there dwells a nature that inspires delight, and distills it through all the gentler streams of life. And they too will live to inspire love, and awe, and reverence in com-

ing generations, which will be realized as "an emanation from the indwelling spirit of Deity."—*The Evergreen*.

A FLYING VISIT TO SOME OF THE
NURSERIES AND FLORAL ESTAB-
LISHMENTS IN OAKLAND.

BY E. J. HOOPER.

Going from San Francisco and its prevalent strong and cold winds and dense fogs, to Oakland, where these unpleasant visitants are moderated even in the small distance between the two cities—and consequently where the air is milder and more agreeable to both man and vegetation—one can not but be impressed with the difference in the general growth and luxuriant appearance of the trees, shrubs, and flowers, compared with those in our great metropolis. (It is true there are some exceptions to this in our city, in the locations of our nurseries.) It has been my pleasure lately, in the highest flush and glow of this delightful spring-time of the year, to view and enjoy the vast floral wealth for which this, as a second Brooklyn to New York, can most justly take credit to itself—or, rather, which she owes to a rich soil and a most genial climate; although the earth, being adobe, has required many additions by man of fertilizing substances, and much mechanical labor.

This beautiful suburb, if one may be permitted so to designate it, may very appropriately be called "*The Garden City*;" for these lovely gardens, in connection with princely mansions or handsome dwellings, everywhere abound. What glorious masses of brilliant and variously colored plants and flowers arrest the enchanted and ravished eye, in whatever direction it may turn! Nature here seems to possess the fullest opportunity and greatest means to perform

her best with her arborescent and floral powers. In the East, unless with great pains and labor, and only in rather exceptional cases, can we witness any similar display to such as here meets our naturally impassioned gaze. In our much-favored clime and soil on this coast, every plant and flower in favorable locations grows and flourishes with a vigor, gigantic size, luxuriance, and even glow (because of abundance of efflorescence) of color, which we do not often witness in any of our Eastern States.

In one of the best and most neat and systematically arranged and managed of the floral-sale places in Oakland—the Bay Nursery—I observed a large bed of Carnations so densely thick with flower shoots (it was too early in the season for them to be in full bloom) that they were almost as abundant as the ears in the most closely planted grain-field that could ever be seen, and these were mostly very choice varieties. It was the same with the Roses, Verbenas, Gladioli, Heliotropes, Heaths, and indeed almost any of the families of flowers that can be named. The beds of all the Roses (even of one-year-old cuttings) and other flowers, in the nurseries I had time to visit—namely, of Messrs. Hutchison, Nicholson & Davis (successors of Mr. Kelsey) Nolan, and Hampton & Turnbull—were one dense and gorgeous mass of bloom, and each Rose individually of gigantic size according to its variety. Here there is no killing outright or cutting down of plants by the frosts of winter, nor any great care nor shelter needed. Here the soil, too, seems to suit them well, it being formed chiefly of a rather kind and favorable loam with the adobe foundation, in which, generally speaking, flowers of more substance and depth of coloring will be produced than in

that of a soil of a lighter or more sandy character.

It is hardly necessary for me to say, that the establishments of the nurserymen and florists I have just named—especially Messrs. Hutchison, Nicholson & Davis, and Hampton & Turnbull (although these latter gentlemen have commenced in a new location), are in a flourishing condition, and well supplied with an excellent stock of both old and new plants. This is mostly well known to the public at large. Among these florists, it is not too much to say, there are to be found as many as 1,500 varieties of plants; and at this time there are in these gardens, distributed more or less among these florists, 250 of them in full bloom and in the most luxuriant condition. Not less than 150 sorts of Roses are blowing in these establishments, 100 varieties of Pinks and Carnations, twenty-five of Lilies, thirty of Tulips, seventy-five of Geraniums (the "double white" Geranium among them, now beginning to be in plenty), and many rare plants, among which is that beautiful plant the *Atropodium citratum*, *Abutilon Thompsonii*, *A. camelio*, and the attractive, fine-colored, striped or fringed, and costly plant, *Yucca gloriosa*, a large specimen of which in the gardens of an Oakland amateur is valued at over \$100, and is much handsomer, at least in foliage, than the *Yucca* or Spanish Bayonet, now in bloom at the Military Academy, which has attracted much notice. Its flowers are similar in color and in lily or bell-like form to those of the *Yucca filamentosa* (which throws up several flower-stalks), but much larger in stalk and flowers; similar in habit to the Agave, and about one-fourth the size of a well-grown Century Plant.

Among many other fine plants in these nurseries are *Astilbe Japonica* (*Spiræa Japonica*), *Eucharis Amazonica*, *Co-*

bæa alba (a fine climber), *Cobæa scandens variegata*, *Salvia splendens alba*, *Pasiflora princeps*, *Begonia Boliviensis*, *Streptozia regince* (Bird of Paradise), *Deutzia crenata flore pleno*, Dwarf Pomegranate, *Spiræa Billardi* (rose-colored flowers), *Alyssum maritima fol. var.*, *Clematis purpurea grandiflora* (the purple-flowering Clematis, large and beautiful), White Wistaria, Purple Magnolia (very rare) from Japan, Double White Thorn, Double Red Thorn, etc.

ALL ABOUT THE GLADIOLUS.

It seems singular that all authorities should concur in deriving the word Gladiolus from the Latin *Gladius*, a sword; when the Latin word *Gladiolus*, a small sword, not only better indicates its habit, but is the very word itself. Its nominative plural, *Gladioli*, is certainly more euphonious than the monogrel sound, Gladioluses.

Upwards of twenty years ago the first seedling Gladiolus was produced by Van Houtte, who named it *Gandavensis*, from its native town of Gand. It is a hybrid of *Psittacinus* and *Cardinalis*, which may be considered the parent stock of the almost innumerable hybrids that have been since produced in France, Germany, England, and finally in the United States.

Inexperienced amateurs are wont to consider the production of a new variety by hybridization as a complicated process, understood and practiced successfully only by professional florists. This is a sad mistake, since the operation is simple enough; and by the mistake we deprive ourselves of the stirring delight of creating new combinations, which are all our own, and to which we are entitled to confer such names as fancy may suggest. It is true that a little of care, and a good deal of pa-

tience are requisite, as we watch and protect them *ab ovo usque ad mala*, but we are glad to forget this when, during the third or fourth season, a flower of rare beauty unfolds itself, unlike, in some of its features, any other flower upon the face of the earth.

The simpler, though less reliable mode of hybridizing, is as follows: Suppose we wish to mix a Shakspeare with a Vulcan. Just as soon as a flower of each is fully opened, and the pollen of the Vulcan is matured upon its anthers, remove the anthers by their filaments, and rub them carefully and persistently over the trifold stigmas of the pistil of the Shakspeare. But the fecundation of the pistil of the Shakspeare may already have been accomplished from its own pollen, so that, in order to feel *confident* that our union has been effected, (as in the safer method) the anthers of the Shakspeare should be removed as soon as the flower has sufficiently developed to enable us to do this without injury to the corolla. A very fine clean brush may be used in collecting and spreading the pollen from the anthers of the Vulcan to the pistil of the Shakspeare, at a later stage of maturity. The enlargement of the ovary will soon afford us unmistakable evidence that our experiment has proved a success.

The seed-pods (three-celled and containing from fifty to seventy-five winged bulblets not larger than pin-heads) may be cut off with the peduncle when ripened, or left until the bulbs themselves are taken up for the winter. Separated from the cells of the pericarp, and placed in envelopes or boxes in a temperature not less than thirty-two, they will require no further attention. In the ensuing spring, as soon as the ground has mellowed, prepare a little plat four feet square in a warm exposure. This

will be found ample for the growth of a thousand seeds or more. Two inches of soil (two-thirds sod soil or leaf-mold, one-sixth old manure, one-sixth pure sand) should be thoroughly mixed, sifted, and firmly leveled over the plat. In the latter part of May eradicate all grass and seeds that may spring up from the soil, and re-pulverize and level its surface. Sow the seeds (it matters not how closely together so that they do not rest the one upon the other) and cover adequately—an eighth of an inch, perhaps—with a reserved portion of the above compost.

The first season's growth will consist of a single, slender, upright blade of grass, from two to four inches in height, and the seedling bulblet will be found, at its expiration, to have doubled, trebled, quadrupled its size. It will be noticed, therefore, that bottom heat or protection of awnings or boughs, etc., so generally recommended, are as needless as they are, sometimes, unattainable. Dispose of them for the winter precisely the same as before, and prepare a plat for the second season's growth the same as for the first, only adding an inch to its depth and planting the bulblets half an inch apart.

The subterranean stem of the *Gladiolus* is properly a *corm* destitute of fleshy scales, and yielding up its life in one season to the support of the progeny. Blooming bulbs vary from half an inch to four inches in diameter, and the flower of the one may be just as perfect as that of the other; so that we should not be influenced in our selection so much by size as by their depth, solidity, and symmetry.

Specific rules as to the composition of the soil in which it is advisable to plant the bulbs of *Gladioli* need not be presented. Their unsqueamish appetites and robust health insure a vig-

orous growth, if we will but avoid all low, heavy, damp situations, and supply a liberal admixture of sand and a surface dressing of manure. The constituents of the soil and size of the bulbs determine the depth at which they should be planted. If the soil be loose and sandy, and the bulbs large, four inches, measuring from the top, will not be found too deep, and will afford a strong support to the plant when in its perfection. As the soil is less sandy, they should be planted nearer the surface, limited only by a depth sufficient for the development of the new bulbs without exposure. When stakes are deemed necessary, stick them so that the plant will incline away from the stake and rest upon the yarn, which must be fastened around the flowering stalk just below the first bud. If planted in beds, they may be placed so that the bulbs almost touch each other, if so desired, since they derive very little lateral support, and their adventitious roots spread out scarcely beyond their own circumferences.

To insure a constant bloom through the summer and fall, until severe frosts; begin planting from the fifth to the fifteenth of April, depending upon the promise of settled weather. Nothing is gained by planting earlier: the bulbs remain without a thought of germination, likely to rot or to invite the attacks of worms by their external decomposition. The following experiment, made in the spring of 1871, is relevant. Don Juan, Vesta, and Meteor were planted March 23. Don Juan and Vesta appeared April 30th, and Meteor rotted. John Bull, Stella, and Le Pousin were planted April 5th, in the same soil, exposure, etc., and they also appeared April 30th.

Nor is it advisable, either, to start in pots. Our season and climate are perfectly adapted to their culture, and

what is gained by forcing is more than lost by the check they experience when plunged into the open ground. Dividing our collection into sixteen parts, we may continue to plant one part every week until the 1st of August; leaving the largest number of bulbs in those parts which are to bloom when we desire our finest display. Remove the bulbs from the earth when it is evident from the leaves that the plant has passed its fullest development. Those planted late in spring or early in summer need not be removed until after frost. Indeed, the fact that the surface of the ground may freeze without injury to the bulb, renders all solicitude upon this score unnecessary.

Various methods of preserving the bulbs and bulblets during the winter have been suggested. Merely placing them in small boxes with a cover of rags, tissue-paper, sawdust or sand, and avoiding a temperature above sixty or below thirty-two, is plainly the simplest, and may be relied upon as insuring their best health and vigor. The bulbs should be dried in the sun under cover of glass or in the window of a room. Two inches of the stalks should be left upon each, and to this a little ticket, with the name, may be easily and securely attached.

The bulblets, (varying in size from an eighth to a half inch diameter, and from one to fifteen in number) which form for the most part between the old and new bulbs, differ from the parents only in that they require one or more additional seasons of growth before they can bloom. They are just as true to every characteristic of the parent as the new bulb or bulbs that form above it, and flower the ensuing season. If, having a rare bulb, we desire to induce the formation of bulblets, it is well to dig down to its surface, after the leaves

have grown a foot, and gently scratch its sides until the cuticle is penetrated in various places.

Most of us, who are interested in plants, are possessed of an especial fondness for particular flowers, of which our friends, who view them through plain glasses, can feel but a slender appreciation. But, whether we view the *Glaucolus* as regards its prolific reproduction, its blooming period, its easy culture, its compactness, its freedom from insects, or its incomparable spikes of bloom, if it does not justify the furious enthusiasm which made a *Tulip* worth its weight in gold, it certainly merits to be ranked among our choicest flowers.—*The Flower Garden.*

TREE PLANTING.

With the rapid destruction of our forest trees, it is none too early to agitate the subject of replacing the trees by cultivation in some practical form. This subject is receiving special attention in some parts of the West, and individual farmers, communities, and clubs are setting out trees on a large scale. Will it not pay in New England? The production of wood for fuel and mechanical purposes would no doubt have a greater interest, but for the too vague ideas of the slowness of tree growth. There are trees that with proper cultivation will grow very rapidly; some, it is said, will acquire a circumference in five years of from eight to ten inches. With this rapidity of growth, it is easily seen that a few acres in a short time, with the prospect of a scarcity and a high price of timber, would make a valuable product. We mention different kinds of trees which are especially valuable for their wood and fruit, and are easily cultivated. One is the Chestnut, which is already

a specialty with nurserymen, who provide the small trees. But they can be grown from the seed. This kind of tree is adapted to rough, untillable land, much of which has been cleared up and is now going to waste. The Maple, which is of a little slower growth than the Chestnut, yet grows rapidly, and the wood is very valuable; some varieties are especially adapted to wet and swampy lands. For ornamental foliage and for sugar, the Maple should be one of the most popular of trees, and the timber is getting to be almost as valuable for mechanical purposes as some of the foreign woods. It was once stated that one Ash-tree in this country made over three thousand rake-handles.

We have thus spoken of forest-tree culture as a source of profit; and much more will be said, we are sure, of the practicability of this culture after it has been tried, for it is comparatively a new subject, and needs at least to be experimented upon to get the facts. That it will pay, on a small or large scale, there can be no question, if there was no other object but to raise trees for the timber. But we want more trees for their fruit, for their shade and protection, for fuel, and especially for their climatic influence; for the destruction of our forests has unquestionably had the effect to turn away the fall of rain, causing the drying up of springs, and the decrease of supply for our water-power fed by the small streams. If trees were planted upon the hill-tops of New England, they would break the force of storms, shield from the winds, and increase the fall of rain. Tree planting by the way-side or in orchards should receive more attention, and it may become a department in Agriculture that will be as successful as any other.—*New England Homestead.*

A LESSON TO FRUIT-GROWERS.

Last spring the bloom of the fruit-trees, as now, promised a very large crop of fruit of nearly all varieties, in all sections of the State. Then, as now, the weather up to the first of April indicated a plentiful supply of moisture in the ground to mature the crop promised. The orchardists therefore generally took no steps to thin out on those trees that were plainly setting too much fruit for them to mature in good condition, even for a favorable season. The season did not maintain during the summer the promises of the spring. The north winds of the latter part of April and May blew away the dampness from the soil, and even dried up the sap of the trees themselves. The fruit on the overloaded trees first felt the effects of the drought, and its growth was checked when not half size. The limbs of the trees, especially of the Peach, being deprived of the natural supply of sap and consequent elasticity, broke down under the burden they had been allowed to attempt to bear, and the orchardists and the country were great losers. The experience of the past season should teach our orchardists a lesson for a rule of action this. However this season may terminate, whether favorable or unfavorable to maturing the fruit, the only safe plan for our orchardists to pursue at this time is to thin out the blossoms, or the small fruit when set, on all trees indicating too great a quantity to well mature. The superiority in size and flavor of the fruit left after such thinning will abundantly pay for the labor of thinning, even should the season continue favorable to the end. However, should the present season fail to fulfill its present promises, as did the last, the precaution taken and labor expended by our orchardists, in thinning

out the present crop, will not only be well paid for, but their trees will be saved from injury and damage. We know that orchardists may look upon the thinning-out process as slow and expensive, but it has been found to pay, and pay well, in every other country, and most certainly would in this.—*Sacramento Record*.

THE FEVER-TREE. — A recent number of the *Scientific American* has an interesting article on the Fever-tree of Australia. The article is illustrated by a very perfect drawing of a branch with foliage and seed. We recognize at once in this cut our old friend the Blue Gum, with its botanical name of *Eucalyptus globulus*, whose virtues we have set forth in a number of articles. The sanitary qualities of this fever-tree were recently discussed by the French Academy of Sciences, with satisfactory conclusions. This tree is becoming very abundant in California. Probably not less than 100,000 young trees have been sold in San Francisco and Oakland this year. In the latter city there are trees of this species which were set out about twelve years ago. We judge that these trees are now about seventy feet high, and not less than twenty inches in diameter. But any one who will take the trouble to go out on Telegraph Avenue, to a point near the Military Academy, can verify these estimates.

Now it is not to be denied that there is an undesirable amount of malaria in California. There is hardly a town in the State wholly free from it. In Kern County, and in the rich bottom lands of the interior, malaria, or chills and fever, is very common. The Blue Gum possesses anti-febrile qualities, and so probably does the whole family of aromatic gum-trees. They will grow any-

where in the State where it is not too cold, and they grow with astonishing rapidity. The 160 acres plantèd with gum-trees two or three years ago by Mr. Stratton, now Surveyor-general, constitute a forest, with the promise of yielding more satisfactory returns than ordinary grain crops. If this fever-tree has this double value, it ought to be planted on every farm where it can be made to grow in California. — *S. F. Bulletin.*

BIRDS IN THE WOODS.—One can not go far into the woods in any direction without observing what a protest the birds utter at first. There are harsh screams, sharp notes of warning, and general scolding. Now, every bird has a great deal of curiosity to take a look at strangers. For a time they flit about in the tall tree-tops, and afterward begin to hop down to lower limbs, and, gradually descending, come to the ground, or on to low bushes. By remaining quiet an hour or two, a dozen or more will circle around within a few feet, turning their heads on one side occasionally, and quizzing in a saucy, merry way. In a little while one may be on intimate terms with the very birds which protested so loudly at his coming. They will tell him a great many secrets. The leaves of his book on ornithology may be a quarter of a mile square, but what can not be read on one day may be read on some other. Even an owl burrowing with a ground-squirrel, and both agreeing very well as tenants in common with a rattlesnake, may suggest questions of affinity and community which it might be inconvenient to answer at once. If you prefer to have some readings in the book of nature, you can turn down a leaf and go back the next day with the certainty that no one has lugged off the volume. And if

your finger-mark is a tree 250 feet high, there will be no great difficulty in finding the place.—*W. C. Bartlett, in Overland for April.*

FAST COLORS—HOW TO TEST THEM.

This is a subject that we are certain will interest not only the dyers, printers, and dealers in cloth and glove-leather, but also many other classes of manufacturers and consumers. Professor Stein, of Dresden, has recently published a little book on this subject, from which we extract a few tests which can be readily applied by persons who are not chemists, and who have no laboratories to work in.

Red.—A piece of goods is first boiled in soap-water, which should remain colorless or nearly so. Secondly, it is boiled in lime-water, which should be colored but little, if any, while the color of the goods must grow paler, or become brown or yellow. These simple experiments suffice to indicate the presence or absence of cam-wood, archil, saf-flower, santel, and the coal-tar colors.

Yellow.—The most permanent yellow is madder; the least so are Orleans and turmeric. Only those of the first class will stand washing. To test a yellow, it is first boiled in water, then in alcohol, and finally in lime-water. If the former are colored quite yellow, and the latter a reddish-brown tint, the color is not fast.

Blue.—This color is not fast, if on boiling with alcohol it gives to the liquid a red, a violet-red, or a blue color; or if, on warming it with muriatic acid and water, or alcohol, the liquid turns red or brown-red.

Violet and Purple.—Madder violets, and those formed by combining indigo-carmine with cochineal, are fast. If

fast colors are combined with fugitive colors, they lose their value. All violets are to be considered poor if they give up a considerable amount of color when boiled in equal parts of water and alcohol, and allowed to stand ten or fifteen minutes. Also, if they change to a brown or reddish brown by boiling in diluted muriatic acid.

Orange.—The goods are first boiled in water; if this is colored, the colors are fugitive. If the water remains colorless, the sample is next boiled with alcohol, to which it should give no color.

Green.—Diluted alcohol should not be colored blue, green, or yellow, when boiled with the goods, nor should muriatic acid acquire a red or blue color.

Browns.—Are not so easily tested. If, however, they give a red color to water, or a yellow color to alcohol, they may be considered as fugitive.

Black.—If, on boiling the goods in water containing some muriatic acid, it only imparts a yellow color to the liquid, the color is fast. If on the other hand the liquid acquires a red color, and the stuff turns brown or reddish brown, the dye is not permanent, but nearly worthless.—*Journal of Applied Chemistry.*

GROWTH OF TREES.—For the successful growth of trees, fruit, evergreen, and forest, it is essential that air and moisture penetrate to the roots. Therefore, unless the earth is made mellow upon the surface around newly planted trees, they “languish and pine,” and “languishing they die.” Turf or grass sod is usually very close and dense, and not only very effectually prevents the necessary aeration of the soil, but in many cases prevents sufficient moisture reaching the roots. Then never dig a hole in greensward or grass land to plant trees in.

Editorial Portfolio.

THE newness and freshness of California is a marked feature of interest to all visitors from abroad, and this inquiry is now rapidly extending itself, so that those who have been here once will surely be the forerunners of many friends, to whom the details of delightful sojourns and the novelties encountered here will be a constant source of delight, only to be fully gratified by actual experience. Recently we have had among us some of England's brightest literary men, who were struck with the marvelously favorable conditions of so new a country. These men were close observers; they inquired into the forces now here for the future development of so great a territory; they looked at the physical condition of the population, made comparisons with other sections of the country, asked about the manner and mode of bringing our many acres to the notice of the immigrant, discussed the best manner of fostering all interests conducive to the welfare and betterment of the working classes, and consulted our leading men upon a wide scope of topics.

What specially attracted our attention was the interest they took in our flora, making close inquiry and preserving most rare plants that came in their way. Can we fully estimate the benefit to come to us from such careful observers? Their associates are the learned of the world, and will not such investigations in a thousand ways come back to help us in our yet comparatively pioneer work? Beyond the seas, in crowded centres of population, they will appreciate the wide virgin domain here open for settlement.

In another respect we are highly pleased, and that is the commendable effort making on the part of the Central

Pacific Railroad Company in gathering the plant-life of this coast, for exhibition at the next Mechanics' Institute Fair to be held in this city. The company will also make such an exhibition an important feature of the Centennial Fair at Philadelphia in 1876. In this laudable work the Express Company of Wells, Fargo & Co. will render assistance in collecting and forwarding. Let us all lend a helping hand, and the results will, in a comparatively short period of time, greatly surprise us and the whole world.

WET AND DRY SEASONS.—We learn from Governor Stanford, President of the Central Pacific Railroad Company, that it is the purpose of the company to investigate the wet and dry seasons of California by felling one of the oldest Oaks to be found in the State; the locality to be well considered as to the distribution of the rainfall. They will take a tree that is say two hundred years old, make a clear horizontal saw-cut near the base (leaving well-defined faces), and by observing the layers or rings of growth of each year, they think it possible to note, with approximate accuracy, the rainfall during those two hundred years. This is an important matter for investigation, for it might to some degree foretell the future fall of rain on this coast—an all-absorbing subject to the agriculturist in this climate.

MECHANICS' INSTITUTE FAIR.—Progress is rapidly being made with the extensive building for the next exhibition of this society. It is projected on a vast scale, and will undoubtedly be one of the finest exhibitions ever held in this city. The Fair will open on the 18th of August next.

THE HUMEA ELEGANS PURPUREA.—This graceful biennial, with its showers of drooping, grass-like blossoms, may be charmingly used to give height and lightness to the centres of flower-beds and garden vases; serving, indeed, the same purpose as do ornamental grasses in a bouquet. It is also effective when used as a background, with standard Fuchsias, and other tall flowers, for beds that skirt the piazza and walls of the house. Though its minute blossoms are fascinatingly pretty when closely examined, they are not at all showy in form or color, and, apart from their undeniable grace, the plant may have few qualities to recommend it to general favor. But, in connection with more brilliant flowers, its mellow russet, wrought of tiny flecks of brightest hues, gives the effect of a Persian fabric, toning and blending to a rich and pleasant harmony the sometimes startling contrasts of the garden.

The *Humea* is a native of New South Wales, and belongs to the extensive and intricate order of the *Compositæ*. The seed should be sown in a moderate hot-bed early in the summer; then potted off and kept in the open air until winter, when the plant must be removed to the greenhouse to await its final setting out in the garden during the spring of the second year. It is well to replot the plants several times during the first summer, and each time into a somewhat larger pot. This process will so decidedly increase its strength and vigor as to amply repay the additional trouble.—*Flower Garden.*

THE operator's activity, in spring, almost regulates the whole season. Every weed ought to be cut down as soon as it appears, and the proverbial saying will be realized, "A garden that is well kept is easily kept."

REMARKS ON FRUIT CULTURE, AND
REPORT ON THE FRUIT AND
VEGETABLE MARKET.

BY E. J. HOOPER.

Take this year altogether, so far it is a most prolific one. There is a great abundance of all kinds of fruit except Apples. With regard to these, this is styled by some cultivators the odd or alternate year. In other words, it is found that Apples bear very fully only every other year. This does not refer to all sorts of this valuable fruit, but to the majority of them. From whatever cause this may arise, whether from the nature of some particular kinds, or from their habit of over-bearing one year and a consequent weakness and exhaustion the next, or for certain other reasons, there can be no doubt of this fact. No matter how these trees may be pruned, and otherwise treated, they will fall off in their profuse bearing every second year to about one-third less than their full bearing. This of course may happen at different times, and to the different cultivators in different localities. This year this happens to be the case at the Suscol orchards of Mr. Thompson.

With respect to Cherries this season, the north winds, although they have been far from frequent this spring, have diminished the productiveness of the May-duke, and some of the earliest sorts. These winds appear to have injuriously affected the blossoms in their earliest stage, and, consequently, these kinds will have a diminished crop. All the later varieties are bearing as full as usual, and their profuse crop every year does not affect their productiveness in this our favorable climate. Upon the whole, the generality of the fruits have been uninjured by frosts or blighting or drying winds.

Strawberries, though particularly late, when they did come came speedily, in vast quantities, suitable for eating but not for packing.

I have for several years referred to the immense profits made by middle-men. It is a great pity that the enormous quantity of fruit that is wasted because the middle-men can not obtain the prices they put upon it, is not purchased by some, and sold cheaply at auction to the poorer classes of the people. This would be a great advantage to the growers, and would afford citizens of slender incomes a good chance of getting a healthy diet to be added to the other food on their tables.

The Grape crop, in consequence of no injurious frosts, nor destructive insects, nor rot, will be vastly great this year, unless an inimical agent of some kind should arise between the present time and maturity. Every year the best kinds are being increased, and the more common, as the Mission, are being less planted. As to the Eastern sorts—the Catawba, Isabella, Ives Seedling, etc., etc., native seedlings—they are not of a quality sufficiently good to compete with the foreign ones, and are merely raised chiefly in gardens on trellises as fancy fruit, and for their beauty and delightful shade. Their pulp is comparatively firm, solid, and acid, and their juice, especially that of the Catawba, is very agreeable to the palate.

Our weather and climate this last winter and spring have been peculiar. We have had a fine and plentiful rainfall, but it has been attended with unusual cold throughout the winter and spring months. This would lead us to speak of changes of climate, probably, in all countries. It would appear that the climate of any particular region is not persistently the same through a long series of years. It is liable to be affect-

ed by agricultural operations, drainage, tree-planting, destruction or denudation of forests, change of ocean currents, and other circumstances. We have at some seasons cold when we should expect heat, and warmth when we had every reason to look for cold or frost. Meteorologists who profess to speak scientifically, fail to enlighten us on the cause or causes of these phenomena.

I have several times noticed that successful and deserving process of fruit and vegetable drying—the *Alden*—now in full operation at San Lorenzo and five or six other points in this State. This process is now fast becoming generally known. It removes the water from animal and vegetable substances in a few hours, by pneumatic evaporation. The conditions of the natural or common method of drying are such, that decay commences before evaporation begins, and continues through every stage of the process, until all the essential flavors, which constitute the charm of freshness, are lost. The most delicate fruits and berries, and the ordinary products of the farm and garden, are, when subjected to this plan, in from two to four hours deprived of water, and become also greatly reduced in bulk (for instance, three ounces of Pears dried by this process would by the ordinary method of canning have weighed two pounds—a grand item in the expense of transportation), and can, at any time, by simply soaking in cold water, be restored (for cooking purposes) to their original flavor, form, and substance. To quote the words of the circular in this business, which it requires nothing but common sense to indorse: “There are thousands of acres in California where all the conditions are favorable for the production, in the greatest abundance and perfection, of the finer varieties of fruits, such especially,

as Prunes, Plums, Apricots, and raisin Grapes” [the Muscat of Alexandria, for instance]; “fruits which can not be successfully raised east of the Rocky Mountains, and for which there is, and always will be, an unlimited demand.” Sun-dried fruit may be considered comparatively a failure. There were about eighty evaporators in full successful operation during last year, located in twelve States. The improvements made in this business, and the reduction in the expense of the machinery, etc., will doubtless render the cost of this method not too great for general introduction and adoption. The superior excellence of the fruits, etc., so treated will always make them command higher prices than the common dried fruits.

Since our last report all kinds of vegetables, of course, are greatly increased in supply, and much cheaper. Cucumbers have come in fast without protection. The first Currants and Blackberries were received on the 15th of May from Alameda; the last from Mr. Aughinbaugh. This Blackberry is a seedling originated by Mr. Aughinbaugh, and its arrival in market in a perfectly ripe condition sustains his claim that it is a month earlier than any other variety. The fruit is very large, and of fine flavor. Strawberries were still plentiful and cheap (at one time the market was glutted with them), up to the second week of this month (June). Cherries were received in great quantities all through the latter part of May, and are still in good plenty, and at reasonable prices. Gooseberries have been since the 15th of May sufficiently abundant and cheap. Currants became plentiful about the first week in June. About the 22d of last month the supply of Strawberries reached from 600 to 700 chests, say 60,000 pounds per day, and prices showed an important decline.

TAMARIX.

These very elegant and hardy shrubs should be more extensively used in our gardens and lawns. The flowers and foliage both are ornamental; the latter remaining till quite late in the season. Its numerous branches are profusely covered with very delicate, slender, thread-like leaves, which give them a feathery effect; somewhat like, but more elegant than those of the graceful Pines. The flowers are very minute, appearing in the spring before the foliage, and covering the plant with long terminal spikes of pinkish blossoms. The shrubs bloom a second time in the autumn, but not so profusely. They require a deep sandy soil, and present the best effect when planted singly in the grass. When once established, no further attention is necessary except an annual pruning. But this is of great importance. Cut them back, half way down, every spring, as otherwise the branches will grow scraggy and awkward.

The Tamarix is supposed to have received its name from the Tamarisci, who, in ancient times, inhabited the Spanish side of the Pyrenees. It grows plentifully on the banks of the Tanaris, in Spain. There are not many species, but all are easily grown in any temperate climate. As they thrive better where both air and soil are impregnated with salt, they are especially adapted for the gardens and lawns of sea-port towns. In England it is frequently found on the south coast, and often attains a height of from twenty to thirty feet, with a stem twelve inches in circumference. It seems to be the only shrub that grows well in positions exposed to the spray of the sea. It is said to be particularly beautiful in France on the road from Pontorson to Mount St.

Michel, where it forms high hedges to the extreme edge of the sea-sands. It was not originally a native of that place, but sprung up in its appointed time, when the salt waves took possession of the wide tract of meadow and forest.

The twigs of the Tamarix are considered slightly tonic, and its ashes yield a remarkable quantity of sulphate of soda. The celebrated manna of Mount Sinai is supposed to have been an exudation from one of the species of Tamarix, and to have been caused by a small insect of the *Coccus* tribe, which sometimes covers the larger branches. This manna-like substance consists entirely of pure mucilaginous sugar—a singular production, in view of the fact that the plants grow only in saline situations. The Tamarix may be propagated by cuttings taken off in the autumn.—*The Flower Garden.*

ORANGE CULTURE IN FLORIDA.—As evidence of what has been done in Orange culture in the State, we cite a few instances. Dummitt's grove, on Indian River, is perhaps the finest in the State. It cost its proprietor to take care of it last year \$1,000, and yielded 600,000 Oranges, for which he was paid \$11,000. This grove has 3,000 trees, which, with proper care, would average 3,000 Oranges each, and give an annual income of \$50,000 to \$75,000. H. L. Hart's grove, at Palatka, yields him an annual income of \$15,000 to \$20,000. Arthur Ginn's grove of 1,100 trees, at Mellonville, pays him \$12,000 to \$15,000 yearly, and is worth \$100,000. Besides these groves there are a great number of splendid promise; but, having been planted of late years, the incomes derived from them are as yet of little moment. Mr. De Barry, of New York, has a grove of 20,000 trees, near Enterprise. Mr. C. S. Brown, of New York, has one oppo-

site Palatka, of 1,200 trees; and Mr. James Patterson, of Toronto, has on Banana River a grove of 8,000 trees.—*Palatka (Fla.) Herald.*

THE CLOTH OF GOLD ROSE.

Andrew S. Fuller, of the *Rural New Yorker*, expresses doubt whether any of the newly famous yellow Roses are at all superior to the old and well-known "Cloth of Gold," and speaks thus of his experience with it: "More than twenty years ago I purchased a plant of the beautiful Noisette Rose, known as the Chromatella, or Cloth of Gold. It has been a favorite of mine ever since, and, although many competitors of a similar color have been introduced, like the Marechal Niel and Isabella Sprunt, still our old Rose is without a superior. Like some other varieties of this class, the plants do not bloom very freely upon their own roots until two or three years old, but then they make up for lost time. When grafted or budded upon strong Manetti or other free-growing stocks, the plants will bloom when only a few months old; but the novice in Rose culture is likely to allow suckers to grow from the roots of the stock, thereby robbing the graft of sustenance, soon destroying it. If a person can only have patience, and wait for a plant on its own roots to attain age or size, he will be well repaid in abundance of the most deliciously fragrant, large, pale lemon-yellow colored Roses that the most enthusiastic admirer of flowers could desire. A six-year old plant of this old Cloth of Gold Rose has been perfuming my greenhouse for several weeks, and to-day it is loaded with dozens of full-blown flowers, and half-opened buds; and, upon the whole, it is as grand an ornament as one could wish for conservatory or parlor. Plants

of this old Rose can be had very cheap of our florists, and no person who loves Roses should be without it. If a person has no greenhouse in which to keep the plants in winter, they may be bent down and covered with earth, or dug up and heeled in and then protected with coarse litter or manure."

Editorial Gleanings.

POISONOUS PLANTS.—Every year, and chiefly in the spring, we read accounts of poisoning by the eating of wild roots or plants. These cases are generally of children who meet with roots which they take to be familiar vegetables, such as the Parsnip or Carrot. The roots which are the cause of these accidents are usually those which belong to the natural order *Umbelliferæ*, or the same family as the Carrot and Parsnip, and some are easily mistaken, by inexperienced persons, for those useful vegetables. We have two species of *Rhus* which are poisonous to the touch. One of these is called Poison-ivy, and may be met with in almost any woods, running over rocks or ascending trees. The other species is a shrub which grows in swamps. Some people are much more susceptible than others to the poisonous influence of these plants. Indeed, many people can handle them with impunity, while others are poisoned by a touch, and some think that the neighborhood of the plant communicates the poison. The Poison-ivy vine is often confounded with Virginia Creeper or Woodbine (*Ampelopsis quinquefolia*) which is perfectly harmless. They may be readily distinguished by observing that the leaves of the Ivy are in threes, while those of the Creeper or Woodbine are in fives.

A few of our native plants enjoy the reputation of being poisonous, rather

from their relationship to other poisonous plants than from actual poisonous properties. This is the case with some species of *Solanum* and *Physalis*, which belong to the natural order *Solanaceæ*, to which also belong Tobacco, Henbane, Nightshade, and other poisonous plants. *Solanum nigrum*, sometimes called the Ground-cherry, is very common in waste places and cultivated fields, and is by some thought to be poisonous, but I have often seen its black berries eaten with relish and even made into pies, though they are not sufficiently tart to be agreeable. We have several species of *Physalis* or Ground-cherry, whose berries, when mature, are pleasant-tasting and harmless. The more general diffusion of botanical knowledge would undoubtedly be the means of avoiding much suffering, and many accidents which now occur from ignorance of the nature of the plants.—*U. S. Agricultural Report.*

NUT ORCHARDS.—W. W. Hubbell, of Rutland, Ohio, writes to an Eastern paper: "I have often wondered why some of your numerous patrons have not written you a line for publication concerning the cultivation of all kinds of nut-bearing trees. Little attention has thus far been given in this country to such culture. Now, as to the market value of nuts, it is known that the price of edible nuts has steadily increased as they have become more scarce, until at the present time our native Chestnuts sometimes bring in the market ten to twelve dollars a bushel, and Hickory-nuts as much as four dollars. Nuts of all kinds can be improved by grafting, by securing cions from bearing trees that are known to produce the largest and finest nuts. I have had some little experience in grafting Chestnuts and Persimmons from some of the largest

sorts that I ever saw. They are twice as large as the common kind. Both the Chestnut and the Persimmon possess a superior flavor. I have a small young bearing orchard of the Persimmon and Chestnut, five years from the grafting, and I would be happy to exchange, for some superior kinds, grafts from my large, superior Chestnuts and Persimmons; also, a very large kind of Hickory-nut that I am cultivating in my nut-bearing orchard."

REST NECESSARY TO PLANTS.—In an address given at the Agricultural College, Amherst, Mass., Col. Wm. T. Clark remarks: "The distinction between deciduous and evergreen species is, that the former lose their foliage at the end of the growing season, while the latter retain each perfected leaf one, two, or three years. Nevertheless, evergreens usually have their time of rest no less than deciduous plants, and those which are deciduous in one climate may become evergreens in another. Thus the Apple and the Plane tree have become evergreens in Madeira. Prof. Hoffman made a series of experiments from 1863 to 1870, to determine whether this period of rest was really necessary for ordinary plants. He found that when the Lilac and other similar species were forced under glass to grow continuously by the constant presence of heat, light, moisture, and proper soil, they ceased to blossom after the first year, and died in the second or third year. Hence the importance, so well known to skillful gardeners, of giving alternations of heat and cold, moisture and drought, during their proper seasons of activity and repose, to plants cultivated under glass. The difficulty often experienced in getting flowers from specimens of Cactus and other house-plants, by persons who, being ignorant of these

facts, carefully water them alike at all times through the year, is thus readily explained. The plants have no opportunity to ripen their tissues, and never are in a condition to blossom after the fall of the leaves.

PAMPAS GRASS.—(*Gynerium argenteum*.) This noble and now well-known ornamental grass deserves as much attention as any plant in cultivation, though thorough preparation for its perfect development is rarely made. What is there in the garden more nobly distinct and beautiful than the great silvery plumes of the Pampas Grass, waving in the autumn wind? It is well worthy of extensive use, if only for its foliage, which forms huge dense tufts, three or four feet high and as many feet across. These tufts are composed of long narrow leaves, very rough on the edges and of a pale-green color. The flower-stalks appear in autumn, and rise from four to ten feet, according to the strength of the plant. The blossoms are produced in a very large, dense panicle, formed of little spikes of about six flowers each, covered with silky silvery hairs. It thrives best in a light, rich, deep loam, and in sheltered situations, where its foliage will not be injured by the wind. We rarely see so fine specimens as those in quiet nooks where well protected by the surrounding vegetation.

But the Pampas Grass, like the Yucca, should stand alone. If grouped with other plants, the graceful effect of its fountain-like outline will be entirely destroyed. It is a native of the pampas or prairies of South America, chiefly in Paraguay, and thrives wonderfully well in Germany. In our Southern States it would probably grow without care, but in this latitude of short summers we must give it much attention.

Strong vigorous plants should be obtained, if we wish them to flower before frost.—*Flower Garden.*

MANURE FOR ORANGE-TREES.—We have repeatedly been asked: "What kind of manure is best for Orange-trees when planted in soil such as is found on the seacoast?" We answer: After having made the holes for the trees to be planted in, take some wood-soil, such as consists of rotten and decayed wood and leaves, or well-rotted compost, consisting of dirt, lime, leaves, and road or lot scrapings (no fresh animal manure), deposit a bucketful or two in each hole, and plant the tree on top; or, which we consider a better plan, set the tree in the hole, and cover the roots with the above manure, shaking the tree while throwing it on, and finish with the original soil on top. There should be no manure on the surface. Where the soil is naturally strong, it is sufficient to cover the roots with the top soil taken out of the hole, and on this spread from two to three quarts of slaked lime. After planting, we would advise to mulch under all circumstances. Salt-marsh grass is the very best material; next, pine straw, dead weeds, etc. Burnt oyster-shells will answer the purpose where lime is desired. After having been applied for some time, and when weeds commence to appear, incorporate it lightly with the soil with a hoe, and then mulch.—*Our Home Journal.*

CARPETING THE GARDEN BED.—Carpeting is a point in gardening which has received less attention than its importance demands. Not only is it useful in heightening the general effect, but it is the means of saving very much otherwise necessary labor. Where greenhouse plants are used to decorate the ground—whether they be turned out, or

the pot plunged in the earth—carpeting becomes very desirable to cover the intermediate soil. For permanent climbing, too, this is often a matter of great importance. For these purposes *Portulaccas* are often used, but the seed germinates so slowly that the plants make little show until near the end of the season. The *Gnaphalium laustum* answers very much better for the purpose. It is propagated with ease, grows rapidly, and soon covers the soil with a carpet of a neutral gray tint, against which bright foliage and flowers show to the best advantage.

Moneywort (*Lysimachia nummularia*), which grows rapidly enough, and makes as dense a mat as may be desired when allowed to become a weed, and *Cerastium Brebersteini* (Mouse-ear Chickweed) are also said to promise well in the same direction. The common Periwinkle (*Vinca*) and the Moss Pink (*Phlox subulata*) are deserving of trial, also. Low-growing plants, which would flourish well beneath the drip and in the dense shade of shrubs, covering the surface and doing away with the necessity of weeding, are much to be desired. But we must not forget to so prepare the soil for the shrubs that they will not need the usual supplies of manure forked in.—*Flower Garden.*

STRENGTH OF TIMBER.—The strength of a piece of timber depends on the part of the tree from which it was taken. Up to a certain age the heart of the tree is the best; after that period, it begins to fail gradually. The worst part of the tree is the sap-wood, which is next the bark. It is softer than the other part of the wood, and is liable to premature decay. The deleterious component of the sap-wood is absorbed, if the tree is allowed to grow for a long period, and in time the old sap-wood be-

comes proper timber-fibre, similar to the heart-wood. Hence, the goodness of a tree for timber purposes depends on the age at which the tree was cut down. When young, the heart-wood is the best; at maturity, with the exception of the sap-wood, the trunk is equally good throughout, and, when the tree is allowed to grow too long, the heart-wood is the first to show signs of weakness, and deteriorates gradually.

The best timber is secured by felling the tree at the age of maturity, which depends on its nature, as well as on the soil and climate. The Ash, Beech, Elm, and Fir are generally considered at their best when at seventy or eighty years.

THE WHITE WILLOW has been used very successfully in Iowa for fencing. C. B. Mendenhall, of Marshall County in that State, has about thirteen miles of White Willow fencing, from three to seven years' growth, of which about half will turn cattle. He has also a grove of White Willows, set out about six years ago, which is considered worth five hundred dollars an acre. The prairie farmers of the West are evidently determined that the lack of forest trees shall not prevent them from having picturesque and well-protected fields.

OXALIS.—Those who plant the pretty little summer-blooming Oxalis may be sure of satisfactory results. Whether it is sown out-doors or in the house, in the border, the vase, or the basket, the Oxalis always thrives and blooms well, and covers itself with pretty little blossoms the entire season. The bulbs should be planted an inch apart. In the autumn they should be taken up, dried, and kept in a dry place free from frost until spring.

MILDEW ON THE GRAPES.—Experience has proved that Grapes mildew much more in California in seasons when the soil is well saturated with water, as the present, than in seasons of less moisture. The only remedy yet discovered for this disease or enemy of the Grape is the flour of sulphur, or common ground sulphur. Those who wish to secure beyond a peradventure a good crop of well-grown Grapes, should not neglect to apply the sulphur to their vines as soon as the leaves are fairly out of the buds, and then again when the stems are formed and the blossoms fully open. If sulphur be well applied at these times, there need be but little apprehension of mildew. It has been ascertained that the sulphur thus applied to the leaves of the Grape is absorbed by them, enters into the circulating sap, and prevents the growth of the fungus called mildew. It is also one of the best and most effectual manures for the vine, as it forms combinations which furnish the ingredients of vine growth.

PROTECTION TO STRAWBERRIES.—A correspondent of the Nashville *Rural Sun* suggests the erection of marten-boxes among the Strawberry-beds as a sure preventive of the destruction of the berry by birds. He found it a success, and says that the marten never touches the berry, but drives off the blue-jay, cat, blue, and all other birds that feed upon the berry. He adds that while the parties living near him resorted to the scarecrow and a bell, his berries were fully protected, while theirs were almost totally destroyed.

THE seed farms at Erfurt, Prussia, cover many square miles, hundreds of acres being, in the season, gay with As-ters alone.

FUCHSIA SEED.—A party visiting a Fuchsia house, on one of the seed farms of Europe, was asked to guess the weight of seed procured from that one house—about ten by thirty feet in size. Twenty, ten, and even as little as one pound were suggested, but the fact proved that the entire product was only *one quarter of an ounce*.

THE Fern-house at Kew Garden, near London, is furnished with green glass. Here the Ferns may imagine themselves in some shady dell never reached by the direct rays of the sun.

IF castor-oil is mixed with glycerine and a few drops of the oil of cinnamon added, the taste of the castor-oil can scarcely be recognized.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING MAY 31ST, 1874.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office).

BAROMETER.

Mean height at 9 A. M.....	30.09 in.
do 12 M.....	30.90
do 3 P. M.....	30.08
do 6 P. M.....	30.08
Highest point on the 1st and 2d, at 12 M.....	30.24
Lowest point, on the 4th at 9 A. M.....	29.94

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.....	60°
do 12 M.....	64°
do 3 P. M.....	64°
do 6 P. M.....	59°
Highest point, on the 30th, at 12 M.....	82°
Lowest point on the 2d, at 9 A.M.....	52°

SELF-REGISTERING THERMOMETER.

Mean height during the night.....	49°
Highest point at sunrise on the 30th.....	62°
Lowest point at sunrise on the 7th.....	44°

WINDS.

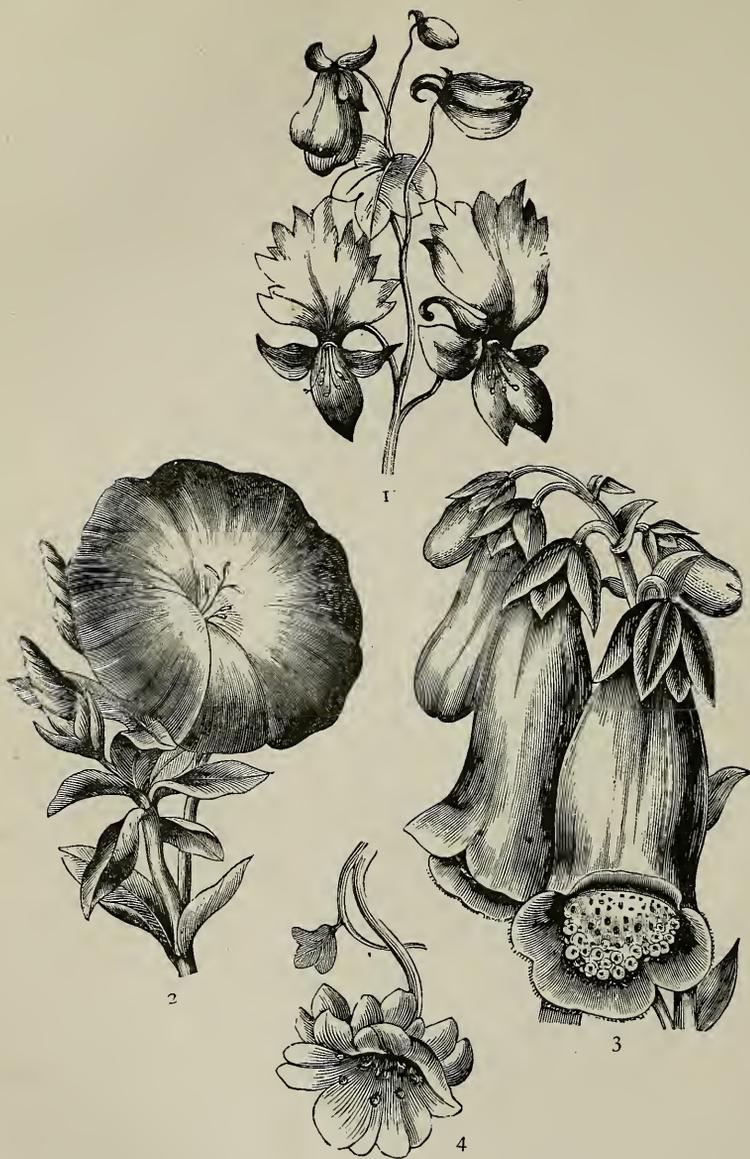
North and north-west on 9 days; south and south-west on 3 days; west on 19 days.

WEATHER.

Clear on 8 days; cloudy on 5 days; variable on 18 days; rainy on 4 days.

RAIN GAUGE.

May 4th.....	0.01 inches.
.. 5th.....	0.25 "
.. 6th.....	0.04 "
.. 22d.....	0.04 "
Total.....	0.34 "
Previously reported.....	23.56 "
Total rain of the season up to date.....	23.90 "



CLIMBING ANNUALS.

1. *Canary Flower*. 2. *Convolvulus minor*. 3. *Digitalis*. 4. *Scyphanthus*.

THE

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No. 7.

ALPINE PLANTS.

BY F. A. MILLER.

The term "Alpine plants" is applied to those herbaceous plants which are found in high altitudes, in mountainous regions.

Most of the readers of the *Horticulturist* are undoubtedly aware that the class of plants referred to includes many very beautiful varieties, and I really can not account for the fact that they are almost entirely excluded from our gardens. For twenty or more years past, English gardeners have given them much attention, and now they form most important features in every garden in that country. In the Eastern United States very little attention is paid to these plants, and in California, where all of them are supposed to be perfectly hardy, hardly any have made their appearance, save here and there a specimen of Canterbury Bell, Primula, and Forget-me-not.

The cultivation of Alpine plants is attended with less difficulties than that of most other plants; the majority of them are easily grown from seeds, and as they are hardy here, we could have many of them in flower during our win-

ter months. I can vouch for this assertion, inasmuch as *Auriculas*, *Myosotis*, *Campanulas*, *Linaria*, *Pentstemons*, and others have bloomed with us in the open air during the past winter season. We cultivate these and several others, not for market (we know very well we have no market here for them), but partly for our own amusement, and partly for cut-flowers, of which we always experience a scarcity during the winter months.

I should like very much to see some efforts made to introduce more of the Alpines here, and if some of our gardeners and amateurs feel disposed to give them a trial, I would suggest the selection of some of the following varieties, all of which are easily cultivated, and are really meritorious:

Gentiana, including a number of varieties, all of which produce blue flowers; *Gentiana Andrewsii* is one of the finest, its flowers being very large and of a rich deep purplish-blue color. A species similar in flower to the above I found near the summit of the Sierra Nevada Mountains last summer, and I have seldom beheld a more beautiful sight. I counted over 200 flowers on one plant, standing about twelve

inches high, and of eighteen inches in diameter, forming a compact growth. The flowers were one inch in diameter, one and a half long, and of a rich velvety blue color. I understand this species is described as *Gentiana simplex*, but am not certain on this point. I dug up five plants, and took them home with me. They kept on flowering for several weeks. During last winter they were kept in the greenhouse by mistake, and unfortunately occupied a very damp place, which resulted in the loss of the plants. Nearly all of the *Gentianas* are well worth cultivating, but the two mentioned above are really exquisite. *Gentiana Andreusii* is also, I believe, a native of North America.

Astilbe Japonica has lately been introduced into this country, but is very rarely met with. The few plants which are cultivated here are treated as greenhouse plants, and although they do well under glass, if plenty of air is provided; they do much better in the garden. Its feather-like spikes of white flowers are produced in greater abundance, and together with its graceful shiny green foliage form a pretty object in the garden or conservatory. If planted out it soon forms a number of offsets, which can be readily divided for the purpose of propagation. The *Astilbe Japonica*—sometimes called *Spiræa Japonica*—is, as its specific name indicates, a native of Japan, and is perfectly hardy with us here. It should be in every garden.

[To be Continued.]

BEST TIME TO MANURE TREES.—Mr. Meehan says a top-dressing of good manure put under the trees soon after midsummer, when the second growth, which is always made soon after this season, is about beginning, produces marked good results.

HANGING BASKETS.

This graceful and convenient form of decoration increases in popularity from year to year. Many a city home which would otherwise be destitute of floral adornment is brightened by them, and in the country among people of taste and refinement they are becoming more and more common.

MATERIAL.—The baskets themselves are made of wire, terra-cotta, or wood. The first named is the most usual, but the small terra-cotta baskets are extremely neat and elegant for bay-windows or other interior situations. They possess with the rustic wood baskets the additional advantage over the wire of retaining moisture longer, and thus suffering less from neglect of frequent watering. The wood basket generally consists of a turned wooden bowl, covered over with twigs and roots to give it a rustic appearance. When this kind of basket is used, care should be exercised to see there are a few holes in the bottom to permit drainage. The matter is scarcely ever attended to by the makers, and florists who sell them ready filled with plants are apt to neglect it. The consequence is that the basket soon becomes water-logged, and the plants contained in it die of wet feet. Where provision for drainage has been neglected until after the basket is filled, holes may be bored from the outside, and the dropsical condition relieved. The wire baskets are first lined with thick moss and afterward filled with earth, into which the growing plants are set. They must be watered every day, as the drying air penetrates them on every side. A new style of wire basket is provided with a zinc reservoir beneath, which holds a week's supply of water. These are convenient but expensive.

SELECTION OF PLANTS.—The central

portion of the basket should be filled with upright plants of a neat dwarf habit, and around the edges those of creeping or trailing growth. But while a basket filled with any bright, thrifty plants of suitable habit of growth, is a thing of beauty, it is far better to make such a combination of color as to present a harmonious living picture. The colors not only of the flowers, but also of the foliage employed, should be studied with a view to this effect. Our greenhouses furnish such a variety of plants with ornamental foliage—crimson, golden, white, bronze-purple and silvery grey—that almost any desired effect of color can be produced independently of the blossoms. When a less complicated style is preferred, a basket may be made beautiful by its very simplicity. In such cases a single plant is sufficient, provided it makes up by its luxuriance of growth for the lack of variety. We saw a very attractive basket recently, which was completely wreathed with the rich foliage and bright mauve-colored flowers of an Ivy Geranium. A plant of *Saxifraga sarmatosa*, commonly called Strawberry Geranium, set in the centre of a small basket, will soon cover the surface with leaves, while the long tendrils and tassel-like stolons droop gracefully down the sides. Another useful plant in this way is the *Convolvulus Mauritanicus*, a single specimen of which will soon make the basket a rich mass of bright green foliage and blue flowers.

COUNTRY BASKETS.—No one need be deprived of hanging baskets on account of remoteness from greenhouses or inability to purchase greenhouse plants. No baskets are produced more exquisite than can be made by judicious use of the plants found in the forests and fields. The basket itself may be made of woven twigs, the end of an old keg

covered over with rustic branches and roots, or the steel springs of a superannuated hoop-skirt. Then for filling, the forest furnishes abundance of moss, rich, light soil, and Ferns, Partridge-berry, Saxifragas, and all the immense variety of other plants which love to nestle in its shades or seek its open sunny banks.

CARE OF BASKETS.—The first and most essential requisite for the health and even the life of plants suspended in baskets, is sufficiently frequent watering. Their wants in this respect vary, of course, with the size of the baskets and the material used. Wire baskets, in addition to being sprinkled every day and the moss kept fresh, are greatly benefited by an occasional dipping in water. Wood and terra-cotta baskets evaporate only at the surface, and therefore need less frequent watering. Partial shade is essential to the lush growth and luxuriance which are desirable in a hanging basket. If exposed all day to the full glare of the summer sun, no amount of watering or of care can preserve them from a parched and shriveled-up appearance. Another requisite to the health and full development of plants in baskets is that they should not be overcrowded. Those which are bought from the florist's ready-made are almost invariably overgrown or overcrowded. This is not the fault of the florist, for the public taste demands a rich, luxuriant appearance. No possible promise of future beauty and perfection can atone in the market for the want of present thriftiness, and therefore the florists are compelled, in order to meet the public taste, either to crowd the baskets full of young plants, or keep them until the plants contained have reached the utmost limit of growth in the greenhouse. In either case the falling-off in appearance is certain and

speedy. The only remedy is for the purchaser to choose those that contain an overabundance of vigorous young plants, and then thin out, removing such superfluous ones as can be spared with the least injury to the general effect. The basket will look a little scraggy at first, but the subsequent growth will soon fill up the vacancies.—*Country Gentleman.*

SUCCULENTS AS DECORATIVE PLANTS.

BY CHARLES H. HOVEY.

The class of plants known as succulents is now attracting much attention among gardeners and amateurs on account of their decorative qualities for both the greenhouse and the garden. Their various, and often grotesque, forms, and interesting habit of growth, give them a peculiar interest, and afford a never-ending source of study and amusement. Many of them are desirable additions to any collection of plants; some being fine bloomers, lasting in flower from two to three months, while others are indispensable for bedding purposes. Their great tenacity of life, or, in other words, the impunity with which they bear neglect, as also their rapidity of growth when cared for, render them universal favorites.

Of all the plants grouped under the title of succulents, the *Echeverias* will undoubtedly prove the most generally useful. They afford so great a variety in style of growth, and such decided contrasts in color, that in time we shall have our groups of *Echeverias*, producing a more unique and as striking an effect as we now have from our masses of *Geraniums*, *Coleus*, and similar bedding plants. It may be remarked that some botanists include these plants in the genus *Cotyledon*; but as this is still a disputed point, it is best in the pres-

ent article to use the names by which they are known in the collections of florists and in their catalogues. The following species and varieties are some of the most desirable for the greenhouse and garden:

Echeveria agavoides.—One of the rarest and best of the *Echeverias*; a dwarf, compact grower, with leaves of a semi-transparent green color, tipped with red, exactly resembling in its appearance a miniature *Agave*.

E. argentea vera.—A new variety from California; leaves six or seven inches long, and from one to two in width; the whole plant is completely covered with a thick white powder; this variety most generally grows in clumps, and is very showy.

E. Californica.—Also rather new, from the Pacific Coast; with long, narrow, green leaves; somewhat resembling in style of growth *E. agavoides*; a dwarf, dense grower, and very distinct.

E. farinosa.—Another recent introduction from California; leaves long, narrow, sharply-pointed, and of a beautiful white color; similar to *E. argentea vera*, and one of the best.

E. lurida.—This variety is probably a hybrid from *E. sanguinea*, which it resembles in growth; the young leaves are of a bluish red, fading to a rusty brown; a promising species.

E. metallica.—This is the most generally grown of all the *Echeverias*, and is perhaps the most effective for greenhouse and garden, its large, pink, metallic leaves showing off to great advantage; and its being a very free grower will render it the most popular of all the *Echeverias*.

E. metallica glauca.—Somewhat similar to the preceding, but more compact and regular; leaves large and of a bluish white color; fine for bedding, and a good flowering variety.

E. Mexicana.—A new variety, after the style of *E. secunda glauca*, but much superior; of regular and compact growth, with leaves of a beautiful pale blue color; it forms a perfect rosette, and must supersede all others of its style for edging purposes; synonymous with *E. rosularis*.

E. pumila.—In growth similar to *E. secunda*; leaves long, narrow, and of a glaucous green color; a distinct variety.

E. racemosa.—A variety said to be a hybrid from *E. sanguinea*, which it resembles in growth; leaves of a pinkish, salmon color.

E. rosea.—Resembling the *Cotyledons* more than the *Echeverias* in growth; leaves green, slightly tinged or edged with red.

E. retusa glauca.—A strong-growing variety, with glaucous green leaves; one of the best flowering varieties.

E. retusa floribunda splendens.—The best of all the *Echeverias* for flowering; flowers a brilliant scarlet, and a very free bloomer; similar in growth to *E. retusa glauca*, but with narrower leaves.

E. sanguinea.—A distinct species, with long, narrow leaves, slightly channeled, and of a dark red color; fine for bedding in contrast with the light-colored varieties.

E. scaphophylla.—One of the newest of the *Echeverias*, a hybrid between *E. agavoides* and *E. linguæfolia*; leaves blunt, and slightly channeled like the latter, but in growth and color similar to *E. agavoides*.

E. secunda.—An old variety, with green leaves; a dwarf and compact grower, and fine for bedding.

E. secunda glauca.—One of the best for bedding; similar to *E. secunda* in growth, with leaves of a bluish white color; next to *E. metallica*, perhaps the most generally grown.

E. secunda glauca major.—New and

fine; a large variety of *E. secunda glauca*, with leaves not quite so light colored.

E. secunda ramosa.—A monstrosity in habit of growth; stem flat, broad, and covered at the top with numerous small green leaves; in appearance resembling the flower of a Cockscomb.

E. nuda, *E. linguæfolia*, *E. lutea gigantea*—are all very similar to *E. retusa glauca*, and all are good flowering varieties.

Of the above varieties, the six most distinct in style of growth and contrast of color are *E. metallica*, *E. Mexicana*, *E. farinosa*, *E. agavoides*, *E. sanguinea*, and *E. metallica glauca*. All the species and varieties above described may be propagated from seeds and cuttings, and most of them from single leaves. If raised from seed, it should be sown and treated similarly to *Cineraria* or *Calceolaria* seed. If propagated from cuttings or leaves, they should be laid away on a dry shelf until they become thoroughly dry or callous, and then be potted in a light, sandy mixture, and sparingly watered until rooted. As soon as rooted, if they are re-potted in a mixture of leaf-mold or well-rotted manure and loam, with one-fifth part sand, they will amply repay the trouble of re-potting.—*American Agriculturist*.

PRICES OF CUT FLOWERS IN ENGLAND.—

There is a regular flower market in London—Covent Garden Market—in which the value of flowers can be regulated tolerably by that true measure, *demand*. In a recent report we notice that about the middle of March, Azalea flowers brought about 50 cents per dozen; Camellias about \$1; Carnations, 75 cents; Heliotrope, 12 cents; Gardenias, \$2 to \$4; Roses, \$1 to \$2. The *Stephanotus* and Japan *Spiræa* are standard market flowers.

SILENCE OF THE FOREST.

We often read, in books of travel, of the silence and gloom of the Brazilian forests. They are realities, and the impression deepens on a longer acquaintance. The few sounds of birds are of that pensive or mysterious character which intensifies the feeling of solitude rather than imparts a sense of life and cheerfulness. Sometimes, in the midst of the stillness, a sudden yell or scream will startle one; this comes from some defenseless fruit-eating animal, which is pounced upon by a tiger-cat or stealthy boa-constrictor. Morning and evening the howling monkeys make a most fearful and harrowing noise, under which it is difficult to keep up one's buoyancy of spirit. The feeling of inhospitable wildness which the forest is calculated to inspire, is increased tenfold under this fearful uproar. Often, even in the still hours of midday, a sudden crash will be heard resounding afar through the wilderness, as some great bough or entire tree falls to the ground. There are, besides, many sounds which it is impossible to account for. I found the natives generally as much at a loss in this respect as myself. Sometimes a sound is heard like the clang of an iron bar against a hard, hollow tree, or a piercing cry rends the air; these are not repeated, and the succeeding silence tends to heighten the unpleasant impression which they make on the mind. With the natives it is always the *Curupira*, the wild man or spirit of the forest, which produces all noises they are unable to explain. Myths are the rude theories which mankind, in the infancy of knowledge, invent to explain natural phenomena. The *Curupira* is a mysterious being, whose attributes are uncertain, for they vary according to locality. Sometimes

he is described as an ourang-outang, being covered with long, shaggy hair, living in trees. At others he is said to have cloven feet and a bright red face. He has a wife and children, and sometimes comes down to the *rocas* to steal the *mandioca*. At one time I had a Mameluco youth in my service, whose head was full of the legends and superstitions of the country. He always went with me into the forest; in fact, I could not get him to go alone, and whenever we heard any of the strange noises mentioned above, he used to tremble with fear. He would crouch down behind me, and beg of me to turn back. He became easy only after he had made a charm to protect us from the *Curupira*. For this purpose he took a young palm-leaf, plaited it, and formed it into a ring, which he hung to a branch on our track.—*Pen and Plow*.

 REPORT ON HORTICULTURE FROM CALIFORNIA TO THE AMERICAN POMOLOGICAL SOCIETY.

BY DR. J. STRENTZEL.

Twenty years only have elapsed since the culture of fruit in California has been earnestly engaged in. The liberal recompense realized by the pioneers stimulated others in their efforts to excel. Money and toil were lavishly spent to obtain the best and rarest seeds; and the choice fruits of Eastern nurseries, transplanted here, found a congenial soil and a climate most favorable for their development. Consequently, our best orchards and vineyards are overcrowded with varieties, and the owners are forced, by the demands of their markets, to discard even good ones, if not embraced within popular favor.

As one of the most important labors

of the American Pomological Society is to perfect a list of the best varieties of fruits adapted to the greatest extent of country, and most profitable culture, your committee will be governed by the same action, and restrict itself to that consideration, as regards California.

Conditions predicated upon mean temperature, rainfall, component constituents of the soil, aspect, altitude, an atmosphere more or less infused with moisture, and other meteorological conditions, exercise the same influence here, and are so favorably arranged for fruit culture, that, upon any given spot in California, a greater variety of fruits can be well grown than under a corresponding latitude on the eastern side of the continent; thus, all the semi-tropical fruits can be raised in conjunction with those of the northern clime. Our Astrachans, Baldwins, and Pippins, will be recognized as such wherever shown; but, if disguised, it is only by their Sunday clothing, more gorgeous with the tints of the unclouded solar rays; and fed upon the doubly-distilled moisture, derived mainly by condensation, they are sweeter and richer. Besides, judicious irrigation can easily modify any deficiency of juiciness, and protract the season of their ripening. By the time another decade of national life is absorbed, the wastage of water will be economized and retained for the sustenance of plant life during the season of drought. Human knowledge can hardly predict the modifications and the perfection fruit culture will ultimately attain by those efforts; but in California will be the throne of Pomona's most exalted realm—the hills clothed with the vine, every nook covered with fruit-bearing trees, Mulberry groves skirting the plain, Oranges, Date Palms, Olives, and Figs, along the

grand irrigating ditches of the San Joaquin, will proclaim her dominion.

A fortune will reward the originator of a first-class early Apple. The Harvest, now heading the list, is only of second quality, and the gorgeously arrayed Astrachan still lower in our estimation. The Early Strawberry is in every way excellent, but ripening late. For cooking, during the months of June and July, the Dutch Codlin holds its sway. Fall Pippin, Holland Pippin, Gravenstein, Lyscom, Maiden's Blush, Roxbury Russet, do well until late in autumn. Rhode Island Greening, Baldwin, Swaar, Newtown Pippin, Spitzenberg, and White Winter Pearmain, will fill the list for winter. Apples keep well all winter, piled under the trees, and sheltered from rain and sun.

A choice selection of Pears would be covered by Bloodgood, Bartlett, Washington, Seckel, Winter Nelis, Flemish Beauty. Duchesse and Easter Beurre attain great size, but they are not favorites with the public. Belle Lucrative, Louise Bonne de Jersey, Beurre d'Anjou, Stevens' Genesee, Doyenne, are a drug in the market. Glout Morceau and Vicar are worthless.

Experiments in progress with seedling Pears are full of interest, and sustain the hope that some of our best varieties can be revived as seedlings, thus producing a new generation to propagate from. By selecting a variety with large, full seeds, and hybridizing—artificially, or by chance—the seedlings thus raised will at once equal, and possibly may excel in some desirable qualities, the parental stock on either side. This will hold good with all other varieties of fruit.

The Peach is the most hardy tree grown here; will survive the worst ill-usage, and repay it without diminution

of fruits. All it requires is close pruning, shortening-in, and chopping-down of the worn-out branches, to sprout from the ground with renewed vigor, and bear another series of superior crops. In wet years, the curl prevails, and recently a white fungus attacks the fruit, in blotches, and the ends of the shoots.

A few Nectarines are raised, the fruit being inferior in flavor to the Peach.

Apricots—the Large Early and the Peach are favorites, and bear profusely, but are often cut short by spring frosts. Peach stock preferred.

Plums bear abundantly, and, so far, no curculio has appeared. All varieties do best on Peach stocks.

Quinces produce regular crops. The largest fruit is grown on the Portugal, attaining the weight of over two pounds. The tree is subject to the black knot.

Cherry-trees are very tender; the least bruise of the stem starts the exuding sap, and decay follows. To shade the stem any way most convenient or practicable will be found beneficial. A cement of clay and ashes plastered over the stem and thicker branches appears to answer well. Black varieties are preferred here. There are two varieties brought out under the name of Royal Ann. One is a black, superior to the Black Tartarian; the other a white.

The Fig fairly luxuriates under our bright skies. Furnished with sufficient moisture, it produces enormous crops.

Pomegranates thrive well.

The Olive is, as yet, little appreciated. Grown easily from cuttings, requiring hardly any pruning, attaining the age of several centuries, and bearing regular crops of Olives, as highly prized in the green state as for oil—it will be, by the next generation, more extensively utilized.

Almonds, Walnuts, Pecans and Chestnuts, the most valuable of nut-bearing trees, come into bearing at an early age; the Japan Chestnut fruiting the second year from graft.

Oranges and Limes, with more or less protection, grow luxuriantly along and near our line of coast for five hundred miles.

The *Agave Americana*, or Century Plant, is utilized as a hedge plant.

Currants, Blackberries, Gooseberries, Raspberries, and Strawberries, bear abundantly.

The lordly Banana begins to spread its mammoth foliage in many a garden spot.

Thus, under the influence of skilled industry, and the vivifying flow of waters to be utilized, all the semi-tropical fruits will find here a congenial home. But the glory of California will be her vineyards. Innumerable little nooks and valleys, rich with the attributes of surrounding mountains, and under most favorable climatic conditions, are waiting for patient labor to clothe them with the clustering Grape. All the finest varieties succeed admirably, and the product—either to be utilized for wine or raisins—is all that could be desired.

It is not to be inferred, nor is it claimed, that the horticulturist in California needs only to plant a tree or a vine to realize, in a few years, several hundred pounds of Apples per tree, or even a thousand pounds of Grapes to the vine. He has to contend with many evils, as in other climes, or avocations; constant vigilance and sound judgment are required to supply the most favorable conditions for the development of his nurslings, and destroy in the beginning their enemies. Different varieties of fungoid growths and injurious insects begin to multiply.

All experienced viniculturists pronounce this the most favorite land of the grape; still, oidium is known: the borer, and especially the thrip, do considerable injury. Thus, every laborer in Pomona's realm is interested in the experience of his co-laborers.

A new-comer opens a most willing ear to an oft-repeated tale, but full of novelty to him; so, to compare experiences, I take the liberty to make these deductions:

That clean culture is indispensable for orchard and vineyard.

That the raising of other crops beneath trees, when abundant manures are not obtainable, is a killing of the goose laying golden eggs.

Alkaline or earthy washes of the stem and larger branches are conducive to the health of the trees.

By repeatedly scraping off the earth around the trees and vines, early in the spring, many insects, their eggs and larvæ, are destroyed.

That careful pruning and shortening-in of the shoots is indispensable to the production of fine and large fruits. All the pruning should be carefully husbanded, and returned to the soil. To light bonfires for the destruction of insects, to raise smoke to avoid injury from spring frosts, are probably the most available and serviceable means for destroying fungoid and insect growths on foliage and fruit; by fumigation of the whole orchard and vineyard, making numerous smoldering fires, with the addition of coal-tar, or asphaltum and sulphur.

LARGE MIGNONETTE.—Mr. James Fleming, seedsman of New York, exhibited in his store-window this spring, spikes of Mignonette seventeen inches in length—almost all the length in full bloom. Who can beat this?

THE BAOBAB.

The Baobab is a plant of monstrous size, the most colossal and the most ancient vegetable monument on earth. It has round, woolly leaves, which consist of from three to seven leaflets radiating from a common centre, and giving them somewhat the appearance of a hand, and a magnificent white flower. It is an enormous tree, holding among plants the place which the elephant holds among animals—a hoary witness of the last changes which the earth has undergone, and deluges that have buried beneath their waves the productions of early ages. Several Baobabs that have been measured were found to be from seventy to seventy-seven feet in circumference. From its branches hang, at times, colossal nests three feet in length, and resembling large oval baskets open at the bottom, and looking from the distance like so many signal-flags.

It would take fifteen men, with their arms extended, to embrace the trunk of one of these great trees, which, in the countries through which the Senegal flows, are venerated as sacred monuments. Enormous branches are given off from the central stem a few feet from the ground and spread out horizontally, giving the tree a diameter of over one hundred feet. "Each of these branches," says Mr. Danton, "would be a monster tree elsewhere, and taken together, they seem to make up a forest rather than a tree."

It is only at the age of eight hundred years that the Baobabs attain their full size, and then cease to grow.

The fruit of this tree is oblong; the color of the shell passes in ripening from green to yellow and brown. The fruit is called "monkey bread." It contains a spongy substance, paler than chocolate, and filled with abundant

juice. The bark is ashy gray in color, and almost an inch in thickness. The negroes of the Senegal grind it down to powder, and in this state they use it to season their food, and to maintain a moderately free perspiration, which enables them to more easily withstand the heat. It serves also as an antidote for certain fevers.—*The Wonders of Vegetation.*

THE EFFECTS OF ELECTRICITY ON PLANTS.

In the March number of the *Journal* we gave some account of M. Blondeau's investigations with regard to the action of heat on plants. After completing the series of experiments there described, he was led to inquire whether electricity acts on plants in the same manner as heat—that is, as a toxic agent—or whether it kills them by destroying the organs necessary to the maintenance of life. The subject has hitherto been little investigated, observations having been limited to the effects of powerful batteries or of lightning. In these cases the plant has always been killed, but apparently from the laceration of its tissues.

M. Blondeau employed electricity of feeble tension, from Bunsen cells, measured in each case by a galvanometer. The plant used in most of the experiments was the Balsam (*Balsamina impatiens*), which is very sensitive to external influences. Its juicy stem, moreover, is a good conductor of electricity, and the delicate tint of its flowers is readily affected by that agent.

The current from a single Bunsen cell was sent for half an hour through the lower part of the stem of a Balsam, the points of the wires being inserted two centimetres (.78 of an inch) apart. The plant showed no change during the

experiment, but soon after withered above the part acted upon by the current. With two cells the effect was more rapid, and the plant was quickly killed. That this was due to the decomposition of the tissues by the electricity was proved by a further experiment. The current was sent through a part of the plant studded with roseate blossoms, the color of which could be changed to blue by the action of an alkali. It was found that the flowers near the negative pole became blue, showing that alkaline substances were accumulated there; and this could result only from the decomposition of the plant-structure.

The action of induction currents was also studied, the sensitive plant *Mimosa pudica* being taken for the first experiments. A slight shock closed the leaflets and depressed the petioles, but the effect was transient and the plant apparently none the worse for it. Exposed to heavier and more continuous shocks, the plant was killed, though its tissues showed no change. Experiments on single leaves showed that they would recover from the effects of a current acting for a few minutes, but not when it had been acting, though without any increase in tension, for fifteen minutes or more. In all cases flowers were more readily affected than leaves. Buds also were killed by the current.

The action on the woody portions of plants was less marked than on the soft and pulpy parts. An induction current sent through the stem of the *Nerium oleander* did not perceptibly affect it; but, when sent through a branch bearing flowers, the latter soon withered. Similar results were obtained with Lavender and Fuchsia: the stem and leaves withstanding the effects of the current, while the flowers soon dropped off. M. Blondeau expresses the opinion that

the ligneous tissues would be disorganized by more powerful or more prolonged currents, but he does not appear to have settled this point experimentally.

Some experiments were also made on fruits and seeds. The current was sent for several minutes through an Apple, which was on a branch with several others, nearly ripe. After a few days it fell off, being apparently riper than the others, which remained on the tree. The electricity appeared not only to have hastened its maturity, but also to have affected its tissues, as it soon began to decay, and in a few days was completely rotten. Pears and Peaches were experimented upon in the same way, and with similar results.

Peas and Beans that had been soaked in water were exposed to the action of the current, and then planted in pots; other non-electrified seeds of the same sort being planted at the same time for purposes of comparison. The former sprouted in three days, the latter only after six days; but though the plants stimulated by electricity at first grew more rapidly, the others soon overtook them. The current appeared to have hastened the disintegration of the substances enclosing the embryo, which thus got its first supplies of food more readily, but its development was not otherwise promoted.

On the whole, the induction current seems to act upon plants very much as it does upon animals. In both, if its intensity goes beyond a certain point, it tends to disorganize the tissues and prevent them from fulfilling their functions; and if the action is too long continued, it may destroy them completely.

—*Boston Journal of Chemistry.*

THE highest rate of interest that we pay is for borrowed trouble.

THE AQUARIUM.

Just now the aquarium on a grand scale is "the rage" in Europe, especially in England. The success of the gigantic aquaria at Naples, at the Sydenham Crystal Palace, and at Brighton, has been so marked that rival establishments are being proposed in many other places. Liverpool is to have one that will not be inferior to any of its predecessors, if indeed it does not surpass them all. Another is in progress at the popular sea-side resort of Margate, and the other leading watering-places are expected soon to follow the fashion.

We wish that the aquarium might become equally popular in this country, not only as a public exhibition, but on the amateur or parlor scale. Many of our readers can recollect the brief aquarial furor of some twenty years ago. The aquarium was then a new thing, and Gosse's books on the subject had a great run. His suggestions for starting and managing an aquarium were excellent for that day, and many people wanted to try the thing. Some succeeded very well and kept their little tanks in good condition for months, but the majority had the "bad luck" that might have been anticipated in an undertaking requiring constant care and attention, and soon tired of the new scientific toy. The aquarium went out of fashion as suddenly as it had come in, and from that day to this a really good thing of the kind has been a rare sight in America.

As we have said, we hope that the growing popularity of the aquarium abroad will awaken a fresh interest in the subject here. Much has been learned in these twenty years with regard to the stocking and managing of aquaria, and the amateur who makes his first

experiments now will have the advantage of this. With reasonable care and patience he is sure of success. A good book on the subject, suited to American shores and up with the times, is a desideratum. Of recent English books we know of nothing better than the revised edition of Canon Kingsley's *Glaucus, or the Wonders of the Sea-shore*, just published by Macmillan & Co. It will be found very pleasant reading, whether one is planning an aquarium or not. The descriptions of the strange marine creatures, like all of Kingsley's descriptions, are capital. Take this one:

"Here are a group of milk-white slugs, from two to six inches in length, cuddling snugly together. You try to pull them off, and find that they give you some trouble, such a firm hold have the delicate white sucking arms, which fringe each of their five edges. You see at the head nothing but a yellow dimple; for eating and breathing are suspended till the return of the tide; but once settled in a jar of salt water, each will protrude a large, chocolate-colored head, tipped with a ring of ten feathery gills, of the loveliest white and primrose; in the centre whereof lies *perdu* a mouth with sturdy teeth—if indeed they, as well as the whole inside of the worthy fellow, have not been lately got rid of, and what you see be not a mere bag, without intestine or other organ; but only for the time being. For hear it, worn-out epicures and old Indians who bemoan your livers, this little *holothuria* knows a secret which, if he could tell it, you would be glad to buy of him for thousands sterling. To him blue pill and muriatic acid are superfluous, and travels to German Brunnen a waste of time. Happy *holothuria*! who possesses really that secret of everlasting youth which ancient fable bestowed on the serpent and the eagle. For when his teeth ache or his digestive organs trouble him, all he has to do is just to cast up forthwith his entire insides, grow a fresh set in a month or so, and then eat away as merrily as ever."

Here is another passage which we can not refrain from quoting:

"There lies an animal as foul and monstrous to the eye as 'hydra, gorgon, or chimæra dire,' and yet so wondrously fitted to its work that we must needs endure for our own instruction to handle and to look at it. Its name, if you wish for it, is *Nemertes*; probably *N. Borlasii*; a worm of very 'low' organization, though well fitted enough for its own work. You see it? That black, slimy, knotted lump among the gravel, small enough to be taken up in a desert spoon. Look now, as it is raised and its coils drawn out. Three feet—six—nine, at least; with a capacity of seemingly endless expansion; a slimy tape of living caoutchouc, some eighth of an inch in diameter, a dark, chocolate-black, with paler longitudinal lines. Is it alive? It lies motionless, trailing itself among the gravel; you can not tell where it begins or ends; it may be a dead strip of sea-weed, or even a tarred string. So thinks the little fish who plays over and over it, till he touches at last what is too surely a head. In an instant a bell-shaped sucker mouth has fastened to his side. In another instant from one lip a concave double proboscis, just like a tapir's (another instance of the repetition of forms), has clasped him like a finger; and now begins the struggle—but in vain. He is being played with such a fishing-line as the skill of a Wilson or a Stoddart never could invent; a living line, with elasticity beyond that of the most delicate fly-rod, which follows every lunge, shortening and lengthening, slipping and twining round every piece of gravel and stem of sea-weed, with a tiring drag such as no Highland wrist or step could ever bring to bear on salmon or on trout. The victim is tired now; and slowly and yet dexterously his blind assailant is feeling and shifting along his side, till he reaches one end of him; and then the black lips expand, and slowly and surely the curved finger begins packing him end foremost down into the gullet, where he sinks inch by inch, till the swelling which marks his place is lost among the coils, and he is probably macerated to a pulp long be-

fore he has reached the opposite extremity of his cave of doom. Once safe down, the black murderer slowly contracts again into a knotted heap, and lies, like a boa with a stag inside him, motionless and blest."

This graphic picture will serve to show what strange scenes may sometimes be witnessed in the miniature sea of a parlor aquarium. The following note is appended to the passage in this new edition of the book:

"Certain Parisian zoologists have done me the honor to hint that this description was a play of fancy. I can only answer that I saw it in my own aquarium. I am not, I hope, in the habit of drawing on my fancy in the presence of infinitely more marvelous nature. Truth is quite strange enough to be interesting without lies."—*Boston Journal of Chemistry.*

THE ORIGIN OF THE DAHLIA.

The first mention of the plant occurs in Hernandez, who published a history of Mexico in 1651, and who figured two separate species. Menonville, who was employed by the French minister to steal the cochineal insect from the Spaniards, was the second to notice its existence. The first scientific description was given by the Abbe Cavanilles, from a specimen which flowered at Madrid in 1790, who named the plant after his friend Andrew Dahl, the Swedish botanist. The Dahlia was sent to Europe from the Botanic Gardens of Mexico to the Royal Gardens, Madrid, where it first flowered in 1789, from whence it was introduced to England by the Marchioness of Bute in the same year; but this single plant speedily perished, and it did not again appear in this country till the old single variety, *Coccinea*, was flowered by Fraser at Chelsea, in 1803, and figured in Curtis' *Botanical Magazine*, plate 702.

This plant also perished. Meantime Cavanilles sent specimens of the three varieties then known to the *Jardin des Plantes*, in 1802, where they were successfully cultivated, and numerous varieties were produced in France between that date and 1814, when, on the return of peace, the improved flower created a great sensation among English visitors to Paris, which led to large importations of the root during the ensuing winter. Lady Holland sent seeds, not roots, from Madrid in May, 1805. The first plant flowered at Holland House in the September following, and was figured in Andrews' *Botany*. The seeds ripened in 1805, and were generally distributed in 1806. The original plants at Madrid do not appear to have yielded many varieties—not more than three are mentioned. Humboldt, however, who found the plant growing in sandy meadows, 5,000 feet above the sea, sent home fresh seed from Mexico in 1804 to Paris and Berlin, from which the numerous varieties subsequently obtained were derived. The first double flower was produced at Berlin in 1809, and even so late as 1818 Sabine was told of a double white, but "doubted its existence." It is interesting to remark that De Candolle expressed his opinion that he should never see a blue Dahlia, on the ground that blue and yellow, being the fundamental types of colors in flowers, mutually exclude each other. The root was included in the *Bon Jardinier* for 1817, among the *Plantes potageres*, but no mention is made of its use for Palestine soup.—*John W. Ford, in the "Garden."*

ADULTERATED PEPPER.—M. Bouchardat found that the most common adulterant of ground pepper in France was the dried refuse potato skins from the starch factories.

ABSORPTIVE POWER OF PLANTS.

Recent researches and experiments upon plants, both in this country and in Europe, would seem to prove that the functions of leaves, or the aerial parts of plants, have not been clearly understood by vegetable physiologists. M. Adolf Mayer, of Wiesbaden, has lately been making a series of experiments on plants, which were grown in such a manner that access of ammonia through the roots was prevented, while the leaves were subjected to the influence of this substance in either a gaseous or dissolved condition. He found that a variety of plants subjected to these conditions all had the power of absorbing carbonate of ammonia by their aerial parts, both in the gaseous and the dissolved state, and of employing it in the building up of their tissues. The plants, however, did not appear to thrive when all access of ammonia through the roots was prevented. The experiments did not indicate that plants belonging to the order *Leguminosæ* have any special aptitude for absorbing ammonia through their aerial organs, nor for assimilating the combined nitrogen of the atmosphere.

It is a fact now well known, that a considerable number of plants have the power of absorbing through the leaves deleterious gases, and that malarious districts are rendered healthy through the presence of these plants. Thistles had rendered some parts of the campagna near Rome healthy, and on the plants being cut down, those districts became again "malarious." Sunflowers appear to have been first planted for a similar purpose in this country, and they are said to have been successful. Baron von Alsten, whose property was situated on the banks of the Scheldt, and liable to be flooded by that river,

planted several patches of the sunflower (*Helianthus*) near his house, and with the result that for ten years his family continued exempt from fever, while on other estates, where no similar precaution was taken, this disease continued to prevail. The plant has of late years been sown in the Mauritius for a similar purpose, and in further recommendation of its good qualities, the observation has been made that it yields 40 per cent. of good oil; that the leaves from it are excellent fodder, and the stems, being rich in saltpetre, make good fuel. Marshes may also be rendered healthy by the presence of other plants. Among those that conduce to this happy result is the *Pistia stratiotes*. In India, the West Indies, and Africa, the power exerted by this plant in absorbing the deleterious gases of muddy marshes is well known, and probably it is on this account that in the latter country the plant is held sacred. The *Pistia* is believed to possess this power in a greater degree than any other plant, being capable in a few days of rendering stagnant water sufficiently pure for fish to live in; although it by no means follows that the water is thus rendered suitable for use by man. The contrary is indeed the case. In Jamaica, water in which this plant grows acquires so acrid a character as to give rise to intestinal fluxes in those who use it.

Some trees and tree-like plants have, with greater or less reason, the reputation of themselves evolving malaria, and consequently the natives of the countries where they grow avoid sleeping or resting under them at night. Those that give off their branches at an inconsiderable distance from the ground, or the foliage of which is dense, have this reputation in the highest degree, and among them the Tamarind and *Neem* trees (*Melia azedarachta*). A similar in-

fluence is said to arise from the Papaw-tree (*Carica papaya*), and Dr. Livingstone states that in East Africa, near the Zambesi River, tracts are covered with the plant *Pæderia fetida*, a member of the *Guettarda* group of the *Rubiaceæ*. Many of the people suffer inconvenience in various ways from odors arising from certain plants, although the effects are not in the nature of disease of recognized malarial origin. In these cases the matter evolved, so far from being an invisible *aura*, is a substantial exhalation. Thus, besides the well-known effects of ipecacuanha in inducing sickness in certain persons, even when brought no nearer to them than an adjoining room, and of flowering plants in producing "hay-asthma," nausea, sickness, and even death, has been attributed to the odors of some, as the *Narcissus*, and the *Cheiranthus* or Wallflower, not to mention the fraction of truth there no doubt is in the story of the Upas-tree (*Antiaris toxicaria*). The Manchineel-tree (*Hippomane mancinella*, N. O. *Euphorbiaceæ*) of the West Indies, and certain American and Chinese species of *Rhus* (N. O. *Anacardiaceæ*) not only produce severe irritant effects upon the skin, but affect very severely such persons as are predisposed to suffer from malaria. The flowers of the *Daphne mezereum* also evolve odors which are more or less injurious to particular persons, and a similar property is attributed to the Oleander (*Nerium oleander*). The mangrove, or *Rhizophora*, has ever had an unenviable notoriety, on account of the malaria-producing properties assigned to it. As a rule, probably without exception, localities where this plant flourishes, being for the most part marshes and low-lying tracts liable to inundation, are notoriously unhealthy, but in all probability this reputation arises altogether from

paludal causes rather than from the plant itself.—*Boston Journal of Chemistry*.

NEGLECTED CULTURE.—The annual report of the New Jersey State Agricultural Society gives neglected culture as having the strongest retarding influence in that State on fruit culture and orchard planting. The old orchards, we are told, "are sorry sights to look at," simply for want of proper culture and manure. We know many such, that, to our knowledge, have not had a shovelful of manure in fifteen years, removing during this time not only what Apples the trees bore, but also a cutting of hay once a year. This, too, by excellent grain farmers, men who would not think of planting a crop of Corn or Potatoes without a full dose of manure for each. This has been the great difficulty everywhere; but few of those who plant orchards, whether large or small, being willing to give them the care they bestow on annual crops. No good farmer would think for a moment of planting his Corn in a grass sod, and giving no cultivation—a treatment which has been very common for young fruit-trees. We are glad, however, to see of late years a great improvement in the management of newly transplanted orchards as well as of bearing ones, and land-owners are learning that trees kept in vigorous and healthy condition bring finer and higher fruit, and more of it, than such as are allowed to become enveloped in weeds, grass, and brush.—*New England Homestead*.

SHADE TREES FOR STREETS IN THE SOUTH-WEST.—A correspondent writes that in St. Louis he finds Elms, Planes, and Maples generally the most vigorous and valuable varieties for street planting.

MATTERS IN TRINITY COUNTY.

BY DR. HENRY DEGROOT.

WEAVERVILLE, TRINITY Co., July, 1874.

In my last communication to the HORTICULTURIST, it was remarked that the late-lying snow upon the mountains in this section of country had the effect to preserve a rather low and even temperature throughout the spring months, thereby preventing a premature putting forth of the fruit and rendering it hardy. In the severe frost that prevailed here on the night of June 22d, this remark has found verification; none of the fruit, not even the Grapes, then about setting, having received any injury. The frost of April 4th and 5th, 1873, which so greatly damaged the Grape crop in most of the large valleys throughout California, did no harm here, nor, so far as I can learn, in any of the northern counties, all of which consist, like Trinity, of deep valleys, open foot-hills, and timbered mountains.

Throughout all this part of the State, the fruit crop will this year be very abundant, and, as it always is, of excellent quality, no insect nor any form of disease having ever been known to cause it serious injury. This is true not only of the fruit, but also of the cereal crops, and, I believe, of every other product of the vegetable kingdom.

Strawberries, Cherries, and Currants have already matured here, the crop of each being very prolific. Many of the Cherry-trees have borne with such profusion that they have required artificial supports to keep the limbs from breaking. The early varieties, which commenced to ripen about the middle of June, sold at the rate of \$1 a gallon. At present, they will not sell for half that price; and, were it not that many will be dried, there would not in a short

time be any market for them at all, the crop being so very abundant. Early Apples begin to make their appearance here, but Peaches and Apricots are not yet quite ripe. For all the earlier varieties of fruits there is a limited market, but, as the season advances, all kinds become so plentiful, three-fourths of the inhabitants raising more than they want, that there is no longer any sale for them whatever; even the Chinamen being allowed to go into the orchards and pick what Apples and Pears they like.

If only we had railroad communication the entire distance, we could send many kinds of fruit to the San Francisco market with profit, as its superior quality would always command for it a good price. With wagon transportation for fifty miles over a high range of mountains this is impossible. Some of our orchardists have tried the experiment of sending Apples to your city, but they were too much bruised on the journey from here to Redding—northern terminus of the railroad—to warrant offering them for sale. These lots were sent over in freight-wagons, which, of course, subjected them to a good deal of jolting. If carried on springs, they would, no doubt, reach Redding in good condition, as the road during the dry season is not a rough one. In view of the fact that really good Apples are not over-abundant in the San Francisco market, it is very probable that this fruit will before long be shipped thither in quantities from this county, as the high prices ruling there in the winter would make this a paying business. The Apples raised here, besides their superiority in other respects, keep well the year round. The very best you get toward the end of the season no one would think of using here; in fact, none so poor are ever to be seen.

It would be thought, that, with all this superabundance of the raw material, a good deal of fruit would be dried or otherwise preserved for future use, and large quantities of wine be made. Such, however, is not the case—first, because much of the green fruit keeps so well that there is no great need for subjecting it to any preserving process; to dry or can it for exportation would hardly pay—that is, not sufficiently well to meet the ideas of our ease-loving and not over-thrifty population. As for wine-making, while we have several small vineyards and many vines scattered about over the country, not more than half a dozen parties pretend to utilize the Grape to this end at all. What wine is made is excellent, and there is no doubt but this branch of business will yet be greatly extended here, as the vine thrives exceedingly throughout this entire north country.

We have here, almost to the tops of our mountains, the same generous red soil that covers the foot-hills of the Sierra Nevada and is everywhere so common on the mountains and upland districts of California. The vine planted almost anywhere will grow without irrigation, as the rain-fall here extends further into the summer than in the more southerly counties. For the same reason fruit-trees, cultivated grasses, and the cereal crops can be raised here without this aid—at least, in most places.

The region devoted here to fruit and grain culture has an altitude ranging from 2,000 to 4,000 feet above sea-level—mean altitude, about 3,000 feet. This, with the influences of the adjacent mountains, and the sea-air, and the fogs (which reach this far inland,) have an excellent effect upon the fruit during the season of its flowering and setting. The air-currents alternate through these deep valleys in regular land and ocean breezes

during much of the summer, the latter bringing with them a certain amount of mist and dampness. The dry north winds that sometimes so rapidly desiccate the ground and blight the growing wheat farther south are unknown here. The cereal crops here, and also in the counties adjacent on the north, are good this year—much above an average. Hay, much of which is made from the grain cut while green, is therefore plentiful and cheap, and some flour will be made both in Scott's Valley, Siskiyou County, and also over on the Hay Fork, where is located the only flour-mill now running in Trinity. As the mines are turning out unusually well, the present will be a very prosperous season throughout this north end of the State.

The wild Flax, indigenous in many parts of California, grows quite profusely in some localities up this way. Having pulled and dressed some stalks of this plant lately, I find it to possess a long, soft, and glossy fibre. It is exceedingly strong, and I do not see why it might not be cultivated to advantage, as it would grow well without irrigation, and on almost any sort of soil. It was from the fibre of this plant the Indians made their bow-strings, nets, fishing-lines, etc., all noted for their durability and strength, and there is no question but it would prove a very valuable textile where cloth or cordage of unusual strength were required. Some portions of it are also nearly as flossy as silk, and might be wrought into wares of extreme delicacy and softness

CARE OF CIONS.—A writer who is a grafter by profession says the most successful method he has found to keep cions in a fresh healthy state is, to lay them down in good clean sawdust, slightly damp. He says they do far better than in earth or sand.

MEANS OF IMPROVING LANDS.

Rotation of crops is one of the means of improving land. Deep and deeper plowing every year, and incorporation of vegetable mold, even if you have to resort to two vegetable crops on the same land the same year; returning the whole proceeds of the cotton plant to the soil, except the cotton lint; making as much manure under the shelter as possible; and using as much litter to absorb the whole of the urine and excrements of the stock and no more. These methods comprise my system of improving land.

All the scrapings from the low lands and fence-corners, swamp mud, muck out of the ponds and bottoms, use to the full extent you have teams and labor to do, spreading it over the land.

Use commercial manures on all crops planted, from 100 up to 800 pounds to the acre of "Dickson's Compound." All land should be subsoiled, at least once in three or four years, and if you have the means, it will pay to subsoil every year. You should never run more than one course without subsoiling. I do not consider soil up to its full capacity, until you have twelve inches of soil, and six inches of subsoil. The greatest of all the means of improving land is to use the commercial manures every year, because you not only improve the land, but it will also pay you to use them, out of the crops grown. I consider this the philosopher's stone in all farming. You may talk of machinery, but there is no such thing as labor-saving, if you neglect manures. These are the greatest labor-saving machinery that can be adapted to the planter's use. While other machinery might exhaust the land, these will draw greater crops and still improve the lands. But at the same time,

while I consider them the greatest means of saving labor, they give you the capital to increase your labor-saving machinery in the same proportion that they increase your crops. I would not deter the farmer from all labor-saving machinery. I look upon manures and machinery as the best means that can add to our present labor.

In all instances, before you commence improving land, the land should be well drained or hill-side ditched. There is no such thing as improving land without draining it where it needs it, or using the means to prevent the fertilizers from being washed off after they have been placed in the soils.

There is another means of improving land, by turning in vegetable matter. Poor land will not produce vegetable matter sufficient to improve the land materially, without the use of commercial or other fertilizers, to increase the quantity of the green crops to be turned in. By the use of fertilizers, you can get two green crops a year to turn in, either of grass, weeds, Peas, or Clover, and cultivated grasses where they would succeed, where, otherwise, you could get but one. The object of turning in these green crops is to gain all the crops need from the atmosphere, besides what they get from the subsoil. The carbon from the decaying green crops is a retainer of the ammonia until the crop draws it out, either from the rain or snow, or its own decomposition. We have already stated that rest is one of the means of improving land. While the land is at rest decomposition goes on all the time as though the crops were there, and the rest helps to make the decomposition of the vegetable mold ready for the crop that follows the year afterward. Rest gives you a year's supply of vegetable mold to make another crop with.

PRESERVING BARN-YARD MANURE.

A striking illustration of the value of manure made in the barn-yard, by preserving it from the influence of the weather, is presented in the experiment lately made by Lord Kinnard, a Scotch land-owner and farmer. Four acres of good soil well measured; two of them were manured with ordinary barn-yard manure, and two with an equal quantity of manure from the covered sheds. The whole was planted with potatoes. The product of each acre was as follows:

Potatoes treated with barn-yard manure.—One acre produced 272 bushels; one, 298 bushels.

Potatoes manured from the covered sheds.—One acre produced 443 bushels; one, 471 bushels.

The next year the land was sown with wheat, when the crop was as follows:

Wheat on land treated with barn-yard manure.—One acre produced 41 bushels 19 pounds (of 61 pounds per bushel); one, 42 bushels 38 pounds (of 61 pounds per bushel).

Wheat on land manured from the covered sheds.—One acre produced 55 bushels 5 pounds (of 61 pounds per bushel); one, 53 bushels 47 pounds (of 61 pounds per bushel).

* The straw also yielded one-third more upon the land fertilized with the manure from the covered stalls than upon that to which the ordinary manure was applied.

In view of these facts, we hope that our farmers will give this subject their full attention for their own benefit, and in making shelter or stalls for stock, it might be done with a view to the increase of manure under the cattle, as it is not removed before it is intended for use, if it is likely to remain there for months.

AGAVE XALAPENSIS.

The Agave family has not received the attention from lovers of plants that it deserves. It contains hundreds of species and varieties, some of which, for symmetrical habit and beauty of foliage, are excelled by but very few ornamental and easily cultivated plants.

Agave Xalapensis, when well grown, is one of the prettiest. Its leaves grow about two feet long, of a dark green color, terminating with a large brown spine, with small ones thickly set along the edges. It is a native of Mexico, and requires a soil composed of turfy loam and cow manure—about two parts loam and one part manure. When potting, give plenty of drainage, as it requires plenty of water when growing, but when at rest should be kept moderately dry. If it gets saturated with water when at rest, it soon shows the evil effects by the leaves getting pale in color, and the bases of them shrivel.

For filling vases this plant is well adapted, enduring the burning sun and severe drouths admirably; the erect growing habit of the young leaves, which droop with age, giving it that graceful outline necessary for plants used for this purpose. During winter the leaves should be kept dry; at least no water should be allowed to lie on them, as it rots the parts covered, quickly destroying the injured leaf.

When removing the plants, great care should be taken to prevent the leaves from rubbing on each other, as the spines on the edges puncture the fleshy part, leaving marks which, although not visible at the time, make their appearance afterward, greatly disfiguring the plants.—*Country Gentleman.*

TO A GENTLEMAN every woman is a lady in right of her sex.

FRUITS ADAPTED TO CALIFORNIA.

Following is a list of fruits adapted to California, taken from the catalogue of the American Pomological Society:

APPLES.—Alexander, American Summer Pearmain, Autumn Bough, Autumnal Swaar, Beauty of Kent, Ben Davis, Blue Pearmain, Broadwell, Buckingham, Bullock's Pippin, Cannon Pearmain, Carolina Red June, Dutch Mignonne, Duchess of Oldenburgh, Dyer or Pomme Royal, Early Harvest, Early Pennock, Early Strawberry, Fall Jen-netting, Fall Orange, Fall Pippin or Holland Pippin (erroneously), Fall Wine, Fameuse, Golden Russet of Western New York, Golden Sweet, Gravenstein, Hawthornden, Hewes' Virginia Crab, Hightop Sweet, Hubbards-ton Nonsuch, Jersey Sweet, Jonathan, Keswick Codlin, King of Tompkins County, Lady's Sweet, Large Yellow Bough, Lowell, Maiden's Blush, Mc-Afee's Nonsuch, Mother, Newtown Pippin or Albemarle Pippin, Newtown Spitzenberg (Vandevere, of New York), Peck's Pheasant, Porter, Primate, Rambo, Rawle's Genet, Red Astrachan, Rhode Island Greening, Rome Beauty, Roxbury Russet, Smith's Cider, Summer Rose, Swaar, Talman's Sweet, Twenty-ounce Apple (Cayuga Red-streak), Wag-ner, Westfield Seek-no-further, White Winter Pearmain, William's Favorite, Wine, Winesap, Yellow Bellefleur.

APRICOTS.—Breda, Large Early, Moor-park, Red Masculine.

BLACKBERRIES.—Dorchester, Kittat-inny, New Rochelle or Lawton, Wil-son's Early.

CHERRIES.—Arch Duke, Belle de Choisy, Belle d'Orleans, Bigarreau (Graffion, Yellow Spanish), Bigarreau of Mezel, Black Eagle, Black Tartarian, Carnation, Coe's Transparent, Donna Maria (new), Downer's Late, Early

Purple Guigne, Early Richmond, Gov-ernor Wood, Hovey, May Duke, Napo-leon, Red Jacket, Reine Hortense, Rock-port, Tradescant's Black Heart (Elk-horn, Large Black Bigarreau).

CURRENTS.—Black Naples, Cherry, Common Black (Black English), Fertile de Paluan, La Versailleuse, Red Dutch, Red Grape, White Grape, Victoria (Ruby Castle).

GOOSEBERRIES.—Houghton, Big Eng-lish (occasionally).

GRAPES (NATIVE).—Croton (lately in-troduced). Nearly all the foreign.

PEACHES.—Cole's Early Red, Cool-edge's Favorite, Crawford's Late, Early York, George the Fourth, Grosse Mig-nonne, Hale's Early, La Grange, Large Early York, Lemon Cling, Malta, Old Mixon Free, Old Mixon Cling, Smock, Stump the World, Troth's Early, Ward's Late Free, White Imperial, Yellow Rareripe.

PEARS.—Bartlett, Belle Lucrative, Beurre Clairgeau, Beurre d'Anjou, Beurre Diel, Beurre Giffard, Beurre Hardy, Beurre Superfin, Bloodgood, Brandywine, Buffon, Catillac, Clapp's Favorite (new), Dearborn's Seedling, Doyenne Boussock, Doyenne d'Alencon, Doyenne de Comice, Doyenne d'Ete, Duchesse d'Angouleme, Easter Beurre, Flemish Beauty, Glout Morceau, Hen-kel, Hosenschenk, Howell, Josephine de Malines, Lawrence, Louise Bonne de Jersey, Nouveau Poiteau, Onondaga (Swan's Orange), Osband's Summer, Passe Colmar, Pound, Rostiezer, Seckel, Sheldon, Stevens' Genesee, Tyson, Ur-baniste, Vicar of Wakefield or Le Cure, White Doyenne, or Virgalie, Winter Nelis.

PLUMS.—Bavay's Green Gage, or Reine Claude de Bavay, Bradshaw, Coe's Golden Drop, Columbia, Damson, German Prune, General Hand, Huling's Superb, Imperial Gage, Italian Prune,

(or Fellenberg), Jefferson, Lawrence's Favorite, Lombard, McLaughlin, Prune d'Agen, Royale Hative, Smith's Orleans.

QUINCES.—Apple or Orange, Portugal.

STRAWBERRIES.—Large Early Scarlet, Longworth's Prolific, Triomphe de Gand, Wilson's Albany.

CLIMBING ANNUALS.

BY F. A. MILLEB.

(See *Frontispiece*.)

In presenting a group of annuals we have selected two of a climbing habit. The others rank among the most meritorious and least known on this coast.

Tropæolum peregrinum (Canary-bird vine), is a most graceful variety of the *Tropæolum* or *Nasturtium*. Flowers, sulphur yellow; the petals fringed and well reflexed, resembling the wings of a bird. The blooms are produced in great abundance from June to November, and have the peculiarity of changing their color to a much darker tint toward autumn. The branches recurve in a most graceful manner, and the bearing of the whole plant is elegant. The seed can be sown here in April; or, if planted in pots with protection of glass, it may be sown earlier, and the plants can be transferred after a month or so to their proper places.

Convolvulus minor, with its numerous varieties, is one of that hardy and free flowering class of plants which should be more extensively cultivated here. Most of them assume the character of trailing plants, and produce a most charming effect when fairly developed. The flowers of the various sorts vary in color from white to a rich violet, some kinds producing double flowers. The seed germinates freely, and should be sown where the plants are expected to remain.

Scyphantus elegans is with us a perennial climber, and is rarely met with. The flowers are of a bright yellow color, and the habit of the entire plant is most elegant and interesting. The culture of the *Scyphantus* is not attended with any difficulties, but it is advisable to start the seed in pots under some slight protection, and transfer the plants, with soil attached to the roots, to their respective places in the months of April or May. In the greenhouse the *Scyphantus* may be cultivated successfully as a perennial, and forms a pretty ornament.

Digitalis (Foxglove), a hardy perennial with us, is very little known here, although as a herbaceous border plant it has but few superiors. It does not bloom until the second year from seed, when its Gloxinia-shaped flowers, produced on long spikes, form a highly decorative object in the garden. The various colors of its numerous varieties are white, purple, rose, and yellowish brown, more or less spotted with darker colors. The best varieties are *D. lanata*, *D. purpurea*, *D. gloxinoides*, *D. maculata*, and *D. grandiflora*. The seed of the *Digitalis* is very fine, and should not be covered more than a sixteenth of an inch deep, with partial shading until the plants are strong enough to be transplanted or thinned out. Sow in autumn, or early (not later than April) in spring.

MENDING WATERING-POTS.—Tin watering-pots much used in the garden often become rusted at the lower corners, and begin to leak. It is not necessary yet to throw them aside, as the holes may be effectually stopped without going to the tinker's, by covering them inside with a small piece of linen dipped in copal varnish, the tin being previously thoroughly dried.

Editorial Portfolio.

HORTICULTURAL EXHIBITION.

We are happy to announce that arrangements have been perfected between the Mechanics' Institute and the Bay District Horticultural Society of California for a horticultural and floral display, in conjunction with the Mechanics' Fair. The large and elegant pavilion now under construction on Market, Eighth, and Mission Streets, will be completed by the 1st of August, and the exhibition will open on Tuesday, August 18th. This will be the Fourth Annual Exhibition of the Horticultural Society, and it is believed will not be inferior to any former display, while the decoration will probably be on a grander scale than heretofore. The horticultural department will occupy about one-sixth of the entire building, a space fifty feet wide by 250 feet long, being a portion of the main building, which is provided with extra lights and ventilation.

The arrangement of the horticultural department will be in the style of a modern flower-garden, while the outskirts will be planted in grass.

The most objectionable feature to the exhibition is, that it is to remain open for four weeks; but this difficulty has been removed by dividing the time into four weekly exhibitions, so that plants and articles of perishable nature can be removed at the end of every week, and be replaced by others. To accomplish this, the horticultural department will be closed every Monday, and until Tuesday noon, for the purpose of removing and entering articles.

About \$850 in premiums are offered for the various floricultural, horticultural, and agricultural products of the State, all of which, we hope, will meet a lively competition.

There is little doubt but that floral displays have now become indispensable entertainments to this community; and it is with great pleasure we perceive the very encouraging progress in the interest felt for this healthful and recreative pursuit, and for which we have been working earnestly during the past four years.

We also hope that the horticultural display will be more general than heretofore. All of our nurserymen and florists should combine to make this a most complete success. All are invited to do their share. Competition is open to all. If amateurs would consent to bring some of their pets, a most pleasing feature could be added to the exhibition.

FAVORS RECEIVED.

THE OVERLAND MONTHLY FOR AUGUST.—We always enjoy the perusal of this magazine, from the fact that it comes from such a new and peculiarly rich field of literature. It may not be inappropriate to mention that the *Overland* is certainly entitled to no small degree of credit to have produced such popular American authors as Bret Harte, Charles W. Stoddard, Joaquin Miller, Stephen Powers, John Muir, Prentice Mulford, Benjamin P. Avery, and Miss Ina D. Coolbrith, and also that it is apparently advancing a number of its other contributors to an enviable position in literature. Some of the contents of the present number are very instructive, as follows: "Glimpses of the Court of China," by Bishop Kip; "Pioneers of Oregon;" "Mythological Zoology of Japan;" conclusion of Dr. Stillman's Argonautic papers; "Legislation on Railway Freight Charges;" the fourth paper on "Studies in the Sierra," by John Muir. The "Etc." department contains a very elaborate translation, by

the editor, of a criticism on the French Art Exhibition of 1874. \$4 per annum. John H. Carmany and Co., publishers, San Francisco.

We are again indebted to James Vick, of Rochester, New York, for the handsome frontispiece of the present issue of this journal.

A copy of the *Pacific Coast Educational Journal* has been placed on our table. This is the first number of this quarterly publication, and is a very creditable production. It is alike instructive to the teacher, the pupil, and the home circle. \$1.50 per annum. John H. Carmany & Co., publishers, San Francisco.

EVERLASTING FLOWERS.—The Immortelle of the East (*Helichrysum orientale*), a native of Asia, has been known in Europe since 1620, but was only first cultivated in gardens about 1815. Its flowers, the symbols of friendship, or tribute to talent and genius, serve to make the garlands of Immortelles which ornament the tombs of the dead in Roman Catholic countries. It is cultivated in France, in the communes of Lower Provence, where the soil slopes toward the Mediterranean Sea. It succeeds very well on the slopes of Bandols and Cioto, which are exposed to the south and inclosed by walls of stone. It blossoms about the month of June. It suffers from heavy and continuous rains and strong dews, and only vegetates well on light, stony and permeable soils. It is propagated by offsets, which are separated from the old stocks. The gathering of the flowers is made in the first days of June, before the bursting of the buds. As the flowers which are insufficiently formed or too full blown are rejected by the trade, it is important not to cut either too soon or too

late. The collection is made by women, who tie them in small bundles, which are ordinarily dried on the walls of the inclosure. Finally, young girls are employed to remove the down which covers the ramifications. A kilogramme ($2\frac{1}{2}$ lbs.) by weight of those plants contains about 400 stems, each containing about 20 flowers. Each growing tuft of Immortelles produces 60 or 70 stems. A hectare ($2\frac{1}{2}$ acres) will contain 40,000 tufts, producing annually 2,400,000 to 2,800,000 stems, yielding 16,000 to 20,000 bundles, or five and a half to six and a half tons in weight of Immortelles.—*Gustave Henge*.

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*.

THE NEW JAPAN PRIMROSE has already been broken by English florists into as many varieties as the old Chinese Primrose has been. We do not hear of any double ones yet; but the production of these flowers is now so much better understood, that it will probably not be long before we see them.

REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPEB.

There are now at work in this State some of the wisest and best cultivators of fruits and vegetables. Progress in this respect is now being rapidly made. Knowledge, through experience, is effecting very valuable results. Even in this section of country, naturally so very highly favored in its different climates and soils, there are many things to contend with, and intelligence, judgment, energy, and continual vigilance, are necessary. Insects injurious to vegetation and fruit are becoming every season more numerous. With respect to varieties, both of fruits and vegetables, we are beginning to reject those which are unworthy, to treasure the best information, and to publish, for the benefit of our whole population, the conclusions arrived at in our researches.

In another place in this number of the *HORTICULTURIST* will be found a list of fruits best adapted for California, published in the excellent and carefully formed catalogue of the American Pomological Society. In this catalogue they have mainly relied on those fruits which have originated on American soil. The clear skies and warm summers of our American climate, especially in California, are far more favorable for successful productions than the lands of Van Mons, Knight, Esperen, and others. There will occur now, as of old, decay and deterioration of certain sorts of fruits, and the causes which lead to these evils will still exist. The Pear and Apple have been more subject than any other fruit to degeneracy. All the other fruits are, fortunately, almost entirely exempt from these troubles; and even the Pear and Apple on this

coast have suffered but little, if at all, as yet, from this deterioration. We can certainly do as much, if not more, here, in originating excellent fruits from seed, than in any other country. Indeed, it appears that some fruitists have already been successful in this process. We may, probably, in time, and with patient industry, produce a better earlier or later Strawberry than the Wilson, or even the Longworth Prolific, or an Apple much earlier and better than the Early Harvest or Early Strawberry. Perfection, or very near it, may be obtained in this, as in many other things. We must plant the seeds of our best varieties; this may lead to vast improvement. Some cultivators, it is to be hoped, will be found, who, from their wealth and leisure, will be able to accomplish something lastingly beneficial to the community in this regard. Mr. Fox, of this State, has already made, in sowing Pear seeds from the improved kinds, a notable step in this matter, and the success he has met with demonstrates how favorable our climate is for such undertakings. That highly intelligent and noble authority, Col. Marshall P. Wilder, President of the American Pomological Society, in his late excellent address, stated: "Were I never to address you again, I would repeat the counsel I have so often given in regard to the production of new and fine fruits, namely: To plant the most mature and perfect seeds of the most hardy, vigorous and valuable varieties; and as a shorter process, insuring more certain and happy results, cross or hybridize your best fruits."

With regard to our markets: About the first week in July, Peaches were received in considerable quantity, but they were rather green and hard; price 15 to 25 cents per pound. Apricots were moderately plentiful, at 6c. to 15c.

Strawberries were rather poor and seedy, retailing at 15c. Gooseberries continued to sell at 6c. per lb. Blackberries were offered at 20c. Currants were very abundant, and retailed at 8c. Raspberries, 15c. to 20c. per lb. Eating Apples, of somewhat improved quality, retailed at 15c. per lb. Cooking Apples were quoted at 5c. to 8c.; Pears being 6c. to 8c. per lb.

As to vegetables, Okra, Chile Peppers, and Egg Plants were quoted at 50c. per lb. Green Corn was improving, and receipts were rapidly increasing. It could be bought at 15c. to 25c. Tomatoes were ripening rapidly, and retailed at 10c. to 15c. per lb.

The first Watermelons of the season were received on the 5th of this month (July), from the Sacramento River and Putah Creek. The consignment from the river consisted of 235, and the retail price was 75c. to \$1.25 each. Cool weather for the most part of the spring kept back the supply of Tomatoes, and prices were high.

No variety of fruit had disappeared up to the 15th of this month, and the list in market up to that time was probably greater than it will be at any other time during the year. About the 6th of this month, the display of some kinds, including Gooseberries and Cherries, was getting to be poor in quality and small in quantity. Peaches began to arrive from the Sacramento River, and the supply afterward soon became large. In the middle of this month, Apples were plentiful, and ripe Red Astrachan Apples could be obtained at 40c. to 50c. per basket.

The Panama steamer brought, on the 7th, Limes, Alligator Pears, and Oranges from Acapulco, and a few Bananas and Pine-apples from Panama. Bananas sold at 50c.; Mangoes and Alligator Pears, \$1 and \$1.25 per doz.

The first Figs of the season were received on the 6th of the month, from I. R. Wolfskill, Putah Creek, Solano County. The whole consignment brought \$1 per lb. On the 5th, the first box of June Plums was received from Tehama, and the first Hale's Early Peaches this season from Solano County. The supply of Currants far exceeded the requirements of the market, and prices were ruinously low to the producer. Families could obtain the best at 35c. per drawer of 10 to 11 lbs. Apricots are very plentiful still, and the prices have been very low.

During the writer's visit to Napa Soda Springs, on the side of a mountain 600 feet above Napa Valley, Blackberries were only fit to pick for market on the 14th of this month, being nearly four weeks later than last year. The bushes were laden down with the fruit, and they would certainly average more than forty pounds to the bush. From one acre and a half the owner expected to realize \$1,000, clear of all expenses. A few Early Harvest and Red Astrachan Apples were ripe there about the 15th of this month (July).

FRUIT PRESERVING IN LONDON.—In answer to inquiries from the editor of the *Gardener's Chronicle*, Messrs. Crosse & Blackwell state that in 1873 they preserved 1,100 tons of fruits; namely, 300 tons of Raspberries, 200 of Strawberries, 100 of Red Currants, 100 of Black Currants, and 400 of other kinds. These fruits are mostly grown within twenty miles of London, chiefly about Bexley Heath and its neighborhood. Although this is the largest quantity put up by any single manufactory, it forms only a small fraction of the whole amount preserved in London and other parts of the country.

NEW AND RARE PLANTS.

Verbena Glory of America is considered by the Floral Committee of the Massachusetts Horticultural Society as one of the best blue Verbenas ever raised.

New Double Zonale Pelargoniums.—Jean Sisley, who sent out last year Asa Gray, Aline Sisley, and other good kinds, this season announces a new set. George Sand, flowers white in the house, but tinted with flesh color in the open air; Francois Pertusati, color "aurora," bordered with white; Carl Vogt, salmon-orange, a "new shade of color;" Talabot, amaranth; Louis Blanc, a cherry lilac.

White Pansies.—*White Bedder* (William Deans).—This is a very useful variety; it is a very showy grower, thriving where others would die; it is a free, early bloomer, and is in good bloom in April when planted in autumn. It is profuse-flowering, the flowers rather small, but it makes a fine display in a mass.

Mrs. Felton (Hooper).—The largest and finest white in existence, having a very large, quite peculiar, bluish-violet blotch. It is unequalled as a show variety of this class, and as a bedder produces an effect which at once places it at the head of the bedding whites, while its blotch renders it quite original and distinct. It is of very vigorous habit.

Foam (Ware).—This is one of the very best whites. I have compared it for three years with all the rest, and believe this statement correct. It is of compact habit, has large, pale, showy, green foliage, and is a profuse bloomer. The flowers are of good shape, pure white, and of fine substance. It blooms well in May. This flower I have lately seen snubbed; but anyone who likes to view it here in May may judge for

himself. It has a blotch of violet blue, free from stars.—*Gardener's Magazine*.

The White Everlasting Pea.—This fine old plant is not nearly so much planted as the colored form, though the white one is really the better plant of the two. It grows as freely as the old form, often attaining eight or nine feet in height, and it is just now one mass of snowy blossoms. The flowers being borne on long, slender stalks, are well adapted for cutting, and they may be used along with the choicest exotics. It figures largely at present in some of the Covent Garden bouquets. When once planted, in good loam, it grows like a weed.—*Garden*.

Early Flowering Chrysanthemums.—*Large Flowering*: Empress of India, Golden Queen, Alma, Lilac. *Beverly*, Christine, Aurea multiflora. *Pompones*: Andromedia, Drin-Drin, La Vouge, General Canrobert, Rose Trevenna, Rose Marguerite.—*Gardener's Magazine*.

New Variety of Christmas Rose.—Many of our readers are familiar with the *Helleborus niger*, or old Christmas Rose, which, in protected places, has been seen in bloom in winter, as it stood in the snow. A correspondent of the *Garden* describes a larger and earlier variety, known as *Helleborus niger major*, which produces larger blooms and flowers a month earlier, to which the old sort is a suitable successor.

Pelargonium, Queen Victoria.—This new Pelargonium is now being sent out for the first time. To say that it is handsome conveys but an inadequate idea of it, for it is the most marvellously beautiful and novel variety ever offered. The flowers have peculiarly crispy petals; they are not really double, but from their fullness of form and extra number of petals, have the

appearance of being so. The color is a rich vermilion; all the petals broadly margined with pure white, and the upper ones blotched with maroon. The contrast of the broad white margin with the vermilion ground-color makes the flower extremely pleasing and attractive.

A New Shrub.—That superb, new, hardy flowering shrub, *Xanthoceras sorbifolia*, hitherto found to be so difficult to increase, has at last been successfully propagated by Messrs. Thibaut & Keteleer, of Sceaux, near Paris. It will be "sent out" by that firm in 1875.—*Garden.*

Planera Richardi pendula.—This is the weeping variety of the Zelkonatree. It produces long, pendent, slender branches, which are pretty well clothed with leaves. It is grafted several feet above the ground, on the erect growing variety. It forms a handsome ornament either for lawns, pleasure-grounds, or parks.—*The Garden.*

Chamæpeuce diacantha.—This beautiful plant is known as the Fishbone Thistle. It has glossy, dark leaves, with white nerves and brown spines. It is covered with white silky down, and is very beautiful.

Primula Verticillata.—The flowers are sweet-scented, and the corolla has a very long tube before throwing out its spreading limb. The leaves are powdery, somewhat similar in this respect to the *P. farinosa*.

New Double-flowered Pelargonium (Captain Raikes).—This variety will be found at once the most beautiful and useful Pelargonium ever sent out, more especially for bouquet makers and market purposes. In fact, its blooming properties, at all times of the year, both early and late, are so extraordinary, that it may, with all justice, be termed a perpetual bloomer. This

Pelargonium belongs to the French type of flower, and on account of the blooms being double, the petals do not readily fall when cut for bouquet-making. This fact alone will render it simply invaluable, whenever cut blooms are required, at all seasons of the year. It is of a vigorous, free-branching habit, producing large and ample dark green leaves. The trusses of bloom are borne well up above the foliage, and are both numerous and large, whilst the individual flowers are large and full, upper petals deep fiery crimson, flaked with purplish black and bordered with carmine; lower petals clear, bright, fiery crimson. It has been awarded a first-class certificate by the committee of the Royal Horticultural Society, and also a special prize at the great horticultural exhibition at Manchester, where the blooms retained their full beauty, and without any petals dropping, for a whole week.—*Garden.*

Pentstemon Palmeri.—Mr. Thompson, of Ipswich, states that the inflorescence of this plant is of a delicate peach color, and occupies quite two feet in length of the main stem. It comes from Arizona, and probably also occurs in other Western American States. The foliage, which on the flower-stems is connate, is of a glaucous hue, and petiolate on the side branches. It is evidently a robust-growing plant, reaching, when in flower, to a very considerable height; therefore, when the large number of flowers it produces is taken into account, it cannot fail to be a showy plant, either in the herbaceous garden or shrubby border.—*Garden.*

Vernonia noveboracensis.—This vigorous-growing perennial is now producing rosy-purple flowers in abundance at Kew. Although the stems are somewhat naked, it might be used with

good effect in shrubberies along with such Asters as *Novæ Angliæ*, or among vigorous perennials in semi-wild situations.—*Garden.*

A New Hardy Bamboo.—Under the name of *Bambusa sulphurea*, M. Carriere describes a perfectly hardy species of Bamboo now growing in the Jardin d'Acclimation, in Paris. In general appearance, it resembles *B. viridiglaucescens*, but it is not so vigorous; the stems are somewhat spreading, and of a fine sulphur-yellow color; the leaves are of a light green on the upper surface, and glaucescent underneath. M. Carriere states that he has never known this species to vary. Unlike the other yellow-stemmed kinds, which are very tender, it requires no shelter in winter. It was first introduced about 1865.—*Garden.*

NEW AND RARE FRUITS.

Pilot Apple.—In the *Gardener's Monthly* for March, a correspondent inquired for information about this Apple. In the "appendix" to Downing's *Fruits*, page 27, there is a figure, and the following history and description: An accidental seedling, found upon the premises of John Robbins, at the foot of Pilot Mountain, in Nelson County, Va. Tree hardy, of moderate growth, forming a round head, rather slow coming into bearing, but when established produces large crops alternate years, and a few the intervening ones, and is considered a valuable variety in its locality. Young shoots reddish-brown. Fruit large, roundish oblate, slightly angular; skin pale yellowish-green, shaded, splashed and striped with pale dull red nearly over the surface, and thickly sprinkled with large areole dots; stalk short, small; cavity rather large; calyx half closed;

basin large, deep, smooth; flesh yellowish-white, fine, rather firm, tender, juicy, rich subacid, slightly aromatic; very good; core small. December, January.

Cambridge Grape.—This is a new Grape, which has just been offered in Massachusetts. It is strongly recommended by Mr. Hovey, who says it resembles the Concord in many of the characters which give so much value to that popular variety. Mr. Hovey was the introducer of the Hovey Seedling Strawberry, which held a high place in public estimation for so many years; and also brought out the Concord Grape raised by Mr. Bull. These facts are worth remembering in connection with any fruit which they strongly recommend.

ROOTS ADAPTING THEMSELVES TO PROPER DEPTH.—Observing farmers have seen the effects of deep planting in wheat fields, where the mass of roots first thrown out at the grain, several inches below the surface, is superseded by another mass much nearer the surface. A writer in the *Pharmaceutical Journal* gives some other examples of a more striking character. Snowdrop bulbs were planted twelve inches beneath the surface. Several of them succeeded in sending up leaves to the surface, and produced flowers. When the foliage began to decay, they were taken up, when the old bulbs a foot down were found to have decayed and perished, and new ones formed four inches beneath the surface of the soil. On another occasion some Tulip roots had been left nearly uncovered, or almost on the top of the earth. After a year's growth, these were found to be only a skin or shell, but a tap-root had struck down and formed healthy bulbs four or five inches below. Thus roots instruct us how they ought to be planted.

Editorial Gleanings.

ACALYPHA TRICOLOR.—Few plants excel this for stove decoration all through the year, and yet it is very seldom one meets with a good specimen. Its dark fine foliage has a very pleasing effect among other foliage plants in the stove. Perhaps a few remarks on the culture of this plant may prove useful to some of our readers.

The beginning of March is, I find, a very good time for striking cuttings. The compost we use for the purpose is fine peat, leaf-mold, and silver-sand. The pots we use for striking are the four-inch; they are half-filled with crocks to insure good drainage, filled within half an inch of the top with the above compost, and the remaining part filled up with silver-sand. The cuttings when put in are well watered, and are not watered again until they are rooted. The pots are plunged in a bottom-heat of 85°, with a top-heat of about 75°. When rooted they should be potted off singly into three-inch pots, and again plunged in bottom-heat, when in about three weeks they will again require shifting into five-inch pots. The compost we use in this stage consists of good turfy peat, loam, a little leaf-mold, and silver-sand, to which is added a few potsherds broken up to the size of peas. As soon as they begin to take hold of the new soil, the necessary steps should be taken to obtain bushy plants by pinching out the leading shoots.

We find bottom-heat very beneficial to this plant, more especially in the growing state. If larger plants are required, I strongly recommend employing bottom-heat, and they require potting as they advance, never allowing them to become pot-bound. This plant is very subject to green-fly and mealy-bug. These little pests must be kept

under, the former by fumigating, the latter by using a little Gishurst Compound and plying the syringe freely.

In the winter months they should be carefully watered, as drought is peculiarly injurious; but on the other hand, excessive moisture is equally injurious. With the above treatment, we find the *Acalypha* to give every satisfaction, and I may state, when well grown, it will prove a great acquisition for exhibiting purposes as well as indoor decoration. —*Gardener's Monthly.*

HOW FLOWERS BECOME NATURALLY DOUBLE.—At the May meeting of the Philadelphia Academy of Natural Sciences, Mr. Thomas Meehan observed, that on several occasions during the past few years it had been noticed, among the variations in nature, that the tendency to produce double flowers was by no means the special prerogative of the florist to originate. Many of our commonest wild flowers, which no one would think of cultivating, had double forms in cultivation which were, no doubt, originally found wild. Thus we had a double *Ranunculus acris*, *R. bulbosus*, *R. Ficaria*, *R. repens*, and some others. There were, in plants, two methods by which a double flower was produced. The axis of a flower was simply a branch very much retarded in its development, and generally there were, on this arrested branch, many nodes between the series forming the calyx or corolla and the regular stamens and carpels, which were entirely suppressed. But when a double flower was produced, sometimes these usually suppressed nodes would become developed, in which case there was a great increase in the number of petals, without any disturbance in the staminal characters. But at other times there was no disturbance in the normal character of the axis. The stamens

themselves merely became petaloid. This was the case in the *Epigœa* recently found by Dr. Darrach.—*The Garden.*

MUSHROOM POWER.—We have referred before to the remarkable power that delicate rootlets have of penetrating the hardest soil. A correspondent of the *Gardener's Chronicle*, of London, gives an interesting account of the force exerted by the mycelium of the Mushroom in making its way through apparently impenetrable materials. He says: "I observed a few days ago in our Mushroom-house, with considerable interest, and I may say with surprise, the penetrating power of Mushroom spawn. One side of the bed is brick four and a half inches thick, firmly set in hard lime, so close in the texture that it is impossible to introduce the point of a nail without considerable force. Nevertheless, the mycelium found admission, and produced Mushrooms of a considerable size on the outer side. The wall in several places contains porous bricks, and there, too, the mycelium found its way right through."

FLOWERS AMONG THE ANCIENTS.—The custom of using flowers on occasions of mourning and festival is of high antiquity. Roses were especial favorites of the Romans; their floors and couches were strewn with them at feasts; sometimes the ceiling was arranged to shower Roses on those below, occasionally almost to suffocation. Among the Greeks,

"It was the custom then to bring away
The blushing bride from home at close of day,
Borne in a chariot, heralded along
With strewn flowers, torches, and a marriage
song."

The classic fables concerning them are innumerable. Daphne transformed to the Laurel; Syrinx to the Reed; Narcissus, emblem of self-love; Hyacinth,

sprung from the blood of Apollo's murdered favorite, and Anemone from the earth where lay dead Adonis—are but few of those that might be mentioned.—*Canada Farmer.*

THE natives of Java are said to possess a fatal poison, which acts in a purely mechanical way, and yet, when administered to any animal, is said to produce certain death. It consists of the small, black filaments obtained from the stalk of the bamboo. These filaments, or minute needle-shaped spines, are covered with an imperceptible furze, which acts as a propelling medium, so that when the needles are swallowed they catch in the victim's throat, from which they work their way into the respiratory organs, and there produce irritation, followed by a violent inflammation, and eventually death. The needles are so fine that they may be mixed with any form of solid food, and thus be administered to the victim.

SULPHATE OF IRON AND VEGETATION.—M. Eusebe Gris has been making experiments on the influence of sulphate of iron on vegetation, and comes to these conclusions: That the salt is a stimulating manure; that it presents no danger when intelligently applied; that its action is evident upon the coloring principle of leaves; that from its cheapness a few cents' worth is sufficient to treat hundreds of plants; that it might be applied to cultivation on a large scale, and especially to the cultivation of fruit. His manner of applying the sulphate is as follows: A solution of two drachms to one quart of water is made, and with this the plants, previously placed in the shade, are watered. It is presumed that the earth surrounding the plant is moist; if this is not the case, a more dilute solution must be

used. The solution may be applied daily for five or six days; about two and a half ounces are sufficient for each watering of an ordinary-sized plant, as a *Calceolaria*. Plants which have become sickly, colorless, etiolated, will, under this treatment, quickly recover a full green color, give finer flowers, send forth more vigorous shoots, and generally show the good effects of the tonic.

VEGETATION INSIDE AN EGG.—A foreign journal states that "Professor Panceri made an interesting communication to the Institut Egyptien, at its meeting in December, on the cryptogamic vegetation which he had found within the egg of an ostrich. This egg had been given him at Cairo, and was still fresh, the air space having not even been formed. He soon, however, noticed the appearance of dark blotches within the shell, and having broken it open to ascertain the cause, he found that they were produced by the growth of minute fungi. Instances of a similar kind had already been studied by him, and he had communicated the results to the Botanical Congress held at Lugano in 1859. The believers in the reality of the spontaneous generation of living organisms have not been slow to seize on these cases as an argument in their favor, since, *a priori*, it would seem that the shell of an egg would be quite impermeable to germs derived from without. Panceri has succeeded in satisfying himself, however, that the unbroken shell of an egg is permeable to liquids, and that these may introduce germs into its interior. He has, in fact, actually succeeded in inoculating other eggs with a fungus which he had obtained from the interior of one in which it had made its appearance in a way apparently so mysterious. He cultivated the fungus in

egg albumen, and thus conveyed it to the uncontaminated eggs."

THE VITALITY OF SEEDS.—A correspondent of the *Revue Horticole*, in sending the following notes to that journal, states that they were communicated to him by a friend who had ample opportunity for making trustworthy observations on the subject. The figures indicate the number of years in which the seeds may be depended upon as preserving their vitality or power of growth. They represent the periods of time after which the various seeds mentioned have been found perfectly good, and may be of some use as a guide to those who are uncertain whether to throw away or sow old packets of seeds: Seeds of Artichoke (globe) lasts good for 5 years; Asparagus, 4; Beans (garden), 6; Beans (French), 2 to 3; Beet, 5; Cabbage, 5; Carrot, 4; Cauliflower, 5; Celery, 7; Cress (garden), 5; Cress (water), 4; Cucumber, 5; Dandelion, 1; Egg-plant, 7; Fennel, 6; Gourds, 5; Leeks, 2; Lettuce, 5; Maize, 2; Melon, 5; Mustard, 5; Nasturtium, 5; Onions, 2 to 3; Parsnip, 1; Parsley, 3; Peas, 4 to 5; Pepper (long) 4; Potatoes, 3; Radish, 5; Rhubarb, 3; Salsify, 2; Spinach, 5; Strawberry, 8; Thyme, 2 to 3; Tomato, 5; and Turnip, 5.

SEWAGE AND PEPPERMINT.—According to the *Bulletin Therapeutique*, an attempt made by a Paris merchant to utilize the sewage of that city in the cultivation of labiate plants in the plain of Genevillers has been so successful, that at the present time three hectares of land ($7\frac{1}{2}$ acres) are devoted to the raising of Peppermint alone. The plant is said to grow with such vigor that three collections are made in each year, whilst the essential oil obtained from it by

distillation is asserted to be superior in delicacy of aroma and flavor to that imported from England. So satisfied are the directors of the Pharmacie Centrale with the results, that they express their readiness, should any pharmacist be sufficiently enterprising to extend the experiment to the neighborhood of the manufactory at St. Denis, to undertake to use all the produce.

THE BEST GERANIUMS.—In the Report for 1873 of the Massachusetts Horticultural Society, is given the following list of the best Geraniums for general bedding purposes:

“The best golden tricolor is Mrs. Pollock; the silver tricolors are of little value. The Albion Cliff is the best silver-edged for bedding. In the bronze class, Moor, Harold, and Reine Victoria, dwarf, are the best. The best scarlets are Orbiculatum, Coleshill, Gen. Grant, Kingcraft, Leonidas, and Sir John Moore. For darker shades of scarlet, Douglass Pearson and Wellington are good. Crystal Palace Gem is the best golden-leaved. The best pink Geraniums are May Queen and Master Christine.

ETHER GLUE.—An excellent liquid glue is made by dissolving glue in nitric ether. The ether will dissolve only a certain amount of glue, consequently the solution cannot be made too thick. The glue thus made is about the consistency of molasses, and has double the tenacity of that made with hot water. If a few bits of India-rubber, cut into scraps the size of buck-shot, be added, and the solution be allowed to stand a few days, being stirred frequently, it will be all the better, and will resist the dampness twice as well as glue made with water.

ROSES FOR PERSIA.—Sending Roses to Persia seems much like sending coals to Newcastle, but our English cousins have been doing this. *The Gardener* says that the floral decorations at Buckingham Palace, during the Shah's temporary residence there consisted almost wholly of Roses, selected with a view to recall to his mind his own Persian “gardens of Gul in their bloom;” and so struck was his majesty by the splendid display of these flowers which daily met his eyes, that he has sent an order to London for an extensive assortment of the same kinds to be dispatched immediately to Persia.

THIRTY-ONE years ago, Corn sold at Mansfield, Ohio, for 12½ cents, Oats at 10 cents, Wheat at 40 cents, per bushel, and dressed hogs at one cent per pound.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING JUNE 30TH, 1874.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office).

BAROMETER.

Mean height at 9 A. M.	30.08 in.
do 12 M.	30.08
do 3 P. M.	30.07
do 6 P. M.	30.06
Highest point on the 5th at 9 A. M.	30.19
Lowest point, on the 30th at 6 P. M.	29.99

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	62°
do 12 M.	67°
do 3 P. M.	66°
do 6 P. M.	62°
Highest point, on the 13th, at 3 P. M.	82°
Lowest point on the 22d, at 6 P. M.	55°

SELF-REGISTERING THERMOMETER.

Mean height during the night.	50°
Highest point at sunrise on the 10th.	59°
Lowest point at sunrise on the 17th.	46°

WINDS.

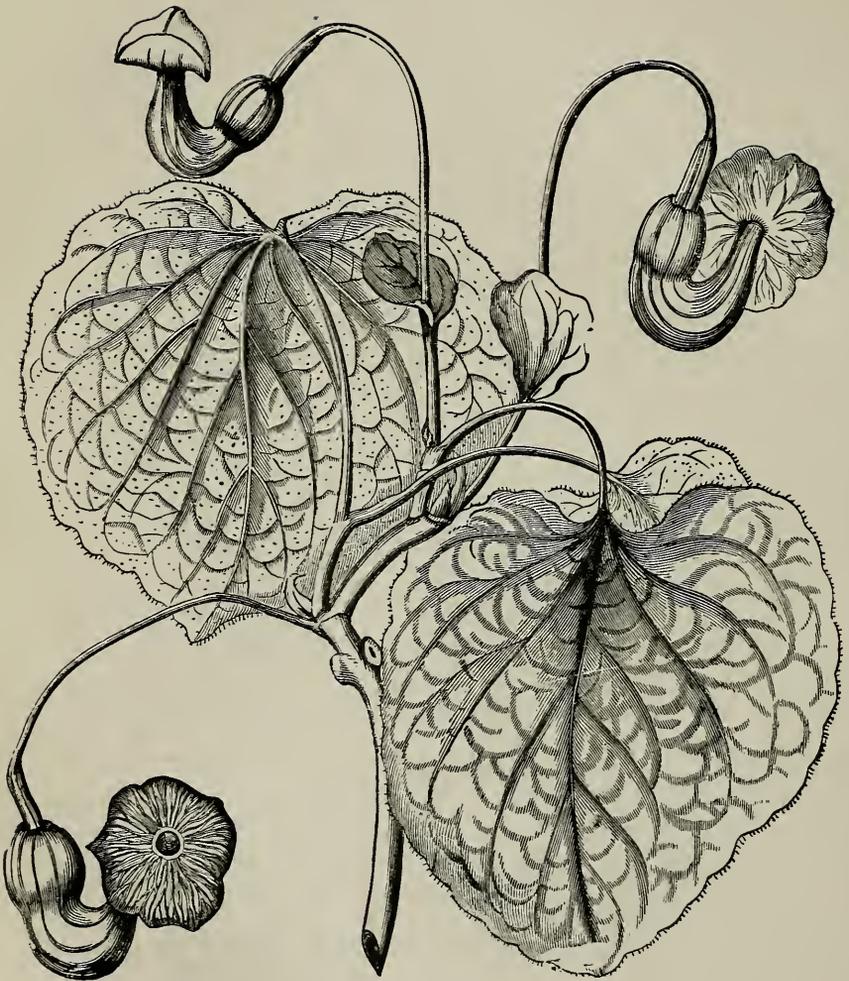
North and north-west on 13 days; south-west on 2 days; west on 15 days.

WEATHER.

Clear on 12 days; cloudy on 2 days; variable on 16 days; rainy on 2 days.

RAIN GAUGE.

June 6th	0.04 inches.
.. 21st	0.04 “
Total	0.08 “
Previously reported	23.90 “
Total rain of the season up to date	23.98 “



ARISTOLOCHIA SEPHO.

(Dutchman's Pipe.)

T H E

California Horticulturist

AND FLORAL MAGAZINE.

VOL. IV.

AUGUST, 1874.

No. 8.

ALPINE PLANTS.

BY F. A. MILLER.

[Continued from the July number.]

The *AURICULA* (*Primula auricula*) is one of the oldest and prettiest Alpine plants under cultivation, yet it is rarely met with here; in fact, very few of our amateur gardeners seem to know of its existence. In Europe we find the Auricula in every collection; in fact, wherever there is room for a flower-pot we generally meet with it. There is no reason why we can not grow the Auricula here in its full glory, our climate being exceedingly well adapted for it. During the last two years I have paid special attention to a collection of about 200 plants, and find that, without any care except watering them occasionally, they continue to flower through nearly all the year. Our rainless and cool summer favors its cultivation.

The varieties of the Auricula are almost endless; but the green-edged varieties are nowadays considered most desirable. Since making their cultivation a special point, I have had the pleasure of seeing them admired by many visitors, and I have good reason to believe they will yet become favor-

ites in our gardens. The Auricula is a native of the European Alps.

PENTSTEMONS are another much-neglected class of herbaceous Alpines, and so well adapted to our mild climate that they may be had in bloom during winter as well as summer. They are easily raised from seed, and bloom with us in autumn and during the following winter, if the seed is sown in April or May. There are a number of distinct and good varieties, the leading colors of which are violet, rose, carmine, lilac, yellow, and blue. The Pentstemons are natives of America, mostly of Mexico. A very pretty variety, *P. confertus*, of a sulphur-yellow color, is found in Oregon; the best and most remarkable blue varieties, *P. Gordoni* and *P. cœrulea*, are indigenous to California; and the prettiest of all, *P. spectabilis*, is also a native of California, and found in the mountain range back of San Diego. This variety produces large and brilliant flowers of a reddish purple, grows five to six feet high, and is a very prolific bloomer.

Although our Californian varieties of Pentstemons are taken under cultivation with much eagerness in Europe, no one seems to care for them here. I am con-

tinually at a loss to account for the indifference with which so many beautiful native plants are treated at home, while imported plants of much less merit are eagerly purchased at a high price. This must be attributed, however, more to the producer than to the purchaser. It is true the nurseryman is compelled to cultivate that which is most in demand; but he should also make it his business to create a demand for anything which he considers meritorious, although its natural habitat may be within a stone's throw of his nursery. A little less of prejudice against "wild flowers" would perhaps give us a higher opinion of the country we live in.

In concluding this second article on Alpine plants, I would mention the PHLOXES, and particularly the *Phlox hybrida*. An endless number of varieties of these are now presented annually in the catalogues of our eastern nurserymen. Nearly all the varieties are worth having, and it is difficult to select from the long list of exquisite colors and shades. Some of them grow from four to five feet high, while others assume a more dwarfish habit. They flower here from July until late in autumn. The flowers also vary much in the arrangement of colors. We have the pure, the striped, the light centered, the star-shape centered, etc. The colors are bright, pure, and pleasing, varying from the clearest white to a dark red, shaded rose, violet, lilac, and blue.

Nowhere can Phloxes be grown to greater perfection than in California, and no class of plants will thrive with so little care. They may be raised from seed, and are easily propagated by dividing the roots in autumn or spring. They may also be propagated from cuttings of the young wood during spring and early summer; but this mode of propagating requires to be done under

glass. Few Phloxes are cultivated here now, but the day is not distant when they will be seen in every garden.

[To be Continued.]

CALIFORNIA FRUITS.

The following article on the fruit crop of California will have some interest for all classes of the community, as it exhibits faithfully the resources of our State in this department of profitable industry. If some of our wealthy capitalists are at a loss where to invest judiciously, the facts and figures there stated may give them an idea of a field for safe speculation which is widening every year.

CALIFORNIA FRUITS.—Any intelligent observer who will take the trouble to walk through the fruit market at this season of the year, can not fail to be favorably impressed with the great resources of California in this respect, and her claim to be considered foremost among the fruit-growing countries of the world. For size and beauty of coloring, her fruit bears away the palm, not only for that which is grown in temperate regions, but for many products of the tropics as well. In Grapes, for instance, he will find the Purple Isabella, the White Muscatel, the firm-meat Hamburg, and the rosy Tokay and Catawba. To an artistic eye, æsthetically cultivated, these are among the most beautiful productions of nature. The rich glow seems as if just transferred from the sunset sky to the glossy skin of these delicious fruits, which appear to be bursting with the imprisoned sweets within—just as if a miniature summer, with rosy-tinted clouds, was incorporated into the ripened seed-bearer, giving it a soul of priceless and inimitable colors. The display of Raspberries, Strawberries,

Plums, and Cherries, is very tempting, the latter especially being of large size, and in flavor far superior to those of the Eastern and Southern States.

SMALL FRUITS.—Up to the 16th of June, 1,120,000 pounds of Strawberries were shipped to this city—a very large consignment. At present they are very scarce. It has been remarked that the Raspberries of this year have a richer flavor than usual; but no increase in the yield has been noticed. This circumstance may arise from the fact that in 1871 this fruit was much injured by the ravages of a small bug about the size of two lines, which can only be detected by careful scrutiny. When the existence of this diminutive animal was made known to the Raspberry-eating public, many persons conceived a violent prejudice against the fruit, and looked upon it ever after with distrustful and suspicious glances. The objection has not been removed this season, in spite of all assertions to the contrary: for the writer of this article, after having eaten half a pound last week, displayed considerable chagrin and stomachic anxiety upon discovering a dozen of the little bugs trotting a race against time up the sides of the saucer. They can do no harm, however, when taken into the stomach, because the chemical juices of the body instantly deprive them of life, and no alarm need be felt should anyone swallow them and ascertain the disagreeable fact afterward. They are selling (the Raspberries—not the bugs), wholesale, at 5c. to 6c. per pound, and, when properly cleansed, make a palatable addition to the dessert.

The number of Strawberry-vines and Blackberry, Raspberry, Currant, and Gooseberry bushes, has been estimated at 40,000,000, and the value of the yearly crop at nearly \$2,000,000.

The Gooseberries are considered inferior to those of other countries, but they are rapidly improving. Mr. W. N. Steuben, of Gilroy, has grown some of the English variety this season, which measure three inches in circumference and an inch and a half long.

LARGER FRUITS.—The Apricot is a healthier tree than the Peach, and has an advantage over it in the fact that the fruit of some varieties ripens earlier. The Apricot looks well this year, and is slightly improved in flavor. There are about 100,000 trees in the State in good condition. But few Peaches are in market. Hale's Early variety, from Briggs' orchard, Marysville, may be seen for sale. They are about three times the ordinary size, and weigh about fourteen ounces each. The Nectarine ripens later than the Apricot, but has not so sweet a flavor. It labors, also, under the disadvantage of not being so prolific, although it is a hardy fruit. There are about 60,000 trees in the State, and they appear to be thriving. There are about the same number of Quince-trees. The Quince is hardy and prolific—not so much esteemed here as in the Eastern States, because the supply of fresh fruit is more varied and abundant here throughout the greater part of the year, and also for the reason that Quince jelly is not so much in demand as it is in colder climates, where the snows lie upon the ground for three or four months every winter. Cutting & Co., C. James King of William & Co., and other firms, are putting up large quantities of this jelly and fruit in hermetically-sealed cans and boxes, and thus far have found it to be a very profitable branch of business.

PLUMS AND CHERRIES.—The different varieties of the Plum are represented by about 530,000 trees, of which num-

ber Santa Clara claims 120,000. The fruit, as far as can be ascertained, has never been troubled by the curculio or plum-weevil, so destructive to this fruit in the Eastern States and in Europe. Lately vast quantities of this excellent fruit have been pitted and dried by the Alden process, in which shape they are sold in bulk at 25c. per pound, and in caddies at 40c. The California Cherries are the finest in the world, unquestionably, as regards size and flavor. A great deal of damage is done to them by the birds, who appreciate very much this luscious globule; but the loss is much less than would be sustained by the depredations of the curculio and other pests to vegetation which are destroyed by the winged messengers of the air. The crop this season is large and excellent. In Nevada County, two tons of Cherries will be sent this year to Colfax Station, at 10c. per pound. The Cherry culture is a very profitable one. One hundred trees will stand on an acre of ground, at twenty-one feet apart, and an acre of the red land of the foot-hills will yield a crop worth \$1,000. The German Prune is represented by 7,000 trees. Several companies have gone into the business of drying this popular article of dessert, with great success, the dried fruit being equal to the best imported, and, in fact, some of it is palmed off and sold as the German Prune.

THE FIG.—The broad-leaved, green, and shady Fig-tree, with its clusters of pear-shaped, juicy, purple, and green fruit—next to the vine the historic production of biblical times, the favorite of the tropics, and the beautiful viand of all nations—is represented in California by nearly 90,000 trees. Frost is its great climatic enemy, and the genial warmth of the Sacramento basin and the southern counties are its greatest

helps to prolific development. In the coast valleys, where not troubled with fog, it produces one good crop annually; but in the southern part of the State, and in other favorable localities, it yields two, three, and even four crops per year. As an instance of the remarkably prolific power of this tree, it is related that Mr. Knight, by continued high temperature, produced in England as many as eight crops in twelve months. This hint may be taken by our Californian fruit-growers, who can more easily achieve the same result. A Fig-tree on the estate of Mr. Clarken, in Folsom, Sacramento County, a few years ago, produced four crops of excellent fruit in one year, although no care whatever was taken of it. In the colder countries of Europe it is kept dwarfed, in order that it may receive the benefit of the heat of the sun reflected from the earth. The most common varieties in California are the Old Mission Brown and the White Smyrna. The former is more prolific, but the latter yields larger Figs, with a better flavor. The dried Fig is equal in flavor, but does not present so fine an appearance as the imported article.

The two varieties of the Almond (the Hard-shell and Paper-shell) are represented by about 40,000 trees. This tree resembles the Peach very closely, and is subject to the curl. It is not so hardy as the Peach, being more easily injured by frost, but is a favorite in the market.

The English Walnut, represented by 25,000 trees, is a very profitable nut. It falls from the trees when ripe, and can be left on the ground several months without danger of loss. It is extensively cultivated in Los Angeles, Sonoma, Santa Barbara, Sacramento, and Solano counties.

THE OLIVE.—The consumption of

Olive oil on this coast is very great—so much so that the Olives raised in Los Angeles will not be sufficient to supply the demand for many years to come. Olives have never been extensively cultivated here, for the reason that there is no home market for the crude oil; but there is now a sufficient quantity grown to manufacture the oil for the local market. Speaking upon this subject, the Los Angeles *Herald* says:

“The same process by which Mr. Carreras, of the Los Angeles Petroleum Refining Company, reduces the heaviest crude oil to a first-class illumining fluid, at a cost of two cents per gallon, and within twenty minutes’ time, will also refine Olive oil, and make it equal to the best article manufactured in Europe. This is an important discovery to the people of this valley. The cultivation of the Olive is very profitable where there is a demand for the crude oil; and the fact that we can, through Mr. Carreras’ method, produce an article superior to that imported from Europe, for less money, will give an impetus to Olive culture not anticipated a few months ago. The fruit may be successfully grown in almost any part of the valley. This discovery develops another important industry, which will enable us to retain at home many thousands of dollars now sent abroad; to export an article of commerce instead of importing it, and will also enhance the value of real estate.”

The San Diego *Union* remarks: “The prevailing impression has been that the Olive will not bear until ten years old, this being the ordinary time of bearing in other portions of the world with most of the varieties cultivated; but in California, with the varieties here planted, the case is different. Hollister’s extensive orchard, four miles back from the coast at Santa Barbara, was in bearing

three years after planting. The Kimball brothers also have two-year-old trees full of fruit, on their lands at National City; upon the Bay of San Diego. Higgins’ place is farther off from the coast, being about eight miles inland, where the air is less saline, and the winds from the ocean very much moderated. At these three places the trees are not planted in valley land, but on the *mesa* or table-land. At the Mission of San Diego, the old trees planted by the missionaries, a hundred years ago, are in valley land, and they probably never were irrigated. Their present flourishing condition, after many years of neglect, and the vigorous growth and healthy appearance of the trees at the Hollister, Higgins, and Kimball places, show that from Santa Barbara down to the Mexican boundary, all along the coast, and for at least ten miles back, the soil and climate, on upland and in valley, are peculiarly adapted to the growth of the Olive.”

PEARS. — The different varieties of Pears most popular here are the Dearborn Seedling, Bonne Gifford, Bartlett, White Doyenne, Seckel, Winter Nelis, and Easter Beurre. These mature in the order they are named—one coming in as the other goes out. The Bartlett Pear, for size and richness of flavor, is unequalled, and is held in high estimation in the East. The Pear-trees in Santa Clara this season have been very much injured by pests in the shape of small worms and spiders. In some instances these little worms, which are so small that they can hardly be seen by the naked eye, strip the trees nearly bare of foliage. Mr. J. Q. A. Ballou, an experienced horticulturist, has ascertained that they appear in greater numbers, and do greater damage, when the trees are close together, and where the land is wet and undrained.

There are several hundred varieties of the Apple, as well as of the Pear, grown in the State. At our agricultural exhibitions the display of this fruit can not be matched by any other display in the New or Old Worlds. A large export trade of Apples and Pears is carried on with the East. The California Apple is not equal to that from Oregon (although it possesses many points of excellence, maturing earlier and holding out later), but surpasses the European and Eastern Apple in size. Indeed, there are some varieties which more resemble Turnips in size than Apples.

THE GRAPE.—“Nowhere else in the world does the vine yield a more bounteous or certain crop, and nowhere is the quality of the fruit surpassed. Though the production of wine, owing to carelessness in selecting the varieties, ignorance of proper modes of manufacture, and unfriendly legislation, has not on the whole been profitable, the business is emerging from the clouds which encompassed it, and will soon take rank as one of the most reliable and profitable industries of the Pacific Coast. When this is the case, millions of acres in the foot-hills will be covered with vines, and the products of our vineyards will be famous throughout the world. For years the production of table Grapes, and the manufacture of raisins, will be more profitable than the making of wine. The finest varieties of foreign Grapes grow on our hill-sides without irrigation, and produce bountifully such Grapes as can not be grown elsewhere on the continent. The demand for them, both at home and abroad, is every year growing larger, and as soon as we are able to do so, the teeming valley of the Mississippi, and even the Atlantic States, will be supplied from our gardens.”

The Grape crop in Los Angeles this

fall will be larger than that of any previous year. One of the largest vineyards in Sacramento County is that of John Miller, located on the celebrated Florin wine-belt, which extends from the American River to within a short distance of the Cosumnes, and spreads out east and west fully ten miles. Mr. B. Bernhardt, of Auburn, Placer County, has thirty acres of land, on which are 19,000 Grape-vines, ranging from two to twelve years of age. The vineyards this season have been attacked by two pests—one a green worm (the “tobacco worm”), and the other dark on the back, with yellow lines, called the Columbia worm. Each has a horn about one-fourth or one-half of an inch long on the posterior part of the back. In tobacco plantations they were destroyed by taking them by the horn, and dashing them on the ground, their size making it easy to find them.

The making of raisins is destined to become one of the most important objects of horticulture. Millions of pounds are annually imported by the people of the United States, and it will not be long before all the money we are sending abroad for this article will be kept at home, and poured into the pocket of California fruit-growers. The Malaga and Muscat have both been thoroughly tested, and produce a Grape that can profitably be made into raisins excelled in quality by none in the world. The ease and rapidity with which they can be produced is a great inducement for every family to engage in their culture. One does not, as with the Orange, have to invest large sums, and wait a long term of years for a return. In three years from planting the cutting, or two years after setting the rooted vine, a good crop can be counted on with certainty, and as the years go on it increases. With rapid communica-

tion with the vast mining region lying between here and the Missouri River, and the agricultural districts in the West, there is no such thing as over-production.

Many of the vines are very profitable, paying as much as \$500 net per acre, and some even as much as \$2,000. The Flame Tokay vines bear occasionally 12,000 pounds to the acre, making the gross yield equal to \$2,400, at an expense of less than \$200. The White Tokay, the Muscat of Alexandria, the Black Malvoisie, the Golden Chasselas, the Rose of Peru, the Black Hamburg, and the White Hamburg, in places near San Francisco, have yielded more than \$200 net per acre. The average crop in California is 8,000 pounds to the acre, in France 3,000, and in Ohio 5,000. Thirteen pounds of Grapes make a gallon of wine. This gives nearly 600 gallons per acre. There are many vineyards of more than 100,000 vines each in the State. The great wine as well as Grape region of California are the valleys of Sonoma and Napa. Some of the vineyards cover hundreds of acres, and much of the soil on which they thrive best is useless for other productions.

LEMONS AND ORANGES.—The California Lemon is not equal to the Malaga Lemon. It is too thick-skinned, and deficient in juice. From December last until June, there were received at San Francisco from Los Angeles 4,544,140 Oranges, 490,280 Lemons, and 22,000 Limes.

We can not better conclude this article than by quoting Hittell, in writing of the fruits of California. He says:

“As a fruit-growing State, California takes a high position. In this particular, as in so many others, her climate gives her great advantages. In no part of the world do fruit-trees grow so rap-

idly, bear so early, so regularly, and so abundantly, and produce fruit of so large a size. Nor is there any country where so great a variety of fruit can be produced in high excellence.”—*S. F. Call.*

THE PAULOWNIA IMPERIALIS.

BY E. J. HOOPEE.

Paulownia, Siebold (Natural Order, *Scrophulariaceæ didynamia angiospermia* Linn). Calyx five-cleft; segments equal, coriaceous, covered with a rusty down; corolla two-lipped; imbricated in its aestivatiæ; the two upper lobes external; fruit ovate, with a sharp point.

I have often been surprised to observe so very few of these handsome shade and truly ornamental trees cultivated and raised in California. This climate will undoubtedly suit it. It is rather too tender for the Eastern States, although I have seen some fine specimens there flourishing healthily in sheltered situations, with the exception of a few branches in some winters killed by severe frost. It does better in the milder climate of England, and parts of the continent of Europe. When quite young, its leaves are of gigantic size, often six or seven feet in diameter. In shape, the leaves are similar to the Catalpa (*Catalpa bignonioides*). It is a native of Japan, and is the only known species. It is as rapid a grower as the Ailanthus, the wood and trunk of the tree also resembling it. The leaves are rather coarse, looking like very large melon leaves; but the beauty of the large clusters of sky-blue flowers, shaped like the Gloxinia, and which make their appearance all over the tree early in the spring, before the leaves come out, covers all blemishes. It will thrive in any good loam, and may be easily cultivated by cuttings of the roots. It was named

in honor of Paulownia, Empress of Russia, having been first discovered in Japan by a Russian traveler and botanist. This rare and handsome tree sometimes reaches the height of forty or fifty feet. Its head is round and regular, though its branches are generally like the Catalpa—somewhat curled and twisted. Its highly ornamental flowers, and thick, large foliage, will always insure it a place in every collection.

THE VANILLA.

The Vanilla is remarkable for its climbing habit, which is not common among Orchids. There are several species, most of which are natives of the hot and damp regions of South and Central America; the genus is also represented in tropical Asia and Africa. The stems climb to the height of 20 or 30 feet, twining round the trunks of trees, and throwing out a profusion of aerial roots, some of which eventually reach the ground, as is the case with the Banyan, while others float in the air. The leaves are thick and fleshy, as also are the greenish-white flowers. The important part of the plant, however, is the pod, which, in some of the species, is an article of commerce, and yields the delicious flavoring which is so well known. Some little uncertainty exists as to which of the species produces the most valuable fruit. It appears, however, that *V. planifolia* and *V. aromatica* are the most important, although *V. guianensis*, *V. palmarum*, and *V. pompona* also yield some of the Vanilla of commerce. The pods as imported are narrow and flattened, from five to ten inches long, and of a dark brown color; they are pulpy within, and contain a great number of very small dark seeds.

A great part of the Vanilla of com-

merce is brought from Mexico and Venezuela, and principally from Vera Cruz, whence, according to Humboldt, the value of the annual export in his time was \$40,000. The cultivation is mainly carried on at Misantla, twenty-four leagues north-west of Vera Cruz, the inhabitants of which are the only people in Venezuela who cultivate the plant. The growth is, indeed, extremely easy, as the ground requires no tilling; slips of the Vanilla plant are set at the foot of a tree on the approach of the rainy season, and soon begin to spread up the trunk. The plantations are cleared once a year from weeds and undergrowth, and in the third year the plants bear fruit.

Five varieties are recognized by the Vanilla-growers. One—the Vanille de Cochon—is so-called from emitting an offensive smell while drying. The harvest begins about December, when the fruit becomes yellowish-green. There are two ways of preparing it for the market. In one method the fruit is allowed to dry until the pod loses its green color. Straw mats, covered with woolen blankets, are spread on the ground, and when these are warmed through, the fruits are spread on them, and exposed to the sun. After a time they are wrapped in blankets, and placed in boxes covered with cloths, after which they are again exposed. In about twelve hours the fruits should become of a coffee color; but if they do not, the process is repeated. After about two months' daily exposure, they are tied up in bundles of fifty, and packed in tin boxes. Five qualities of Vanilla pods are known. The best is the *Primiera*, the pods of which are twenty-four centimetres long, and proportionately thick. The second quality is called *Chica prima*, the pods of which are shorter, and two count as one; the

third, *Sacate*, and the fourth, *Vesacate*, are still smaller, four of the latter being reckoned for one; they are gathered before they are ripe. The fifth and poorest quality is called *Basura*; the fruit is very small, spotted, and much cut or broken about.

The following is another method of preparing Vanilla for the market: About 12,000 of the pods are strung together by their lower end, as near as possible to the footstalk; "the whole are plunged for an instant into boiling water, to blanch them; they are then hung up in the open air, and exposed to the sun for a few hours. By some they are wrapped in woolen cloths to sweat. Next day they are lightly smeared with oil by means of a feather or the fingers, and are surrounded with oiled cotton to prevent the valves from opening. As they become dry, on inverting their upper end they discharge a viscid liquor from it, and they are pressed several times with oiled fingers to promote its flow. The dried pods, like the berries of Pepper, change color under the drying operation, grow brown, wrinkled, soft, and shrink to one-fourth of their original size. In this state they are touched a second time with oil, but very sparingly, because with too much oil they would lose some of their delicious perfume."

It appears somewhat remarkable that the cultivation of Vanilla in the West Indies has not been largely undertaken, as it would be attended with but little difficulty, and would be a source of much profit to the inhabitants. But even in Caraccas and Guiana, where the plant grows profusely in a wild state, it is almost entirely neglected. In the Isle of Bourbon, however, it has been cultivated with considerable success, and seventeen and one-half tons were exported from Réunion in 1871.

At Liége it is grown on a small scale, to the value of 600 francs per annum; and a plant cultivated at Paris, in 1840, attained the height of three yards, and yielded 117 pods, which ripened in twelve months. In England, it has been in cultivation since 1759; fine examples may be seen in the tropical and economic houses at Kew. Mr. Ewing, and Mr. E. Bennett, grew the Vanilla with considerable success at Osberton; the latter gathered no less than 300 ripe pods off a single plant in one season. He considers a temperature of from 50° to 70° to be most suitable for it. He found it necessary to effect fertilization by artificial means, the stigma being prevented from receiving the pollen of its own flower by the interposition of an organ called the retinaculum.

As the English-grown pods are very highly flavored, it is possible that it might be practicable to grow it for economic purposes. The annual import of Vanilla amounts to about five or six hundredweight; its price varies very greatly, being sometimes as high as 125s. per pound, and at other times as low as 26s.

The chief use of the Vanilla is in flavoring perfumery and confectionery, and especially chocolate. One pod is sufficient to flavor one and one-half pounds of Chocolate, being ground with sugar for that purpose. The fragrance is said to act upon the system as an aromatic stimulant, exhilarating the mind, and increasing the energy of the animal system. It is occasionally employed on the continent in cases of hysteria; and is used by the Spanish physicians in America as an antidote to poison, and to the bite of venomous animals, as well as in other cases. A liquid used in Peru, where it is known as *Baume de Vanille*, exudes from the open pods at perfect maturity. The

fruits in time become covered with an efflorescence of fine, needle-like crystals, which possess properties similar to those of benzoic acid; when viewed through a microscope with polarized light, they are very beautiful objects.

DeMenonville, who traveled to Guaxaca in 1777, thus describes his discovery of Vanilla in that district. After various hindrances and disappointments, he says: "At length an Indian, with a hoe in his hand, made his appearance. 'Brother,' said I, holding out a dollar, 'show me some Vanilla, and this is yours.' He coolly bade me follow him, and advanced a few steps through the underwood into a thicket, in which were a number of trees. He immediately climbed up one, threw down to me two pods of Vanilla perfectly ripe, and pointed out to me a branch on which several others were hanging yet green, together with two faded flowers. The form of the leaves, the fruit, the peculiar smell of the plant—everything convinced me it was the real Vanilla, in everything corresponding with such as I had seen at Vera Cruz. All the trees of this little copse were covered with it. I saw a quantity of green fruit, but collected no more than six specimens of these, and four large pods which were ripe. I caused the Indian afterwards to part from the root some of the cions which had sprung up. These I tied well together, wrapping up the whole in the leaves of an Arum, which at their base are three feet wide. After thus packing a fagot, which weighed upward of thirty pounds, I placed it in my large sack, which I fastened on my horse. I was so well satisfied with my Indian, that, besides what I promised him, I gave him two *reals* in addition. For his part, unwilling to be outdone in generosity, he ran to his hut, and brought me three other pods of Vanilla."

The Chica Vanilla of Panama is yielded by another Orchid, a species of Sobralia. The expressed juice of *V. claviculata*, a native of mountainous woods in the West Indies, is applied to recent wounds, and is hence called by the French in San Domingo *Liane a blessures*. There is a species known as *Zizpic*, in Yucatan, which is a great ornament of the *cenotes* or subterranean water-caverns of the country. These singular caverns are sometimes entirely subterranean, and are then of course without vegetation; frequently, however, they are more or less open at the top, when they are often of surpassing beauty on account of the luxuriant development of vegetable life which they contain. To these *cenotes* the few Ferns of Yucatan are almost confined, and it is here that this Vanilla attains perfection. The pods are occasionally taken to market at Valladolid, where they may be bought at an almost nominal price.—*Gardener's Chronicle*.

COLOR IN FLOWERS.

BY "AMATEUR."

To cultivate the taste, to educate the mind to perceive and appreciate the beautiful in nature, is a duty which we owe both to ourselves and to the fair world in which we are placed. To attain to this refinement of taste may certainly not be so indispensably necessary to us as to the poet and the painter, but it is eminently desirable that so pure and refined a pleasure should be ours, which may assist to wean us from inferior pursuits, to elevate our groveling minds above the low level of passion and care, and help us to feel more reverence and love for Him who has decked the earth with such numberless and diversified beauties.

In accordance with the invariable

simplicity of nature, from the three primitive colors—blue, red, and yellow—are produced all the varied tints we behold. These, compounded in the wondrous kaleidoscope of nature, are amply sufficient to produce the varied beauties of flowers, as well as the splendor of the rainbow.

In no objects in nature have we such brilliant coloring as in flowers. In them we have colors in the most delightful combination, and tints, modified by difference of surface and texture, in endless variety. Perhaps yellow is the commonest color in flowers, and blue the rarest; red occupying the middle station. Of these, the tints of the red flowers are more diversified than those of either yellow or blue. The many shades of color between the Nasturtium and the Sweet-william could not, we think, be paralleled by either of the other colors. It is interesting to observe how the flower of a plant invariably harmonizes in color with its green leaves, some by similarity and others by contrast. How finely does the snowy blossom of the Convolvulus of the roadside harmonize with its large, well-defined, empurpled leaves. How beautifully do the rich warm orange flowers of the Nasturtium contrast with the light-green leaves on which they repose! How becoming are the cold green leaves of the double Poppy to its blossom! How admirably do the little white stars of the Jasmine, or the elaborate Passion-flower, contrast with the dark leaves behind them! But if the blossom of the Marigold were viewed in connection with the green leaf of the Passion-flower, even an unpracticed eye would quickly detect the want of harmony between the flower and the leaf. Some few plants, as the Marvel of Peru, strangely produce flowers of different colors from the same root, but this is of

rare occurrence in the vegetable world. It is also interesting to observe how exquisitely the various tints are blended in the individual petals, and how symmetrically these in their turn are arranged so as to form a complete flower, as, for instance, in a well-developed Dahlia. How inimitably, in the delicate tints of the Rose, does the blue or purple in some kinds blend with the warm blushing red of the centre of the flower! In other flowers, the colors are so softly blended, as the Nasturtium, in which the red is dashed, as it were, on the orange, yet without the least harshness. In some the petals are striped and variegated, with a different color from the ground, as the Tulip and Geranium; and in others each petal is of a different color at the inner part, as the Coreopsis. But, however fantastically the colors may be disposed, or however strangely they may contrast, there is always a harmony of coloring and softness of effect which must be pronounced faultless even by the most fastidious.

ACTION OF CAMPHOR ON PLANT LIFE.

In the year 1798, Benjamin Smith Barton described two experiments as to the stimulant action of camphor on plants. One was made on a Tulip, which, placed in a solution of camphor, showed vigorous growth, and was longer in withering than other Tulip slips, of the same kind, placed in ordinary water. The other experiment was made on a withering yellow Iris; through treatment with camphor it seemed, for some hours, endowed with new life. Barton came to the conclusion that camphor has a greater action on plants than any other known substance; and he compared its action to that of spirituous liquors, or of opium, on the human body, when taken in certain quantities.

These almost forgotten experiments of Barton's have been repeated, in new forms, by M. Vogel of Munich; and they have a considerable theoretic interest. This author, who has recently communicated his results to the Munich Academy, obtained a homogeneous solution by rubbing camphor with water, and shaking camphor powder in a flask with distilled water. Two branches (alike in size, and similarly conditioned) of a flowering *Syringa* were then introduced—one into ordinary water, the other into the camphor-water. Considerable difference soon appeared: in twelve hours the branch standing in pure water drooped, and was near withering; the other branch in camphor-water stood upright, and without any sign of withering—some of its buds were even developed; it was not till three days after that this branch began to wither.

In another experiment, a flowering branch of *Syringa*, which was nearly dead, was placed in the camphor-water, and a marked renewal and recovery was ere long observed, which lasted some time. Frequent repetition of the experiment with branches of *Syringa* showed the same result in varying degree. The camphor-water seemed to have less effect on vine shoots, and almost none on *Sambucus nigra*.

The action of camphor on cut branches of living and fully developed plants having thus been established, at least for some species, the idea naturally occurred that camphor must also have an influence on the process of germination of seeds. With this view, several seeds of *Lepidium sativum*, and various other plants, were taken for treatment, and they were mostly old, as the germinative force in such appears to be weaker than in fresh seeds. The seeds were spread out on some moistened

blotting-paper covering a porcelain plate, and a second moist paper was put over them. In all cases the seeds thus treated with ordinary water and with camphor-water were exactly in similar conditions, as regards temperature and access of air.

For the first experiments, seeds of *Lepidium sativum*, of the years 1869 and 1871, were taken. The entire duration of the germinative force of *Lepidium sativum* is known to be three years. The seeds of both the years mentioned, treated with ordinary water, showed a very imperfect, retarded germination, while the seeds moistened with camphor-water germinated very soon: those of the year 1869 in twenty-four hours, those of 1871 in seven hours. A similar acceleration of the germinative process has previously been observed in treatment of seeds with chlorine and saline.

A further experiment was made with different kinds of *Raphanus sativus major*, the seeds being of the year 1866. As the duration of germinative force of this seed is three years, or four at the most, the sowing of these specimens in a garden would, of course, have been thought useless. Treated with camphor-water, however, the seeds germinated in four days, and thus some days earlier than fresh seeds under favorable circumstances.

Seeds of *Pisum sativum* of the season of 1865 showed in forty hours, under treatment with camphor-water, all the phenomena of the germinative process. Apart from the fact that *Pisum sativum*, even under the most favorable conditions, first begins to germinate after four or five days, the duration of germination of the seed is two, or at the most three, years; so that seeds of the year 1865 could no longer be sown with advantage.

With like rapidity germinated seeds of *Cucumis sativus* under action of camphor-water. In ordinary cultivation of this species of seed in garden ground, not a single grain, out of a large number sown, showed the slightest germinative movement after a long time. The example is thus a striking evidence of the peculiar action of camphor in revival of the germinative force of some species of seeds.

The following flower-seeds were examined in their relation to camphor-water: *Schizanthus pinnatus*, of the year 1869; *Maurandia Barclayana*, *Côreopsis*, *Ipomopsis*, *Senecio elegans*, of the year 1860; *Silene pendula*, *Silene amœna*, of 1867; *Basilicum*, *Myosotis alpestris*, of 1866; Aster species, of 1868; *Celosia cristata*, of 1867. In all of them a remarkable influence of camphor on the germinative force was perceived. The after development of some of the seeds that were treated with camphor was observed by Dr. Raob, the seeds having been put into the ground. It is interesting to know that the traces of the camphor treatment were here also visible, the young plants showing greater vigor and freshness.

From all these facts, M. Vogel draws the inference that we have in camphor a kind of stimulant for vegetation, capable both of strengthening the force and accelerating the time of vegetation.

There are cases, however, it appears, in which the favorable action of camphor is not observed. Thus, M. Vogel found that Clover-seeds, which in garden soil germinated in twenty-four hours, showed no signs of germination after a longer time, when the earth had previously been mixed with camphor-powder.

As oil of turpentine acts like camphor on the animal organism, M. Vogel made some experiments as to the action of

water containing oil of turpentine on plants. The general result was, that this solution also accelerated the germinative process. But there was here, as evidently, an injurious action on the after development of the plants. Even in a few days the progress of the quickly developed seed ceased, and the plant deteriorated.

M. Vogel remarks, in conclusion, that the process of germination, receiving of oxygen, and giving up of carbonic acid, is identical with animal respiration. From the agreement of the vegetable process in the early period of germination with the animal processes, the thought arises that, precisely in reference to this, stimulants are possible whose action resembles the known stimulants of animal life.—*Gardener's Chronicle*.

NATIVE FERNS.

BY J. WARREN MERRILL.

[We copy the following from *The Gardener's Monthly* for May, believing it will be of interest to many of our readers.—ED.]

In your number for December I asked if any of your numerous readers could put me in the way of procuring four Ferns, which I named. The kind response which I received from many persons, to me unknown, has convinced me of a wide-spread interest in the "flowerless plants;" and although the communication was made at an unfavorable time of year, it resulted in procuring for me two of the four kinds which I had all summer tried in vain to secure. This induces me to say that I have for some time been making a collection of *native Ferns*—not of the fronds in an herbarium, but the live plants—and have, I think, sixty-nine varieties this spring in fine growing order. There

are, however, according to a list recently published, one hundred and thirty-eight varieties in the United States and the British Provinces; so that I have but one-half of them. I can think of no way to secure any considerable number of others, but by proposing an exchange with persons who live in the South and West, and who are lovers of Ferns, that if they will send me, by mail, roots of the varieties growing in their vicinity, I will exchange for those peculiar to the Eastern States, or will cheerfully pay all expenses. I have, in my collection, some three hundred kinds of exotic Ferns, and some may desire to exchange for them or for dry fronds for their herbariums.

I want particularly to get hold of *Phegopteris alpestris*, California and Oregon; *Acrostichum aureum*, Florida; *Gymnogramma pedata*, *Notholaena ferruginea*, *N. candida*, *N. Fendleri*, *Cheilanthes Alabamensis*, *C. Fendleri*, *C. gracillima*, *C. argentea*, *C. Eatoni*, *Adiantum pilosum*, *Asplenium septentrionale*, *A. dentatum*, *A. montanum*. And if you have subscribers in southern Texas, I want to know if *Adiantum Æthiopicum* grows there.

Plants can now be sent across the continent for two cents per ounce, if there is no other writing than the directions. And I have just received in perfect order a lot of Ferns from San Francisco, each root being wrapped in damp moss, with plenty of twine, and all packed in a cigar-box.

A NEW BLACKBERRY. — The Auginbaugh seedling Blackberry promises to become an important addition to the fruits of this State. It matures about two weeks earlier than other varieties, which is a great advantage. The fruit is large and the flavor is excellent.

COLORING OF FRUITS.

BY W. B. WILKES.

This is a subject which has not received the attention its importance deserves.

We find in some orchards that red Apples color very finely, present a fine waxen appearance, the fruit is crisp, and the flavor is excellent. In others, the same variety is of a dull, dingy brown, skin rough, almost russet, the flavor rather insipid. It is known in market that the deeper the color, the more the fruit is sought after, and the higher the price. Natural laws control this, as in everything else.

This subject was forcibly presented in my orchard fifteen years ago. On one ridge the fruits colored finely; on another much less. There was a great diversity in comparing the fruits from other orchards in and around Aberdeen.

In seeking the cause, that coloring most deeply was found to have a very red clay subsoil; the other was underlaid with a much lighter subsoil. If one contained more oxide of iron than the other, it was susceptible of proof, by applying iron, so the feeders could appropriate it.

Anvil dust, cinders, and scraps of iron, were scattered under and around a few trees, extending just beyond the limbs, and incorporated with the soil. It was astonishing what effect was produced on the first crop, and for several years after. The fruit on these trees was not only more richly colored, but the delicate tints were as distinctly brought out as if laid on with a camel-hair pencil in a lady's hand. This was not all: there was a peculiar, glossy, waxen appearance, the flavor much improved, and the fruit rendered decidedly crisp.

As the subsoil varies so much in im-

mediate neighborhoods, these hints are presented that those not aware of this law, who contemplate putting out orchards, may select the site with reference to it; and also, where fruits do not color brilliantly, they may, at so little cost or trouble, remedy it.

A few years ago we had a very unusual season. Early in the spring the necessary amount of moisture was in the soil, Apples grew finely; then followed a few weeks of severe drought, the trees evidently drew most of their sustenance from the air, the ground much parched; then followed a fine season of rain. The red Apples that year had a russet band around them; the stem end colored during the early seasonable weather; that near the bloom with the latter. No coloring matter was extracted from the soil during the drought, while the russet band was growing; this was not only russet in appearance, but decidedly rough; the flavor of the crop was very indifferent.

—*Illustrated Journal of Agriculture.*

VEGETABLE MANURES.

Dr. Pendleton, of the Agricultural University of Georgia, has made a report of certain experiments with manures to the Georgia Agricultural Convention, which contains some facts that are of interest to farmers. In regard to vegetable manures he says:

“The importance of vegetable mold to be used in conjunction with fertilizers was tested as follows: One row with enough mold from the woods to half fill the furrow, with ammoniated phosphate at the rate of 200 lbs. per acre, made 990 lbs. of seed Cotton. The fertilizer without the mold made 742 lbs.; the natural soil 432 lbs. The fertilizer with the vegetable mold made 128 per cent. on production; without it

only 71 per cent.; showing that the presence of organic matter in a soil adds much to its production when fertilizers are used.

“The importance of husbanding the vegetable matter of the soil can not be impressed too often or too deeply on the cultivators of the soil. Where a good crop of grass, weeds, or pea-vines, or other plants have decayed in a soil, there is enough of all the mineral substances left in an available condition, except phosphoric acid, to make a fair crop of any of the farm products. One thousand pounds of grass decomposed in the soil will furnish four times as much potash as will be required to make one thousand pounds of Corn or Wheat, and half enough phosphoric acid, with quite an overplus of all the other mineral substances. The straw of the cereals will furnish more than enough of every one of them except magnesia and phosphoric acid; nearly enough of the former, and one-fourth enough of the latter. To make peas there are enough of all the minerals in grass, with quite an overplus, except phosphoric acid; just half enough of this, and double enough of potash. Pea-vines furnish a superabundance of potash and lime to make both Corn and Peas; in fact of every mineral substance except phosphoric acid. There is about half enough of this to supply the demand. There is a sufficiency in grass to make the seed and fibre of Cotton, of all these substances except magnesia and phosphoric acid. The stalks of Cotton will also furnish enough of all the mineral food except potash, magnesia and phosphoric acid. These three are quite deficient. Thus allowing that the stalks of Cotton left in a field weigh as much as the seed taken from them, for every thousand pounds there will be taken away eight pounds of phosphoric acid

in the seed, more than is left in the stalk; ten pounds of potash and six pounds of magnesia. And when it is remembered that under our system of culture, the cotton stalk is about all the organic matter left in the field, and the cattle take off a good portion of this during the winter, it is not wonderful that our lands deteriorate, our crops rust, and purses remain empty. The inference is clear from the above facts; that a good crop of grass and weeds, or other vegetable matter, covered in the soil and properly decomposed, will furnish a sufficiency of all the mineral substances, to make a good crop of Corn, Cotton or Peas, except phosphoric acid: That a piece of land run in Cotton for a number of years, will rapidly be deprived, not only of its nitrogen but its phosphoric acid, and gradually of its potash and its magnesia: That in a system of rational agriculture, it is quite as important to husband the organic matter of the soil as it is to apply fertilizers of any kind: That one of the most important processes for obtaining soluble mineral food for plants, is to furnish the land with vegetable matter by a proper rotation of crops: That the mineral substances of plants become, in the very process which dissolves them, available for a succeeding generation of vegetable growth, by the extreme mechanical fineness to which they are reduced, and the action upon them of the ammonia and carbonic acid, escaping from their albuminoids during the process of decay."

TRAINING PETUNIAS. — A writer in the *London Garden* says that a fine effect is obtained by this method of training Petunias: He procures a number of Hazel-rods, each about two feet long, bends them like hoops, and drives both ends into the bed, placing them at suit-

able intervals all over it. On these he ties and trains his Petunias, which blossom more abundantly than usual under this treatment. Petunias have been successfully treated as if Sweet Pea vines, and trained on a slanting trellis. The trailing habit of this plant, especially late in the season, is not always sufficiently considered.

FLORAL DECORATIONS IN BALL-ROOMS.

These evidences of social refinement are certainly on the increase, and under the direction of our best decorators, are now brought to a high degree of perfection. Bridgewater House, the other night, and also the conservatory and arcades of the Royal Horticultural Society, at South Kensington, as arranged by Mr. Willis, on the occasion of the Prince and Princess of Wales' visit, were marvels of floral beauty. When it is remembered that our largest decorating firms use from 20,000 to 30,000 decorative plants every week during the London season, we can form some idea of the extent to which plant decoration is now carried. One novel feature in modern decorations is the introduction of huge blocks of ice, which, either in the shape of a simple obelisk three or four feet high, or in imitation of massive rock work, have a unique effect when fringed with Ferns, and draped with the slender-growing sprays of different kinds of trailing plants. On every hand are found pleasing groups of rare exotics, judiciously arranged as regards picturesque effect. Here is a bank of fresh Selaginella, forming a carpet, from which little groups of the Umbrella Sedge spring like miniature Palms; while here and there may be seen more massive succulent plants in association with fairy-like Grasses and Maiden-hair Ferns that tremble with

the softest breath of air. Here, too, are masses of Palms and Tree Ferns that spread their bright green feathery fronds over priceless groups of antique sculpture, while soft masses of harmonious colors nestle here and there on cool green banks of Ferns and Mosses. Handsome mirrors, half-concealed by tasteful fringes of trailing plants, increase the effect by apparently augmenting the space. At Bridgewater House, glowing crimson masses of *Spiræa palmata*, admirably set off with fresh green leaves, were highly effective beneath the subdued gaslight; while slender Palms sprung from the cool beds of Club Mosses, on which delicately perfumed sprays of pearly-white Stephanotis and Water Lilies rested in rich profusion. Here climbers drooped from every bracket and ledge, graceful in form and soft in color. Bouquets of choice exotics were here and there suspended beneath the crystal brackets and chandeliers; in short, every lobby, hall, and corridor was tastefully furnished with foliage, plants, and flowers. Stately groups of *Dracænas*, and noble-foliaged Palms, harmonized well with the massive, cool, gray marble shafts and columns that support the corridors and galleries overlooking the saloon. The saloon itself was likewise tastefully fringed with banks of choice Palms, Ferns, and flowering plants. At South Kensington, the decorations, though essentially similar in many respects to those just noticed, were carried out on a much larger scale. The rockery in the conservatory, formed of several tons of the finest ice, was a novel feature, and the centre of attraction during the evening. It was tastefully ornamented with choice Ferns, Grasses, and succulent plants, and fringed at the base with Maiden-hair Ferns, *Lomarias*, *Pteris serrulata*, and *Isolepis gracilis*,

on a deep crimson ground. The western arcade was tastefully bordered with Palms, Tree Ferns and choice flowering plants, and the introduction of cool obelisks of ice at intervals, considerably heightened the effect. Not the least interesting features of the evening were the magnificent bouquets presented to the Princess of Wales and the Czarevna. These were remarkable for elegant simplicity, being composed of but a few of the choicest flowers, among which were softly-tinted Tea Roses, pure white Gardenias, half hidden amongst the most elegant drapery of fresh green Maiden-hair Fern, sprays of pearly Stephanotis and Tuberoses, the whole forming a charming collection of sweet-scented flowers.—*Garden.*

SCUTELLARIA MOCINIANA.

BY F. A. MILLER.

Of the flowering plants lately introduced into California, *Scutellaria mociniana* is a most desirable acquisition to an already extensive list. When we first received it, in the spring of 1873, we were led to believe that it was a warm-house plant, and cultivated it as such. In the autumn following it expanded its bright orange red flowers for the first time, and we were much pleased with its charming appearance; though we had great difficulty in keeping the red spider and other insects from devastating its foliage. It became then fully apparent that the plant would do better in a cool house, and we transferred it to a house where we cultivate our hardy plants. There the plant began to improve, the foliage assumed a much healthier color, and from present appearances it will flower with us continually. I am now convinced that this *Scutellaria* will prove one of our

hardy border-plants, and as such will become of great value. The extremely bright terminal clusters of salvia-shaped flowers remain in bloom for a long time, and attract the attention of every visitor. It deserves general cultivation.

FLESH DIET FOR PLANTS.

The pretty little plant called *Drosera*, or Sundew, says the *Providence Journal*, develops some strange animal instincts. It is a charming plant, with its lovely pink blossoms, while the dew-like substance issuing from its glands gives it a most cool and refreshing appearance on a warm summer's day. But though it looks the very picture of innocence and gentleness, it has a strange taste for seizing, killing, and sucking the blood of insects, and for grasping and eating raw beef. Mrs. Mary Treat has contributed to the *American Naturalist* some very curious observations made upon this remarkable plant. She found the specimens upon which she experimented in New Jersey. The plant was in full bloom, and growing very thickly on either side of an extensive Cranberry plantation. The first experiment was made with the best known species, the *Drosera filiformis*. Some living flies were pinned half an inch from the leaves near the apex, about 10 o'clock in the morning. In forty minutes the leaves had bent perceptibly toward the flies. In two hours the leaves had reached the flies and they were entangled among the bristles of the leaves and held fast. The flies were then removed three-quarters of an inch farther from the leaves. The leaves still remained bent toward the flies, but could not reach them at this distance. The observer thinks that the action of the flies' wings may have created sufficient force

to bring the leaves near enough to entangle the flies, for dead flies failed to produce the same results as living ones. On the same day bits of raw beef were placed on some of the most vigorous leaves of another species of the plant, the *Drosera longifolia*. In two hours two of the leaves had folded around the beef, hiding it from sight. Living flies were also placed upon the same species of the plant. In a little more than one hour one of the leaves had folded entirely around its victim; the other leaves had practically folded, and the flies had ceased to struggle. Two hours after, four leaves had each folded around a fly. The *Drosera* manifests a very decided choice in regard to its gustatory fancies. Experiments were made with bits of dry chalk, magnesia, and pebbles, but the plant would have nothing to do with them, and after twenty-four hours neither leaves nor bristles had made the slightest movement toward clasping these articles. A similar result was produced upon the *Drosera rotundifolia*. This variety has longer bristles around the edge of the leaf, and simply curls its bristles around its victims, the glands on the ends of the bristles touching the substance, like so many mouths receiving nourishment. Some bits of raw beef were placed upon the leaves about 10 o'clock in the morning. In two hours the inner bristles were curving about it, and the longest bristles at the edge of the leaf were curving upward. At 9 o'clock in the evening, the bristles of the three most vigorous leaves were clasping the beef, almost concealing it from sight. Nor is this ferocious plant contented with small insects. Flies of the largest size, moths without number, and butterflies, many of them measuring two inches across, were held captive till they died, the treacherous flowers and shining dew luring them to de-

struction. The larger insects, after death, fell around the roots of the plants, as if to fertilize them, while the smaller flies remained adhering to the leaves. These curious plants thus seem to manifest a decided preference for meat diet, absorbing the animal substance through their leaves. Mr. Darwin says that by pricking a point in the leaf of the *Drosera*, he can paralyze half of it, and this indicates the existence of nerves.

TROPICAL VEGETATION IN CALIFORNIA.

The capacity of California for the production of tropical and semi-tropical fruits and plants is by no means yet fully understood. The frequency of the announcement, however, that some new and useful fruit has been introduced by our enterprising orchardists, shows that this branch of business is receiving the attention that its importance deserves. Among those who have faith in the success in this State of many heretofore untried tropical fruits, is Mr. D. B. Clark, of Santa Barbara. His catalogue contains several varieties of recent introduction that are likely to prove successful in this State, among which are the Banana, Guava, Date Palm, Tamarind, Chiramoya or Custard Apple, Licorice and Indigo plants. The Banana and the Guava are successfully grown in the Gulf States, with slight winter protection, where the frosts are much more severe than here. The Strawberry Guava was introduced into this State several years since, and now ripens its crop perfectly each year in Sonoma Valley. The larger varieties, however, are less hardy, and will probably require some slight protection during the winter in the central and north-

ern parts of the State. The Chiramoya-tree, producing one of the most delicious fruits of the tropics, has endured the frosts of the past winter with but slight injury, and will be likely to prove hardy in the southern part of the State, and in the middle portion with slight protection. The Date Palm is as hardy as the Orange, and will succeed in any of the interior valleys where that fruit can be grown. It may not bear fruit north of Point Conception; but a few trees for ornament will amply repay the cultivator for the little trouble they require. This Palm, though ornamental when small, grows to a height of sixty feet, and with its upright trunk and ever-verdant feathery branches is peculiarly picturesque and attractive. It delights in a rich moist soil and hot dry climate, and, as the Orientals say, plunges its foot into the water and its head into the fires of heaven. The climate of the San Joaquin Valley is almost like that of some portions of Asia Minor, where the Date flourishes, and it is believed it would there produce fruit. Licorice is an important product of Spain and Italy, and would undoubtedly succeed equally as well here. Indigo was extensively grown in Florida during the English occupation, and is well worth a trial in this State. Agriculture presents no more attractive field than that of experimenting with new trees and plants, and though the cultivator fails with a dozen varieties, if he succeeds with one and proves its adaptability to the climate, he will be remembered as a public benefactor.—*S. F. Call.*

FARMERS in the vicinity of Anaheim have set out a large quantity of foreign grape-cuttings this season, while newcomers generally ignore the Mission Grape.

SCOTCH FARE.

Oat-meal is principally used in two ways—for the making of porridge and oat-cakes. Porridge is a principal article of food of the Scottish peasantry, generally accompanied with milk, when milk can be obtained, although when milk is scarce, butter is sometimes used, sometimes sugar, and sometimes treacle-beer. For most people in a sound condition of health there is no more wholesome article of food than porridge and milk; none contains a larger proportion of flesh-forming and heat-producing substances; while to almost all who have ever been accustomed to its use it is extremely palatable. Generally speaking, there is no better article of food for the nursery, none more likely to maintain a healthy condition of the stomach or to give vigor to the frame, although there are exceptional cases, both among the young and among the adult, in which the use of porridge is unsuitable, producing painful distentions of the stomach and indigestion. While the caprices of children ought not to be heeded in such a matter, the actual conditions of their constitution ought to be carefully observed and regarded. Porridge is in general made by simply boiling oat-meal in water, stirring all the while to prevent singeing, and to secure the thorough mixture of the oat-meal and water into a homogeneous mass without knots. The quality of porridge very much depends on the amount of boiling it receives. It can not be too thoroughly boiled. Imperfectly boiled oat-meal porridge is a very coarse article of food; and, unfortunately, much of the porridge eaten by the poorer classes in Scotland and elsewhere is of this character, and that prepared for the nursery is often no better, through the careless-

ness of servants, who wish to get through their work with as little trouble as possible. It is not nearly so digestible, and therefore not so nutritious, as porridge really well made. A common mistake in the making of porridge must also here be noticed, as tending much to the deterioration of its quality—the adding of meal by degrees, while the boiling goes on, until the proper thickness is acquired, the result being that part of the meal is imperfectly boiled. The cook ought to know the proportions of meal and water—knowledge not very difficult to acquire—and mix them at once, so that all the meal may be equally boiled. But it is to be observed that the water must be boiling before the meal is put in, which is not to be introduced in a mass, but, as it were, strained through the fingers handful by handful, as quickly as possible.—*The Food Journal.*

FRUIT-DRYING.

A PROCESS SIMILAR TO THE ALDEN PATENT
IN USE TWENTY YEARS AGO.

I have before me a bound volume of the *Horticulturist*, edited by P. Barry, and published at Rochester by James Vick, Jr., comprising series from January to December, 1854. On page 411 is an article headed "Drying Fruit," from the *Country Gentleman*. After speaking of the disadvantages of ordinary fruit-drying, it says: "In order to make a beginning in this matter, and to assist in the erection of good, cheap, rapidly operating and perfect fruit-drying establishments, we present to our readers a figure and description of an apparatus for this purpose, which, *although never patented*, we believe to be far more valuable than any machines not thus thrown open to the public. Its peculiar advantages will be obvious as

soon as the description is examined." [Alongside of the following description is a cut representing the apparatus, which, if we can not print, can be easily conceived from the description.] "It consists of a tall, upright shaft, *a b*, represented in the annexed section of the apparatus, through which passes an endless chain, made of a number of strong frames securely hinged together at their corners. This chain should be strong enough to bear several hundred pounds without breaking. At every joint it is furnished with a braced shelf, each consisting simply of a square frame furnished with coarse twine netting—like a sieve. This endless chain, with its series of sieves, runs over an angular wheel above, another below, precisely like those of a common chain-pump, but wide enough to receive the full breadth of the chain. Its motion is quite slow, descending from *a* to *b* on one side, and rising on the other, and is accurately regulated by means of the pendulum *d*, connected to the notched wheel *c*, by means of an escapement like that of a common clock, but made very strong. A strong and broad India-rubber band connects the axle of this wheel to the drum *e*, on which the chain runs. As the chain is loaded with the drying fruit, and is therefore quite heavy, it must not, and indeed can not, be subjected to the successive vibrations of the clock-work, these vibrations being broken and destroyed by the India-rubber band.

The fruit is dried by heated air. The fruit is spread upon the sieves at the top, and descends as it is being dried.

This description and process have been shown to many here, who have seen the Alden apparatus, and they allege it is almost the same in principle, the advantage, if any, being in favor of the former.

This machine, twenty years ago, was thrown open to the public, without a patent. No doubt many have used it during that time. It is just as good as the Alden patent. Now come parties, who patent the process, and it can be used by the public at large no longer.

Those interested here now wish to propound two questions: First, is this process about the same in principle as the Alden process? Secondly, could parties be enjoined from using this apparatus under the Alden patent? If they can, we would like to know how long a thing could be in use before anyone can go and secure the right of it by patent.

The Alden proprietors ask \$15,000 for the patent for this county. It would require the profit of many pounds of fruit to cover that. No one here is, willing to risk so much. But if we are allowed to use the process above described, nearly every fruit-raiser can afford to build a machine.—*Call*.

FUMIGATION FOR PLANTS.—Mr. J. C. Niven, of the Hull Botanical Garden, recommends tobacco fumigation (in *London Garden*) for cleaning green flies from certain house-plants infested by them. His plan is to lay the plant on its side in a wash-tub, throw over it a damp towel, or better, "a bit of glazed calico lining," and then, through an opening at the bottom have your husband insert the end of a pipe, and through it let him blow tobacco smoke until the plant gets a good fumigation. The flies will be found at the bottom of the tub when the operation is finished. The plants should be perfectly dry when the operation is performed, but, if a towel is used, it should be freely washed and wrung out before using, and be without holes. The pipe-stem should reach to the bottom of the tub.

Editorial Portfolio.

ARISTOLOCHIA SIPHO.

(SEE FRONTISPIECE.)

In our frontispiece we give our readers a representation of the *Aristolochia Sipo* (Dutchman's Pipe), so rarely met with on this coast, and well deserving cultivation. Most of the *Aristolochias* are fast-growing climbers with curious shaped flowers. The one referred to here is a native of the Alleghany Mountains, and is one of the most desirable on account of its large heart-shaped leaves, and of the peculiar formed flower, which is curved like a siphon, hence its name. The flower resembles also the common tobacco-pipe, owing to which it is popularly known as the Dutchman's Pipe. The flowers are produced singly and are of a brownish color. The *Aristolochia* is a hardy vine, and although it does not seem to make much growth during the first year after planting, it develops much more rapidly in the second and third year. Its most proper place is lattice-work of large dimensions, to cover pillars, or to let it run into the branches of trees. The *Aristolochias* are readily propagated from cuttings or suckers, which old and established plants produce in abundance.

OUR FRONTISPIECE.—We are under obligations to James Hutchinson, proprietor of the Bay Nursery, Oakland, Cal., for the beautiful illustration of *Aristolochia sipo* (Dutchman's Pipe) appearing in the present issue of the HORTICULTURIST. The Pansy plate published with the June number was also obtained from this gentleman.

EVERY weed should be destroyed as soon as it appears.

OUR EXCHANGES.

The following are some of our best exchanges: *The Technologist*, monthly, \$1.50; New York. *Country Gentleman*, weekly, \$2.50; Albany, N. Y. *American Agriculturist*, monthly, \$1.50; New York. *Pen and Plow*, monthly, \$1; New York. *Prairie Farmer*, weekly, \$2.50; Chicago, Ill. *Indiana Farmer*, weekly, \$2; Indianapolis. *Rural New Yorker*, weekly, \$2.50; New York. *The Gardener's Monthly*, \$2; Philadelphia. *Floral Cabinet*, monthly, \$1.25; New York. *American Farmer*, monthly, \$1.50; Baltimore. *Gardener's Chronicle*, weekly, £1 6s; London, England.

THE OVERLAND MONTHLY FOR SEPTEMBER.—This number appears with an unusually varied table of contents, combining a host of popular writers, who give us fact and fiction in well-proportioned quantities. Bishop Kip concludes his interesting "Glimpses of the Court of China;" J. Ross Browne, after a long absence from its pages, contributes a matterful paper on "Santa Rosa Island;" and the other Browne—Junius Henri—a pen-picture of "Spinoza." In stories and sketches this number is stronger than the preceding issue, for "Don't Tell Kate!" by Dr. Ver Mehr, "Trust and Mistrust;" by Mrs. Deas, and "Laird Gawain," by the Editor, are equal to any published in the best periodicals of our time. The geographical papers are a strong feature; and in addition to those above mentioned, we would call especial attention to John Muir's article on the "By-ways of Yosemite Travel," which, for picturesque description, will rank with many of the world's best thinkers. Other papers of this class are "Timber Belts of the Pacific Coast," and "In the Twilight." The humorous portion is allotted to Prentice Mulford in his "Sag Harbor

Aborigine," and to Henry Degroot in "Diving for Gold in '49." The most striking poem in this issue is "Molokai," a remarkably vivid description of the lepers' settlement on the Hawaiian Islands. The "Etc." is exceedingly varied, and the book reviews are full and free. John H. Carmany & Co., publishers, San Francisco. \$4 per annum.

REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPER.

A walk through the fruit and vegetable market at this time will convince any intelligent observer that California in her resources of fruits and vegetables is the foremost country in the world for these important productions. The fruits especially are remarkable, not only for size, but for beauty, brilliancy, and richness of coloring. Nor are the vegetables much behind them in these respects. All are, compared with most other regions, gigantic, and glowing with many tints. In the early part of the season the display of Strawberries, Raspberries, Cherries, Apricots, and Plums, was particularly tempting and attractive. Indeed, we can never expect any year to excel this in the quantity and quality of these luscious and priceless offerings of Pomona. This year seems very favorable for the size, quantity, and richness of the Raspberry, it being a plant which always, at all periods of its growth, requires a great deal of moisture, such as we have been favored with during the late winter and spring.

There is one fruit we can not boast of in this country—the Gooseberry. In general, we can only successfully cultivate a native sort—the Houghton. This is very prolific, but is small in size, and can not compare for a moment

with the large and splendid English kinds, which are sometimes five inches in circumference, and two a half long. The difficulty with the European Gooseberries in the State is the mildew, and this is surmounted only in a few instances, and, as we understand, in one case, by Mr. W. N. Steuben, of Gilroy, who has grown some of the English variety this season, which measure three inches in circumference, and an inch and a half long.

The Apricot is a very healthy and flourishing tree here, and is very seldom much injured by frosts, as it so often is in the Eastern States. The Royal and Moor Park are nearly as large as medium-sized Peaches. The Apricot has been very finely flavored and juicy this year.

The Nectarine, when in perfection in this State, is a very delicious fruit, but it is not so prolific as the Apricot and Peach.

The Quince bears well, and is very hardy, but other finer fruits for preserving and canning take the lead of it with us. There can be hardly any country in the world that can excel this in Plums and Cherries, there being no curculio to injure or destroy them. When cultivated in small quantities in any spot they are apt to become the prey of the birds, but if there is a large orchard of them, some of the immense crop can be easily spared to the feathered beauties. The German Prune is becoming every season more valuable, as the dried fruit is equal to the best imported. The Fig requires, to produce a succession of crops, a warm climate, but in any part of California it will furnish one or two good crops.

The different varieties of Pears most popular here are the Dearborn Seedling, Beurre Gifford, White Doyenne, Seckel, Winter Nelis, and Easter

Beurre. The Bartlett is held in the highest estimation in nearly every part of the world where the Pear grows, and is no less prized here. Pears and Plums have been sent to the East with full success this year. The Apple also; but the California Apples are not equal to those from Oregon, maturing rather too soon, and not having so much juiciness. As to the Grape, nothing need be said about it here, as its success and profit generally are well established. At any rate, I shall have to defer notices of other fruits till the next number of the *Horticulturist*, for want of space now.

Nutmeg Melons have appeared during the week, and are to-day, August 5th, selling at 8c. to 10c. each; Cantaloupes and Watermelons are very plentiful, the former at 10c. to 25c. each, and the latter at 15c. to 35c. Asparagus is firm at 10c. to 12½c. per lb., but the quality is very inferior. Okra is quoted at 15c. per lb.; Chili Peppers, 15c. to 25c. for the various descriptions; Egg Plant, 5c. to 6c.; Marrowfat Squash, 2c. to 3c.; Summer do. 5c. to 6c. We quote Artichokes at 25c. per doz.; Kale, 50c. per dozen bunches. Green Corn, 10c. to 25c. per dozen—the latter figure for very choice quality.

Peaches hold their own as the leading fruit in the market. We have, however, no later variety on the stalls than Crawford's Early, which sells at the top of the market, the range being from 5c. to 8c. per lb. Cherries are out altogether. Sweetwater Grapes are quoted at 6c. to 8c. per lb.; Rose of Peru and Black Hamburg, the first of the season of these varieties, 15c. to 25c. Green-gages are lower to-day, ranging from 4c. to 8c. Currants continue cheap, still retailing at 25c. per box of ten pounds. Egg Plums are selling at 8c.; Peach do. 8c.; Cherry do. 6c. to 8c.;

German Prunes, 8c. to 10c.; Blackberries, 5c. to 8c.; Nectarines, 20c.; Apricots, 6c. to 10c.; Pears—Sugar and Madeline, 6c.; Bartlett, 8c. to 10c.; Raspberries, 15c. to 20c.

Very little change is noticeable in vegetables. The market is now (August 7th) entirely supplied with Green Corn from across the Bay, while the shipments of Tomatoes from that quarter are rapidly increasing. Watermelons and Cantaloupes are plentiful and cheaper. Nutmeg Melons can now be had at 8c. to 10c. each. Potatoes are cheaper. Spinach is quotable at 8c.; Lettuce, 20c. to 25c. per doz.; Salsify, 8c. to 10c. per bunch; Potatoes, by the sack, delivered, \$1 50 to \$1 75 per ctl.

The supply of fruit is immense, and several varieties are worked off with the greatest difficulty. Cherries have finally entirely disappeared. Apricots and Currants come forward in small quantities, but prices are unsatisfactory, and shipments will soon give out. The first Huckleberries arrived during the week, and are now retailing at 25c. per lb. Sweetwater and Chasselas Grapes retail at 5c. to 6c.; Rose of Peru and Black Hamburg, 10c. to 12½c.; Muscat of Alexandria, 20c. to 25c. per lb.; Mangoes and Alligator Pears, \$1 to \$1 25 per doz.; Smyrna Figs, 35c. per lb.; Apples, by the box, 75c. to \$2; Pears, 75c. to \$2; Peaches, by the basket, 75c. to \$1 25, delivered.

RAFFIESIA ARNOLDII is the name of a curious plant in the Botanic Garden at Buitenzorg, Java, one of which has recently flowered. In fact, the plant is all flower, having neither stems nor leaves. These flowers are sometimes as much as five feet across, springing directly out of the branch of the tree, on which, like the Mistletoe, they are parasitic.

Correspondence.

THE CLOTH OF GOLD ROSE.

Editor California Horticulturist:—In the June number of your magazine were published some remarks from an Eastern paper upon the Cloth of Gold Rose, showing how the blooming quality of this beautiful Rose, when grown on its own roots, were affected by age. As this Rose is regarded as a very shy and uncertain bloomer in the vicinity of the Bay of San Francisco, I feel emboldened to record an experience similar to the above.

In the spring of 1871 I purchased a Cloth of Gold Rose just rooted, and set it out in my garden in Oakland. The plant grew finely, but made no buds that year. In the season of 1872, a few buds showed themselves, but perished without maturing. In 1873, after careful pruning and reduction of wood, the result was the same as in the previous year. Two cuttings rooted, however, and grew finely.

Early in the spring of this year (1874) the Cloth of Gold Rose-bush budded, and, despite the cold and backward season, perfected the flowers. These being cut off, the bush made new buds, and perfected them. The shoots were then cut back, and the bush is now (second week in August) making wood preparatory to a third blooming, which I think, from the more favorable weather, will be superior to the others.

The cuttings mentioned, though nearly as large now as the parent bush, have not shown any signs of flowering.

My garden is at one of the most exposed points in Oakland, where the fresh sea-breeze has a fair sweep, making a very trying location for the Cloth of Gold Rose. For this reason, I think persons growing this fine old Rose in

the vicinity of the Bay may well have patience, as they will be richly repaid.
C.

Editorial Gleanings.

DESTROYING INSECTS BY FIRE.—Townsend Glover, Entomologist of the Agricultural Department, writes: Fires are said by some planters to be of use in attracting and destroying the moth or miller, and by others to be injurious, as attracting moths from neighboring plantations; and it has been observed that the Cotton has been very much attacked immediately around such fires afterward, as if the moths had been attracted by the fire and deposited their eggs in the vicinity. Torches are of no avail unless generally used by all the planters in a neighborhood, except when placed over pans or dishes containing some adhesive substance, and into which they fall. Great complaints have been made by planters about the indiscriminate destruction of insectivorous birds, which ought to be protected by law, as they are exceedingly useful in destroying the Cotton caterpillar. Some planters use salt-water, in the proportion of a gill to a bucketful, and thought they experienced beneficial results from its use, while others plowed between the rows with pine brush fastened to the swingle-tree, in order to sweep off the caterpillars from the plants on to the ground, where they are either buried under the earth or scorched to death before they are able to re-ascend the plants. Kerosene oil, cresylic soap, and other preparations have been used, but to no great extent, though with some beneficial results. Turkeys driven into the field, as in the case of the Tobacco-worms in Maryland and Virginia, will quickly exterminate many of the caterpillars, and have been

highly spoken of by three of our correspondents. In many cases the correspondents consider that when the Cotton is attacked quite late in the season, and after the last bolls are formed, the caterpillars are rather a benefit than injurious, as by eating off the dense foliage, the air and sunlight being admitted, the bolls that otherwise would not ripen and open are fully matured.

OPIMUM ON SHERMAN ISLAND.—The resources and capabilities of California soil are yet in their infancy. Every year it becomes apparent that some particular locality is especially adapted for the growth of certain products hitherto regarded as incapable of production except in their native soil. It has been demonstrated that Coffee, Cotton, Tea, and Ramie can be successfully grown in California, and it has been proved that Sherman Island soil was designed by the Creator for growing not world-renowned Beets and Squashes of marvelous dimensions, nor yet the finest quality or largest quantity of Wheat, but to compete with oriental Turkey in growing opium. William Oden, our Antioch druggist, has kindly shown us a sample of opium grown the present season on the ranch of Williamson, on Sherman Island, by a gentleman who has had experience in its culture in other lands. Oden tells us that it is equally as good as any he procures in San Francisco markets. The gentleman thinks that he will have two hundred pounds, and the present price in the market is eight dollars per pound. The pods are as large as the two fists of a man, which, we are told, is about the size they grow in Turkey. The seeds are also large and perfectly developed. The gentleman who tried the experiment is greatly pleased with his success, and assures us that he is convinced that

the soil of Sherman Island is quite suited to its culture. Millions of dollars are annually expended for this drug, and it is now established that it can be successfully raised at our doors.—*Antioch Ledger.*

WILD COFFEE IN TUOLUMNE.—A correspondent of the Stanislaus *News* gives the following account of the so-called Wild Coffee growing in that section: "As the tree or shrub is very abundant along the creek from Montezuma to Flack's place (the old Mound Springs), and below to the mouth of the creek where it empties into the Tuolumne River—some three miles—some little mention of the shrub may be of interest to your readers. It may be that by cultivation and pruning it may make a fine tree for orchard growth or for house-yard ornament—and I believe it is an evergreen in its native place—but as it appears, wild and unpruned, it is in clumps like willows, sending up from one root straight, smooth-bark stalks or shoots, of an inch or two in diameter, and to the height of ten or fifteen feet, and from twenty to fifty stalks in a clump. The bark is a dark, dull green; the leaves are smooth-edged, shaped like and heavy as the oleander, but wider in proportion and about two-thirds the length. The berries, just now, are turning purple, some already the black-purple of ripening. Each berry has its two grains of coffee in it maturing, quite hard already; to the taste a strong coffee bitter. If any fault is to be found I think this bitter will be the trouble. I will watch the progress of the ripening and report the same. Now as to the prospects of the crop: the bushes hang full, the crop is abundant, and will pay for picking. I think 500 pounds might be gathered in the district spoken of. The grain will be small, like the

Java, from the samples examined. At a distance the bush puts you in mind of a choke-cherry, with its dark berries showing through the foliage, though each berry has a single stem and does not cluster like the cherry. It seems to grow best along the creek and about springs, but the traveler can see some in the most arid and dusty spots along the road as he goes down the Mound Spring hill, and the road-side to Chinese Camp."

AGREEABLE EMOTIONS AND HEALTH.—Professor Tyndall while in this country last year visited the Falls of Niagara, and on reaching the Cave of the Winds by descending Biddle's Stairs he conceived the idea of attempting to pass under the blue waters of Horseshoe Falls from that point. He found a guide who was willing to make the attempt with him, and together the next day they passed through the mist and foam of the roaring cataract, reached the desired point, and returned in safety. In describing his emotions at one point in his perilous journey, he remarks as follows:

"Here my guide sheltered me again and desired me to look up; I did so, and could see as before the green gleam of the mighty curve sweeping over the upper ledge, and the fitful plunge of the water as the spray between us and it alternately gathered and disappeared. An eminent friend of mine often speaks to me of the mistake of those physicians who regard man's ailments as purely chemical, to be met by chemical remedies only. He contends for the psychological element of cure. By agreeable emotions nervous currents are liberated which stimulate blood, brain, and viscera. The influence rained from ladies' eyes enables my friend to thrive on dishes which would kill him if eaten

alone. A sanative effect of the same order I experienced amid the spray and thunder of Niagara. Quickened by the emotions there aroused, the blood sped healthily through the arteries, abolishing introspection, clearing the heart of all bitterness, and enabling one to think with tolerance, if not with tenderness, of the most relentless and unreasonable foe. Apart from its scientific value and purely as a moral agent, the play, I submit, is worth the candle."

THE PROFIT OF ORANGE-GROWING.—The *Herald* is in daily receipt of letters from persons in the East, seeking information relative to the profits of Orange-growing. Although we have already given the facts and figures on this business several times, it will not perhaps be amiss to repeat them once more. Oranges may be planted at the rate of from sixty to eighty trees to the acre. They begin to bear when eight years of age, though the crop is not extensive nor very profitable. When fifteen years old the annual yield of each tree will range from 1,500 to 2,000 Oranges. As high as 3,000 may be grown, but when the trees are thus crowded the Oranges are generally small. Our most experienced growers do not let trees of the age named bear more than 2,000 Oranges each year. The value of the crop varies from year to year. At present the product of large trees approximates \$20 per year. It is not probable that the profits will ever fall below \$10 per tree. This will make an Orange grove worth from \$600 to \$800 per acre annually. Lime and Lemon trees begin to bear at from six to eight years of age. They may be planted at the rate of 100 trees to the acre. Some Lime-trees yield \$100 each per annum. So far, the profit on Lemons and Limes has been a little in excess of that on Or-

anges, and it is safe to say that they will never become a drug nor sell for less than Oranges. From these figures it will be seen that an acre of ground planted in Oranges, Lemons, and Limes will yield a greater profit than if used for any other purpose.—*Los Angeles Herald*.

FOOT-HILL ADVANTAGES.—Large numbers of emigrants are now daily arriving in California, some looking for lands for farming purposes, and others for employment of any kind. The impression prevails that no land can be obtained at the Government prices, and that there are no public lands open for settlement in this section of the State. There are large tracts open for settlement in the foot-hills of El Dorado, Placer, and Amador counties, under the pre-emption and homestead laws. Here Grapes, Figs, and other semi-tropical fruits can be raised; and for the production of Apples, Pears, and Peaches, no country in the world can equal the hills of El Dorado. Timber abounds, and excellent water. Water, too, for irrigation purposes, when needed, can be obtained from the mining districts, whose ditches are gradually being turned to this purpose as the mines are worked out. Land can be furnished from the railroad company, at a low price in small quantities, that is unsurpassed for fruit-growing purposes. Why men should seek for homes on the arid and comparatively desert wastes of Los Angeles, San Diego, and Ventura counties, far from market, and we may say civilization, is a mystery. In fact, many new-comers spend money enough wandering over distant counties to buy a good farm in this section of the State. Another advantage sure to accrue to the settler in this portion of the State in the near future is the fact that here,

when manufacturing is engaged in to any extent, as it is certain to be, on the rivers in the foot-hills will large manufacturing towns and villages be built. Here will be found a home market for all that can be produced; and any man that settles in this part of the State, builds a home, plants a vineyard and orchard, will, before many years, find himself owning a valuable farm.—*Grass Valley Foot-hill Weekly Tidings*.

A SHORT time since, an article on Orange culture, by Dr. Strentzel, of Martinez, was published. In this article, the writer discussed the time and mode of planting, the best means of cultivation, and a number of suggestions relative to the occupation of the land between the rows of Orange-trees, during that period in their growth when they are non-productive—the result of many years' experience in fruit culture and experiment in this kind in particular, and inquiry and observation elsewhere. Col. John J. Warner, of Los Angeles, a veteran Orange culturist in that garden city, takes Dr. Strentzel to task, in a letter to the *Los Angeles Star*, from which we condense: The Doctor's recommendation that Orange-trees should be planted fifteen feet apart he declares suicidal. The breathing-room for the trees would be insufficient. Thirty feet of space is not too much, nor any more than the trees require to fully develop and enjoy the quantity of solar heat they require. The black rust, which Dr. Strentzel says is a compound of volatile oil and dust, he pronounces the secretion of the scale insect, as it is found only upon trees attacked by the same. Unless the insect is destroyed he predicts the same disastrous fate to the Orangeries of this State as befel the Orange groves of Florida years ago. The planting of the Eucalyptus, or Aus-

tralian Gum, in alternate rows with the Orange-trees, Col. Warner maintains, would be exceedingly injurious to the latter, as the former grow to a great height, and would effectually block out the sunlight.

COTTON IN MERCED.—H. F. Buckley, of the firm of Buckley & Bros., Merced County, have called on us and favored us with some interesting items in connection with their cotton-growing. He informs us that their first crop was grown in 1871. It was planted April 27th, and yielded over 470 pounds per acre. Please note this yield in comparison with returns from the Southern States. Texas is credited with raising 220 pounds per acre; Mississippi with 200 pounds; other Southern States ranging still less.

This is the fourth season of their Cotton-growing, and their present planting covers 100 acres. In 1872-3 they planted later in the spring and became convinced that early planting is correct. This season they planted on the 3d of May, being as early as the condition of the ground would permit. The Buckley Brothers have a Hoadley engine for power for ginning and pressing. They have a 60-saw gin with which they can gin 2,500 pounds per day—the only one run by steam-power in the State. That Cotton is a paying crop in California they are already assured, but they have various improvements in view which will probably render it still more profitable. But even at present they can successfully compete with the South. They represent the process of growing this crop as being as simple and as easy as that of Corn; the two crops being similar in their requirements of soil, cultivation, etc. They plant in rows four feet apart, generally in drills, but in the present season are trying some with "check-

ing" or cross-planting. Two men, with two horses and drillers, will plant seven or eight acres per day. They expect to harvest sometime in September.—*Pacific Rural*.

MELON CULTURE.—The best soil, says *The Rural Messenger*, is that which admits of ready drainage. Watery as the fruit is, it does not require much rain to produce it. In fact, the vines flourish and bear even on a bank of sand. We would then select the lightest piece of ground available—gray and sandy—and put it in good order, using plenty of rotten manure to each hill. Digging holes of sufficient size, and depositing the manure in them during the winter, is doubtless the method to be preferred; but if this has not already been done, we must resort to some other plan. We would still make an excavation and manure liberally, with a view of retaining moisture in time of drought. Much depends on giving the plants a vigorous start. Force their early growth with a free application of bone phosphate to the hill. Keep the ground clear of grass and well stirred until the vines begin to cover it, but as the roots run to the full length of the vines, and grow as fast, the working should not be more than two or three inches deep. With this treatment, we believe there would be few failures in growing water-melons. As they are a favorite with all classes, it is well worth the trouble, whether for market or private use.

CURING RAISINS.—D. C. Feeley, of Santa Clara, furnishes the *San José Mercury* the following directions for curing raisins: First, the Grape wants a good, rich, warm soil in which to grow, so as to insure size and substance; then the largest and best bunches only should be used, and they should be selected

with the greatest care, rejecting all that have the slightest imperfections. The Grape should be allowed to ripen until the saccharine juice has been condensed to some extent; then it should be picked, carefully avoiding friction of the berries, as that destroys the bloom. For drying they should be exposed to hot air of a temperature say from 90° to 110° Fahrenheit. Anything more than this will cook the Grape, and anything less will not accomplish the proper condensation of the saccharine matter. He considers hot air preferable to sunshine for curing raisins, because when exposed to sunshine they are apt to be attacked by insects, which develops vermin after the Grapes are packed. The hot air destroys any germ that may have been deposited while the Grapes were on the vine. He considers a fair shrinkage for No. 1 Grapes in curing would be about one pound in three, and that of the grapes grown on the vines at least 25 per cent. will have to be rejected as unfit for raisins; but still the business is profitable, even with this percentage against the producer."

HOW TO MAKE WINE FROM CURRANTS.
—It having been stated that there are more currants across the Bay than can be disposed of in the ordinary market, a correspondent furnishes the following recipe for wine-making that may insure the growers from loss: Pick from the stems three quarts of fine ripe red currants, and mix with them three quarts of ripe white currants. Bruise them all. Put nine pounds of loaf sugar to melt in three gallons of very clear soft water. Boil the water and sugar together for half an hour, skimming carefully, and pour the liquid boiling hot over the currants. When it is nearly cold add a small teacupful of excellent strong fresh yeast. Let it ferment for

two days, and then strain it into a small cask through a very clean hair sieve. Put into the cask half an ounce of finely-chipped isinglass. Have rather more liquor than will fill the cask at first, and keep it to fill up as it works over. Let it remain in the cask till April. Then transfer it to bottles (putting into each a lump of double-refined sugar), and let them remain one day uncorked. Then cork and wire them. They must stand upright in the cellar; but when likely to be wanted, lay a few of them on their sides for a week.—*Call.*

AN UNLUCKY EXPERIMENT.—The garden is the place to test a great many pretty theories. And what if some of them fail? Is not the sum of our knowledge derived from failures greater than all we ever gained by successes? A feminine oracle, not content with her Honeysuckle theory, had said: "You must not pull up a plant nor a vine that springs up spontaneously. Let it grow. There is luck in it." When, therefore, a Melon-vine made its appearance quite in the wrong place, it was spared through the wisdom of that oracle. It went sprawling over the ground, choking more delicate plants, rioting day by day in the warm sun and the rich loam underneath. Nearly all its blossoms fell off without fruitage. One Melon took up all the life of the vine, and grew wonderfully. There had been tape-line measurements without number. When it gave out a satisfactory sound by snapping it with thumb and finger, and the nearest tendril had dried up, it was held to be fully ripe. It was *very* ripe. A gopher had mined under that melon, and, not content with eating out the entire pulp, had, in very wantonness of his deviltry, tamped the shell full of dirt! Where was the luck

in this spontaneous growth?—*W. C. Bartlett, in Overland Monthly for April.*

IRRIGATION IN BRITISH INDIA.—The *Statistical Reporter* of Calcutta furnishes a list of irrigation works in progress and projected (not including those already completed) in the different provinces of India, and the estimated expenditure required for each. The total number of these works is 26, and the total estimated cost £20,325,000, or \$101,625,000. Of this sum, £18,487,000 is for works having already received government sanction, and the remainder for those as yet only projected. The actual expenditure on these several works up to the first of April, 1872, is placed at £4,589,000. It is represented that, although there are not thus far data sufficiently extended and accurate to establish a positive inference, yet the latest statistics point to the conclusion that past expenditures on irrigating works have been financially profitable. For works in operation in the provinces of Madras, Bombay, Bengal, Punjaub, Sindh, and the north-western provinces, according to the best available information, the account stands thus: Total capital invested up to the year 1871-'72, £10,659,000; interest at 4 per cent., £426,370; net income, £890,000.

COFFEE CULTIVATION IN BRAZIL.—It is said that the cultivation of Coffee in Brazil has so much extended during the past fifteen years, and the quality so much improved by the introduction of machinery and of more perfect processes, that more than half the produce of Brazil is sent to Europe and sold under the names of Java, Ceylon, Martinique, San Domingo, and even Mocha. It is calculated that 530,000,000 Coffee-trees, covering a surface of 574,993 hec-

tares (a hectare is 2,471 acres), exist in the empire.

SOIL FOR VERBENA CULTURE.—Mr. Mundl believes one difficulty connected with the culture of the Verbena is that soil too light for it to flourish in is too often selected—finds that it delights in a rich, substantial clay loam, one possessing considerable body; says the soil composing the Verbena bed should be changed at least every two years.

COLOR ARRANGEMENT.—A few simple rules in the arrangement of flower-beds will materially enhance the effect produced. Among these are:

1. Avoid placing rose-colored next to scarlet, orange, or violet.
2. Do not place orange next to yellow, or blue next to violet.
3. White relieves any color, but do not place it next to yellow.
4. Orange goes well with blue, and yellow with violet.
5. Rose-color and purple always go well together.—*Canada Farmer.*

DRYING GRAPES.—The *Napa Register* says: “Mr. J. H. Post, of St. Helena, is this year trying the experiment of drying his crop of fifteen tons of Mission Grapes to sell for cooking. It is thought that they will bring about six cents per pound in San Francisco, and as it takes three tons of the undried fruit to make one of dried, the fresh fruit will thus realize some forty dollars a ton, with the trouble of drying, whatever that may be. The Mission Grape for wine is worth, we believe, this year, about fifteen dollars. It may be that an extensive market can be opened up for carefully prepared dry Grapes, and the result of Mr. Post’s experiment will be looked forward to with considerable interest.”

CALIFORNIA FRUITS IN NEW YORK.—B. F. Crane, successor to Warren Briggs, was the pioneer Pear and Plum shipper this season, and we judge was handsomely remunerated for his enterprise. A New York telegram, July 29th, refers as follows to Mr. Crane's shipment: "Two car-loads of California Pears and Plums arrived yesterday. One car of 440 boxes of Bartlett Pears and 49 boxes of Washington Plums arrived from Marysville, and another of 385 boxes of Bartlett Pears and 122 boxes of purple Doyenne Plums came from Sacramento. The Pears are in beautiful order, and the lot of large-sized Plums came through pretty good, except where wrappers were omitted. The Pears sold at \$6 to \$7 per box, and the Plums in good order at \$5 to \$6 per box. At retail the Plums are selling at \$1 50 per dozen. The Plums from Crane's orchard were put up in twenty-five pound boxes, which paid well per pound. The shipment being the first of the season, it was very remunerative." —*Marysville Appeal, August 1st.*

DRYING FIGS.—Pick the Figs when thoroughly ripe, dry them on racks, as you would other fruit, in the sun, four or five days, or until the water they contain is thoroughly evaporated. If there is any dew, cover them nights. Then place them in a vessel perforated with holes, like a colander, and dip them into boiling water for about one minute, after which again expose them to the sun until the surface water is evaporated; then lay them in wood, tin, earthen or other vessels, and press closely so as to exclude the air, and cover securely. In this way it is asserted Figs have been preserved equal to the best imported. The scalding answers the double purpose of killing all insect

eggs and softening the skin of the fruit so that the sugar will come to the surface, as may be seen on imported Figs. —*Moore's Rural New Yorker.*

THE COFFEE PLANT.—It is believed that if proper localities are selected, Coffee can be successfully cultivated in this State. The Monterey *Herald* says that Mr. Waters has been experimenting on its growth at his farm in Carmello Valley. His plants this year are not looking so well as they have done, owing to their exposure to the sea-breeze; but this fact does not shake his conviction that under more favorable conditions the Coffee-tree can be made to flourish and yield a handsome crop. It would cost but little to make a trial. In this manner alone is it possible to ascertain what altitudes, soils, and climatic temperatures are best adapted to the flourishing growth of the tree.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING JULY 31st, 1874.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office).

BAROMETER.

Mean height at 9 A. M.....	30.05 in.
do 12 M.....	30.06
do 3 P. M.....	30.05
do 6 P. M.....	30.04
Highest point on the 31st at 9 A.M.....	30.18
Lowest point on the 1st at 3 P. M.....	29.90

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.....	61°
do 12 M.....	65°
do 3 P. M.....	64°
do 6 P. M.....	59°
Highest point on the 8th, at 12 M.....	75°
Lowest point on the 17th, 18th, 20th, and 22d, at 6 P.M.	55°

SELF-REGISTERING THERMOMETER.

Mean height during the night.....	52°
Highest point at sunrise on the 26th.....	61°
Lowest point at sunrise on the 3d.....	47°

WINDS.

East and north-east on 2 days; west on 29 days.

WEATHER.

Clear on 8 days; cloudy on 3 days; variable on 20 days; light sprinkle of rain early in the morning of 23d.



ABUTILON VEXILLARIUM VARIEGATUM.

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. IV.

SEPTEMBER, 1874.

No. 9.

TROPICAL PLANTS ADAPTED TO CALIFORNIA.

BY F. A. MILLER.

Tropical vegetation has great charms for mankind, and it is not strange that strong efforts are made, wherever practicable, to introduce into our gardens such varieties of Palms, Ferns, Dracænas, and other tropical plants and trees, as may be considered hardy. It is not surprising that these attempts often result in complete failure; partly on account of injudicious selection of plants, which are not adapted to our climate, but mostly perhaps on account of the bad condition in which the plants arrive here from foreign parts.

The conditions of our California climate are peculiar. Every county has a climate of its own, so that the same plant which may thrive well in one locality may not at all be adapted to other districts. In and around San Francisco the temperature rarely exceeds 60° Fahrenheit, and hardly ever falls below 35°, while the atmosphere is rather moist. At a distance of ten miles we find it much warmer during summer and colder during winter; and as we proceed inland we find a steady in-

crease of heat during summer and cold during winter: while up and down the coast, for some considerable distance, the climate is similar to that of San Francisco, a few localities excepted. We may therefore safely cultivate out-of-doors, in this locality, such varieties of Palms, Tree-ferns, etc., as would require protection during winter in other parts of the State. But our local climate is not sufficiently warm to develop young plants, or to establish specimens which suffered in transporting them from distant lands. Those who wish to decorate their grounds with tropical plants should procure strong and well-established specimens, of such varieties as, in the East and Europe, are considered cold-house plants.

I will endeavor to name a few varieties of Palms and other tropical plants, which are most desirable for this particular climate, and which are apt to give general satisfaction. I will omit such as *Dracæna striata*, *Cordyline Australis*, *Phormium tenax*, and others, too well known to require any comments.

Of Palms, we may safely plant out the following:

Corypha Australis (Australian Cabbage-palm), a tree which is destined

to become a popular ornament to our gardens. At first its growth may be slow, but, once established, it will soon make itself conspicuous.

Cycas revoluta, the so-called Sago-palm of Japan, is a superb plant, perfectly hardy here; but only strong plants should be planted out. Its graceful foliage, of a shining dark-green color, is very ornamental.

Chamærops excelsa, *C. humilis*, and *C. Fortuni*, the so-called Fan-palms, are all hardy here, but should be planted in localities partly protected from our usual heavy winds, which are apt to disfigure their foliage. Recently a species of Palm was discovered in the most northern part of California. It is undoubtedly a *Chamærops*, and will prove hardy here.

Sabæ Adamsoni, *S. Blackburniana*, *S. umbraculifera*, and other varieties of this noble family, will certainly prove hardy here, if slightly protected from strong winds, which are apt to affect their foliage.

Jubæa spectabilis, of Chili, is well adapted to our locality, but unfortunately is rarely met with. I am under the impression that this Palm will prove hardy also in other parts of California, and become one of the most useful trees for general cultivation. The *Treasury of Botany* thus describes its utility: "In Chile, a sweet syrup called *miel de palma*, or Palm honey, is prepared by boiling the sap of this tree to the consistency of treacle, and it forms a considerable article of trade, being much esteemed for domestic use as sugar. The sap is obtained by the very wasteful method of felling the trees and cutting off the crown of leaves, when it immediately begins to flow, and continues for several months, until the tree is exhausted, providing a thin slice is shaved off the top every morning; each tree yielding

about ninety gallons. The nuts are used by the Chilean confectioners in the preparation of sweetmeats, and by the boys as marbles. The leaves are used for thatching; and the trunks, being soft inside, and extremely hard toward the outside, are hollowed out and converted into water-pipes.

[To be Continued.]

THE MANIHOT HIBISCUS.

There is found along the banks of the Mississippi, and in other southern localities, a fine large-flowered Hibiscus, which was at one time supposed to be a native, but is now regarded as an introduced plant, the *Hibiscus Manihot*. The plant is a native of the East Indies, and has long been cultivated in Europe as a greenhouse perennial. The stems are four feet or more high, the leaves five to seven, parted with long narrow divisions, which are sometimes nearly a foot in length. The flower is similar in structure to that of the Hollyhock and others of the Mallow family, and is six inches or more across. The petals are of a fine canary-yellow color, each with a dark brownish-purple spot at the base, which forms a fine contrast with the yellow, and makes the flower quite showy. Like many other perennials, this will, if the seeds are sown early, bloom the first year, and it may be treated like an annual, or the roots may be taken up in the fall, and kept over winter in the cellar, if not wanted to bloom in the greenhouse. Of course it is hardy in the warmer States. We had long known this plant from herbarium specimens, and were much pleased to receive, last year, some seeds from Peter Henderson & Co., from which we raised plants which flowered abundantly the same season.—*American Agriculturist*.

SUCCULENTS AS DECORATIVE PLANTS.

BY CHARLES H. HOVEY.

[Continued.]

Among the succulents, the *Sempervivums*, next to the *Echeverias*, demand our attention as being the most useful—the hardy varieties for the garden, and the tender ones for both greenhouse and garden decoration. As indicated by the name *sempervivum*—"always living"—they are tenacious of life to an extreme degree, appearing to endure equally well the hot and the cold, the wet and the dry weather, and very rapidly increasing. This genus is well known in the old House-leek, which, in Europe, was formerly grown by royal edict on the thatched roofs of houses, on account of its supposed power to avert lightning. The succulent leaves of this common species were formerly supposed to possess curative properties. There are very many species and varieties, hardy and tender; the hardy ones are all stemless, and present a great contrast in habit of growth, as well as in the color of their leaves and flowers. Many are worthy of cultivation from the effectiveness of their flowers alone.

For the edging of flower-beds, or figures, for lettering or rock-work, and for edgings, the *Sempervivums* are in every way desirable.

The tender species differ greatly from each other in shape and style of growth, and are exceedingly ornamental for the greenhouse, as well as indispensable for the garden in making a bed of succulents; or if scattered among a group of miscellaneous plants, they give a certain novel and striking effect, which we find in no other class of plants. Most of them are very symmetrical in their growth, and form fine single specimens for the greenhouse. They vary in height from six inches to six feet.

Of the tender kinds the following are enumerated as a few of the most desirable:

Sempervivum arboreum.—This is one of the best known; it has a regular tree-like growth, attaining the height of five or six feet. The leaves, of light green, grow in rosettes upon the extremities of the branches.

S. arboreum rubrum is similar to the above in general appearance, except in the color of its leaves, which are deeply tinged with red.

S. arboreum variegatum.—Similar to the two preceding, the leaves being broadly margined with bright yellow, and green in the centre. One of the finest variegated-leaved plants.

S. arboreum medio-luteum.—Another variegated form of *S. arboreum*, having the yellow variegation in the centre of the leaf, upon each side of which is a margin of green.

S. tabulæforme.—This is the most distinct of the *Sempervivums*; it is called the Table-shaped *Sempervivum*, on account of its manner of growth. It is of dwarf habit, with its top perfectly flat, the leaves being as close together as if pressed. We have a specimen six inches high and ten inches in diameter, and as flat as a board. A very desirable kind.

S. Canariense.—Somewhat similar to *S. tabulæforme* in growth, but with larger leaves than in that species, and the cluster is slightly concave.

S. Haworthii.—A dwarf, free-branching species, producing small clusters of leaves at the extremities of the branches, the plant forming one large round cluster of small tufts.

S. Youngianum.—A tree-shaped variety, with very wide, flat leaves, somewhat after the style of *S. tabulæforme*. Very distinct.

S. decorum, *S. ciliare*, *S. glutinosum*,

S. rubicum, and *S. choloichrysum*, are all very good kinds, and worthy a place in any collection:

Of the hardy Sempervivums, those which are most distinct and desirable are the following:

S. arachnoideum.—This, called the Cobweb Sempervivum, is one of the most curious species; it has the peculiarity of being completely covered and interwoven from tip to tip of the leaves with filaments like a spider's web: It grows in very compact clumps, and gives a very striking effect.

S. tomentosum, and *S. Laggerii* present the same peculiarity as *S. arachnoideum*, though in a less marked degree. The leaves of both are green, but in *S. tomentosum* they change to a dull red in spring; both are desirable.

S. calcaratum, improperly known in collections as *S. Californicum*, is one of the best of all the hardy species. Its leaves are bright green, deeply tipped with red. Fine for bedding.

S. soboliferum is called the "Hen and Chickens," for the reason that the young plants which it produces are as regularly placed around the old rosette as if planted by hand. *S. hirtum*, as also *S. tomentosum*, present the same peculiar growth.

S. tectorum.—This is the regular roof House-leek before alluded to. A large and remarkably robust grower, and a distinct species.

S. umbilicum chrysanthum.—This is very dwarf and branching, producing a number of small round heads, with the leaves incurved. Very distinct. We may here mention

S. acuminatum, *S. Brauni*, *S. globiferum*, *S. heterotrichum*, *S. montanum*, *S. Pittonii*, *S. pilosella*, *S. Reginae Amalie*, and *S. violaceum*, as all distinct and good. There are some fifty more, all different and perfectly hardy, which

present their peculiarities of growth and color more fully in the spring. The Sempervivums, as a whole, are very desirable. They are easily taken care of, requiring very little attention, especially the hardy ones, which, when once planted, are quite able to take care of themselves.—*American Agriculturist*.

SUMMER TREATMENT OF GRAPEVINES.

A certain natural equilibrium exists between the roots and upper growth of the vine, which can not be disturbed to any considerable extent, especially during the growing season, without serious injury. To illustrate this, I have planted a young and healthy vine, with smooth and perfect roots, in early spring. When it had made a growth of two or three feet, I have cut it back to a single bud and leaf at its base. After this, the plant remains apparently dormant for ten days or longer, when the bud slowly swells and breaks; and if it is a hardy and vigorous variety, is soon making a new growth, but with less than its former strength. When it has again attained a similar growth, I have again shortened it to one bud and leaf above the former cut. A longer period of rest now ensues, followed usually by a weak and spindling growth of a few inches, with scarcely vigor to ripen a bud or two at its base before the autumn frosts have destroyed its foliage. Now, if we take up this vine, we shall find that all the new roots which had formed previous to the successive cuttings of the top, are dead and rotten. Only the old roots, which the vine had when planted, remain, and these rough, knobby, and diseased; the vine in no respect as good as when it was planted in the spring. The vine will bear, without apparent injury, any reasonable amount of pruning during its dormant

state, in fall or early spring. But I think the above experiment proves that any severe cutting during summer is an unmitigated evil. All the summer pruning I would recommend would be the early rubbing out of superfluous shoots upon their first appearance; leaving only what is required for next year's bearing-wood. This, with the pinching or stopping the ends of such shoots or canes as were disposed to be too rampant in growth, would be all I would ever consider necessary. Some of the most successful Grape-growers within my knowledge carefully prune their vines, in fall or early spring, and then leave them entirely without summer pruning.—*G. W. C., in Horticulturist.*

THE POPLAR.

BY E. J. HOOPER.

The Poplar (*Populus alba*, natural order *Saliaceæ*) is included in this natural order, *Saliaceæ*, because in appearance and many other particulars it is identified with the Willow. Like all the varieties of that extensive species, it thrives best in the neighborhood of water. The blossoms are dicæious, and each seed is suspended to a long, silky tuft of hairs. The timber, too, like that of all other aquatic trees, is soft, light, and homogeneous. The most essential difference between the two species which compose the above-named order, is in the number of stamens in each flower: those in the Willow rarely exceed five, while in the Poplar there are never less than eight; the margin of the flower-scale or bractea in the former is entire, in the latter serrated; and the leaves of the one are more or less lance-shaped, in the other heart-shaped. The general appearance of the trees, however, is very different,

and easily to be distinguished: the majority of the scarcely-to-be-numbered Willow tribe being rather shrubs than trees, and, when cultivated for profit, kept low by continual cuttings, while the Poplars are large and stately timber-trees.

We have many species of the Poplar as natives of America. Many other species have been introduced into this country from Europe, Tartary, and other parts of the north temperate zone, and are easily naturalized to our different climates, and all will flourish in California where the country is not too dry. Of those imported here the two most ornamental and generally known are the Lombardy and Balsam Poplars. As I have observed before, they all require a rather moist and rich soil, and thrive best near running water, but never in a marshy situation.

The Gray Poplar (*Populus canescens*) is a tall, straight tree, growing from eighty to one hundred feet. The leaves are heart-shaped, deeply and irregularly notched, dark green, and covered below with a white cottony down. The young shoots are also covered with this down, but the general color of the bark is gray; hence the name of the species.

The Abele-tree or White Poplar (*P. alba*), differs so slightly from this, that many botanists have considered them as varieties of the same species, and classed them together, being distinguished from all other Poplars by this white down beneath the leaf, which, when the tree is ruffled by the wind, gives it a peculiar appearance.

“The Poplar, that with silver lines his leaf.”
—*Cowper.*

—“The White Poplar, from its foliage hoar
Scatters forth gleams like moonlight, with
each gale
That sweeps the boughs.”
—*Mrs. Hemans.*

From the quick growth of this tree,

and the facility with which, after lopping, it reproduces long and strong shoots, it is invaluable in many places, as in Paris, France, where the wood is almost exclusively used in heating ovens, and known there as *le bois blanc*. It is an astonishingly hardy shade-tree, and free from insects, and is extensively planted on the avenues near Cincinnati and other Eastern cities. It throws up many suckers or root-shoots, which is an advantage for their increase, to form timber for plantations, but is somewhat objectionable on a lawn.

The Black Poplar (*P. nigra*) is also a large and handsome tree. It reaches from fifty to eighty feet in height, and from the rapidity of its growth, the thickness and brilliancy of its foliage, and the vivid hue of its large and early flowering catkins, is one of the most valuable of its species in ornamental plantations. The catkins appear before the leaves. The foliage of this tree, though devoid of the silvery shade which makes the White Poplar so beautiful when agitated by a gentle breeze, is of a brilliant and glossy green, and reflects back the rays of the sun in a peculiar degree, which gives it a particularly joyous and animated appearance. It is sometimes known as the Willow Poplar, and the Water Poplar.

P. tremula is well known as the Aspen, from the trembling of its leaves, which are agitated by the slightest breath of air, and by the rustling noise produced by its incessant quivering. It is a native of every part of Europe. The leaf is small in proportion to the length of the foot-stalk, which, being vertically compressed, and in a contrary direction to that of the leaf, easily accounts for the tremulous motion.

“With every change his features played,
As Aspens show the light and shade.”

—Walter Scott.

For turnery-ware there is hardly any wood equal to these trees, especially the Abele, for their exceeding whiteness; so that trays, bowls, and many other household utensils, are made of it. The buds of the Black Poplar, like those of the Balsam Poplar, are covered with a gummy balsam, which forms the basis of an ointment for wounds and cuts.

P. fastigiata (the Lombardy Poplar) is more generally known than any other species of this tree. It was brought to England in 1758. Its average height is 100 or 120 to 150 feet. Its wood is inferior to that of the less lofty species, though more abundant. It is generally planted for variety and ornament, and although somewhat fatiguing to the eye when it lines the road for miles, as it does very generally in France, it is often a very beautiful and natural accompaniment to buildings. It is a well-known rule in landscape composition that horizontal lines should be counter-balanced by perpendicular ones. Hence, in the neighborhood of bridges, aqueducts, walls, roofs, etc., or even lengthened masses of buildings, the Lombardy Poplar, introduced with taste and judgment, produces a good and picturesque effect. In this respect our lately so-much-introduced *Eucalyptus globulus* effects much the same object. Among round-headed trees, too, or architectural scenes, both these fine trees, and particularly the more valuable *Eucalyptus*, vary the monotony of the outline, and give a character to the scene, while their elegant and spiry forms quivering or wavering in every breath of air, embellish the landscape in no ordinary degree. Most trees in this circumstance are partially agitated; one side is at rest while the other is in motion; but the Italian Poplar waves in one simple sweep from the top to the bottom, like

an ostrich feather on a lady's head. All the branches coincide in motion, and the least blast makes an impression on it when other trees are at rest.

—“The Poplar's shoot,
That, like a feather, waves from head to foot.
While those lofty Poplars gently wave
Their tops, between them comes and goes a
sky,
Bright as the glimpses of eternity
To saints accorded in their mortal hour.”

The trembling vibration which I have just alluded to, as so peculiarly distinguishing the leaves of the Aspen, is, though in a less degree, partaken of by all the other species of Poplar, and is in every case to be attributed to the peculiar conformation of the petiole, or foot-stalk. This is not only large in proportion to the size of the leaf, and compressed in the upper part, but takes a different direction to that of the plane or surface of the leaf. And herein, as in all the works of Nature, we discern the simplicity with which cause and effect are combined. Had it been proposed as a problem to find what should be the nature of a leaf that would quiver in the lightest possible agitation of the air, it could not have been more clearly or nicely or directly solved.

The shade afforded by the foliage of all the Poplars, especially by the Aspen, is considered more wholesome than any other tree, unless it be the Eucalyptus. It thrives in the centre of towns, even among coal smoke, and from the rapidity of its growth is often planted as a screen for concealing any unsightly objects. This last observation applies peculiarly to both the Lombardy Poplar and the Eucalyptus, which are admirably adapted for planting along streets and among houses, in towns and villages, from the little space occupied by their branches, which are compressed about their trunks

so as not to interfere with the walks, or to obstruct the access of light to the windows. Many of our broad streets in American towns are thus planted, forming avenues which refresh the passenger with their shade, while they shelter and protect singing-birds and the English sparrow which has lately been introduced here to feed upon the worms which infest or are likely to infest our trees.

A USEFUL HINT.—When your seeds are planted, unless the day is cloudy and showery, they will require shading from the heat of the sun.

I find old newspapers are the best protection; but, if the patches are small, flower-pots can be inverted over them. The newspapers must be laid over the seeds, after they have been well watered, and fastened at the corners by small stones or a handful of the earth. At night they should be removed to let the dew moisten the ground, and put back before it is dried in the morning. Continue this until the tiny leaflets appear; then remove them entirely. If the ground is dry, the seeds must be thoroughly wet every night. Moisture is very needful to germinate seeds; without its aid they can not sprout. You often hear it said, “I planted fifty to sixty varieties of annuals, and not half a dozen sprouted. I have no faith in the seedsmen; they send out old seeds.” “Did you water them well, and shade them from the noontide heat?” is asked. “Why, no, I never thought of that. I planted them, and supposed that was enough.” My fair friends, unless the clouds favor you and drop rain, or hide the sun for three or four days, your seeds will become baked, and shriveled, and you can not expect them to grow.—*Every Woman her own Flower Gardener.*

BOUQUETS—HOW TO ARRANGE THEM.

Silvered wire is better for this purpose than copper, but either will do; though, as it takes but little of the former, and the latter is not so easily handled, the silver has the preference. The circumference of a circle being three times the diameter, if the frame is to be six inches in diameter, the piece of wire for the outside circle should be eighteen inches long, and each succeeding length should be three inches shorter, until the last one makes a circle not much larger than a ten-cent piece, making in all six rows. An inch should be allowed for fastening the ends, so the wire can be cut into lengths of nineteen, sixteen, thirteen, ten, seven, and four inches. Each of these lengths of wire must be twisted neatly together, forming various-sized circles.

These wires should then be attached to the smallest circle in the same way that they are fastened in parasol frames, or by twisting them closely over the circle at respective distances, and they should be each four inches in length. Lay the circles in order on the table, and pass the three frame-wires in and out of them, twisting them securely around the outer circle, and fastening the wires to each circle with coarse sewing-silk. The desired curve is easily given afterward by gently bending the upper circles. Then attach two or three strong wires, at least eight inches long, to the centre circle, and the frame will look like a parasol frame widely extended. It would be well to have the wire cut in the desired lengths at the store where they are purchased, and they can be found at most jewelers' shops or at wiremakers' establishments.

Such a frame can be enlarged at any time by adding another circle, and supporting it by two or three pieces of

wire fastened backward and forward, and then hooked to the smallest circle. It is not a disadvantage when the frame, though otherwise nearly flat, rises seemingly a little too abruptly in the middle. A large flower is best for that position, and it is always better to have its petals rest on the outer wire. If very delicate flowers are to be used in making the bouquet, it is well to lay a small piece of cape lace or netting over the frame and fasten it all around the outer edge; and where wires are not to be obtained, the frame can be made entirely of netting, drawn over an osier or whalebone shape.

Similar frames of wire can be made to cover over round, square, or oval glass dishes or cups. Zinc wire should be used for these, as it bends very easily to the fingers. The coverings for square or oval dishes can be arranged in the same manner as advised for bouquets, and a circular frame is more easily made, and the corners can be filled in with interlaced wires.

BOUQUETS IN PATTERNS.—Flowers are often arranged in a mere succession of bunches, but they look very stiff and unmeaning. Again, they are shaped in stars, but excepting the starry self-shaped flowers of the *Stephanotis*, *Jasmine*, *Myrtles*, etc., I have no pleasure in astronomical designs. Shaded bouquets are far prettier, unless artistic patterns are adopted. In many cases, if exceedingly small flowers are used the pattern can be very elaborate and perfect in taste and execution. A wreath of tiny bright flowers and leaves, arranged on a white ground, is specially lovely, and a wreath of *Forget-me-nots*, grouped on a white ground, is exceedingly charming and sentimental; also a wreath of pink *Rosebuds* and *Hyacinths*. Surely, such floral designs are far prettier than stiff, concentric

circles of one color following another!

The groundwork can be varied—pale pink and porcelain blue can be substituted for white, but a groundwork of white Sweet Violets, double Chinese Primrose, or *Deutzia gracilis*, with scarlet, blue, pink or purple wreaths, is doubtless the most beautiful. One kind of flowers should form the groundwork, as it is more difficult to keep the surface level if different kinds of flowers are used. It is very essential to keep the shape exact, and the curve should be very slight, and the flowers kept carefully down to their proper level. In fastening them to the wires soft thread is the best. If the stems are long enough each one can be tied to the centre wires, and it is well to wind wet moss or cotton-wool along them to keep the flowers from withering by the warmth of the hands. An outer border of leaves, feathery, variegated, of velvety texture, will add to the beauty of the design; scarlet Geranium leaves, unless their perfume renders them objectionable, the Fair Helen and the Oak-leaved being very unpleasant to many persons from their strong odor. Myrtle also makes a pretty strong edging, as its fragrance is so delicate.

It is a vexed question whether it is best to commence the arrangement of flowers from the top or from the outer edge. For vases or dishes it is best to begin at the outer edge and work toward the centre, always laying a frill of foliage about the outside; but for the bouquets, it is better, at least in my opinion, to commence at the centre, for no other way would secure the stalks in their proper position. In making a bouquet with a white groundwork and a scarlet wreath, a red Camellia could commence the bouquet and double white Primroses fill up the centre, with

a wreath of white Heath and scarlet Begonias or Poinsettias. After the wreath must come a band of the groundwork, and then a fringe of green and white.

For a bridal bouquet, take a white Camellia for the centre; five or more Camellias at intervals, with a few Orange flowers interspersed, then white Heath or Lilies of the Valley. A very little green tells well with such a snowy-white group, and the pale green fronds of Maiden-hair Fern can hardly fail to add grace and beauty to such flowers.

A mixed bouquet of Roses and Geraniums is very lovely. Commence with one half-blown white Rose, and surround it with five or six clusters of scarlet Geranium a little below the level of the Rose. Add Geranium or Rose leaves with some feathery white flower, and encircle with pale pink Roses closely grouped; then a border of pure white Roses filled up with fresh bright green, and then a close border of scarlet Geraniums mingled with their own velvety leaves. Such a bouquet is a miracle of loveliness! Try it, fair friends, and see for yourselves how brilliant and charming it is.

TROPICAL VEGETATION.—A Panama paper gives a striking illustration of the vigor and rapidity of vegetation in the tropics, by referring to the bushes and trees growing in the ruins of the burnt Aspinwall Hotel, at Panama. It is little more than two years since this conflagration occurred, and yet there are now growing within the walls trees at least thirty feet in height. They belong to what are called Trumpet-trees (*Cecropia*), and the branches are said to be crowding out of the highest doors and windows.

NEVER allow flowers to be watered or sprinkled with cold water. Tepid water is always better, even in summer.

FRUIT GROWING AND CURING IN CALIFORNIA.

BY DR. HENRY DEGROOT.

The wonderful adaptability of California for the growing of almost every kind of fruit is now a fact of world-wide recognition. Few countries equal and none surpass it in this respect. Both the soil and the climate are admirably suited for this industry. Fruit-trees of nearly every variety, as well as berry-bearing bushes, and the vine, thrive here with the least possible care. They will grow well in this State, covering nearly ten degrees of latitude, and at almost any altitude from sea-level to the tops of the mountains. They begin to produce early, yield abundantly, and enjoy almost entire exemption from disease. Fruits with us are apt to grow large, keep long, and are generally fair, sound, and well flavored.

In all the more elevated portions of the State, Apples, Plums, Cherries, and the more hardy fruits, as well as all kinds of berries, are now successfully cultivated. Even in Alpine, Mono, and Inyo counties, lying at an altitude of from 5,000 to 7,000 feet, and crossed and inclosed by rugged mountains, enough of these comestibles are raised for home consumption, their production in nearly every other county being vastly in excess of that limit. Apple, Peach, Pear, and Plum trees begin to bear here within two years from the time they are set out, and the vine within one year; other fruit-bearing trees and plants being equally precocious.

In most countries, fruit-trees are apt to bear only at a much later period, and then only in alternate seasons, or after other longer periods of sterility. Here, with the exception of the Apple, and perhaps some few other fruits, the yield

of which is slightly abated in alternate years, these seasons of barrenness occur with no regularity, and, except through the intervention of accidental causes, can hardly be said to occur at all. That these products are generally sound and healthful is evinced by the fact that most of them can be left unpicked until early winter, and sometimes much later, without suffering decay; many varieties of Apples and Pears keeping the year through in a good state of preservation.

Encouraged by the facility with which fruits of all kinds could be raised in California, our people have planted extensively. Immense Pear, Peach, and Apple orchards are to be found in all parts of the State. Plum, Cherry, Apricot, Quince, Prune, Fig, and other varieties of fruit-trees, have been set out in great number. Our vineyards are now measured by the acre rather than by the number of vines set out, though of these there must be nearly 50,000,000 growing in the State, with a still larger number of small fruits, such as Strawberries, Currants, Raspberries, etc. With these millions of trees, and a fecundity so unexampled, the annual production of fruit in this State is enormous; so great, in fact, that in many localities destitute of facilities for shipping it away, it possesses no market value whatever—the orchardist feeding it to his stock, and in some instances giving it away to whoever chooses to come and get it. There is no estimating the quantity of fruit, mostly of fine quality, that is allowed in this manner to go to waste annually. It literally amounts to thousands of tons, the waste this season, owing to an unusually abundant crop, being greater than ever before.

Now, as our climate is exceedingly favorable for the curing of fruit—great

quantities of which in its dried state are every year consumed on the coast, creating a ready market and good prices for the same—strangers would naturally infer that this branch of business had been largely engaged in by the pomologists, vintagers, and gardeners of California; that with so many inducements for entering upon the business, and so many advantages for its successful prosecution, it would long since have attained to no secondary position among our domestic industries, and that we were shipping this sort of produce extensively to other and less favored countries. This, in view of the premises, is the conclusion at which almost any rational mind would be forced to arrive.

Dried fruit has not, however, figured prominently among our articles of export, nor have our orchardists as yet greatly enriched themselves by the sale of these toothsome commodities. On the contrary, they have not produced near enough to meet home requirements. We have been importers of these staples not only during early years, when labor was scarce and dear and little or no fruit was grown here, but latterly, since it has become so superabundant and the State has been swarming with women and children who, had they been disposed to make themselves useful, might have found in this business of fruit-curing a pleasant and profitable employment. Last year our importations of dried Apples amounted to nearly 4,000 half-barrels, and our raisins to 27,692 boxes, besides more than 100,000 barrels, kegs, and boxes of these and other kinds of dried fruits, to say nothing of large quantities of fruits and vegetables preserved in other forms; last year's importations, though showing an increase on those of the preceding year, representing the average of those made for many years past.

These facts and figures are not at all creditable to California industry or thrift, nor are they any more creditable to the good judgment and taste of our people. When it is remembered how the most of these fruits have been cured in the countries whence we have in so large part derived our supplies, one is astonished that anybody should use them at all. That they should ever have been preferred to those of California production can be explained only on the hypothesis that the consumer was ignorant of the processes to which they had been subjected in the course of preparation for market.

In the Eastern States, from which most of our importations in this line have been drawn, much of the fruit continues to be prepared after the old-fashioned way—that is, by exposure to the out-door air, or by being strung on threads and hung up in the house to dry; this last method being adopted when the weather is damp or the work is being carried on in the winter. It is, moreover, the favorite plan with many families in the country, as these garlands, when suspended thickly about the house, serve the several purposes of fly-roosts, dust-catchers, and ornamentation. Hence they are often suffered to adorn the kitchens and bedrooms of these rural dwellings for weeks and months in succession. When taken down they present, of course, a much bespeckled and dingy appearance, and are not apt to smell well, either.

This unsightly and ill-savored stuff is next sent to the country store, whence, after being forced into half-barrels by the aid of a stogy boot, it finds its way to the nearest port of shipment, and is there dispatched for San Francisco. During its long voyage in the ship's hold it imbibes largely the odor of bilge-water and other depraved smells;

this discoloring matter, meantime, becoming released and coating the mass with a sort of syrup, which to the consumer seems to have exuded from the fruit itself.

Such has been much of the dried fruit eaten by Californians in years past, and for which, if they had not been the most indolent and shiftless people under the sun, they might easily have substituted a home-cured article of superior quality and at far less cost. It is in practices of this kind that we are to look for the causes of that money tightness, hard times, and general unthrift of which we have ever heard so much complaint; and what of mishap and misery might we not reasonably predict for a people who, with such an abundance of green fruits, with our long and rainless summers, our cloudless days and dewless nights, will yet import their dried fruit from abroad rather than cure it for themselves! If anything more shiftless than this was ever practiced among the primitive settlers of Arkansas, the fact has not been brought to public notice.

Happily, we seem to be on the eve of a change as regards this shamefully neglected branch of industry. For the first time our people are this year beginning to turn their attention largely to the business of fruit-drying. Discarding the former slow and imperfect processes, they seem disposed to avail themselves of the several machines recently invented for effecting this purpose, and through the aid of which a much improved article can be turned out at a greatly reduced cost. Among these devices the Alden machine, perhaps because it was the first invented and brought into use, seems to have a general preference. Those who have tried the Cassidy drier, operating in the neighborhood of Petaluma, like it bet-

ter than any other; the fact being, that these patent driers, or evaporators, possess such advantages over the old methods, that a person using either style is sure to be pleased with it. Of the Alden pattern, about twenty have already been put up in California; five of these being at San Lorenzo, three at Centreville, both in Alameda County; two at Vacaville, Solano County; two at Napa City, and several in various other localities. A number of the Cassidy machines, with a few of other patterns, have also been constructed and set to work in this State. In Oregon these evaporators are also being employed, and there is no doubt but they will be rapidly multiplied throughout the entire fruit-growing region of the coast.

These machines, when started, are usually kept running day and night. They employ from twenty to forty hands each, and have capacity to cure from one thousand to two thousand pounds every twenty-four hours. There will be cured in California three or four times as much fruit this season as in any preceding year. What shall have been accomplished the present year may, however, be looked upon as a mere inauguration of the business, now that the attention of our pomologists has been aroused, and the means been provided for making it a great success.

ASPARAGUS CULTURE IN GERMANY.—It is asserted that near Brauneschweig, Germany, 25,000 acres are cultivated in Asparagus, most of which is canned. The variety cultivated is called "Rose Hollande." We have received and eaten samples of this German canned Asparagus, and it is most excellent.—*Ex.*

Do NOT USE fresh manure for bulbs; old, thoroughly decayed compost is far preferable.

TAN MULCH FOR FLOWER-BEDS.

The color of fresh tan, and in particular that of Hemlock, is just the tint to contrast favorably with the colors of grass and flowers, and to make them bright and conspicuous. A warm brick red, that of a well-burned and new flower-pot, or of the reddish clay—the common (Venetian) red of the painters—is the color found preferable in horticultural exhibitions as a background on flower-pot stages. But almost any color resembling that of a wet soil will do, provided that it is uniform over the whole ground; for this prevents the eye from being distracted by a medley of tints, and thus the plants being seen with the full power of vision, both outlines and colors are appreciated.

When a bed of flowers or shrubbery is cut out of the grass-plot of a yard or lawn, a mulch of fresh, fine Hemlock tan, applied after planting, is equivalent to a painting of the surface, for it gives the whole one even and distinct shade. It has the great advantage, too, of saving nearly all of the often-recurring trouble of weeding and watering. Then it is so easily applied—so very easily surfaced smoothly with the back of a rake—and so pleasant to the feet as well as to the eyes. Dark-colored sand may be used in the same way, on heavy soils, with great advantage and effect.

Knowing very well from trials how deleterious tan may become to the roots, if dug into the ground, we have been pleasantly surprised to find that even tender annuals, so far as we have applied tan around them, are not injured by it, although just fresh from the vat, if it is applied only upon the surface.

The edging round a twelve-by-fifteen-foot bed of shrubs here is formed by a row of *Tagetes signata pumila*, set a foot

apart. These plants were almost inconspicuous on the rather parti-colored earth of the bed, but when this was covered all over with an inch or two deep of fresh tan, everything growing in the bed seemed to be illuminated, and the long row of *Tagetes* stood out as distinct as a row of showy buttons on a new dress, or a row of the neatly matched Plane-trees on a Paris boulevard. They began to grow more rapidly; and are now tipped and gilded with their golden blossoms, and more than ever like a pretty curving row of shining border buttons.

Behind these are pæonies and other perennials, not over eighteen inches high, and further back are lilies, etc., among shrubs of three or four feet of stature. All are hardy perennials, excepting the one row of edging, so that the really beautiful bed requires only a little pruning in the spring, and a refreshing of tan to be a continual feast to the eye. Of course the grass is kept short all around. If a hardy weed dares to appear here or there, a scrape of the foot in the tan, or a spud with a chisel-like push-hoe, puts it out of existence before it becomes large enough to spot and mar the even-colored carpet of the bed. The centre plant in this bed is a *Spiræa aurea* about seven feet high, and from it the growth tapers in height down to the low border or edge of the bed. There are no evergreens in it, excepting that one front is edged with *Euonymus radicans variegatus*. Back of this are mounds of golden-veined Japan Honeysuckles, and farther back are taller mounds of the Belgian Monthly and Trumpet Honeysuckles between low, erect shrubs, such as *Deutzia carnea*, *Hydrangia paniculata*, *Spiræa callosa* and *prunifolia*, Japan Quince, Flowering Almond, etc. A variety of the red-berried Elder—*Sambucus pubens laciniatus*,

with very finely cut leaves, extends its feathery spray from under the branches of a Josikea Lilac, with a peculiarly graceful elegance. It is an interesting and beautiful shrub, thrives in the shade, and does not sucker from the roots like other Elders. It was found a few years ago on Tussy Mountain by a botanical party from the Pennsylvania Agricultural College, and is unique. It has a profusion of bright red berries.

When it is desired to plant anything new in this bed (as to renew the Tagetes edging in the last of May), the tan is scraped away before digging, so that it may not be mingled with the soil, nor any of it covered out of reach of the oxidizing power of free air.—*Country Gentleman*.

THE TAMARIX.—Of this pretty shrub, which in this part of the country is not often seen, the *Flower Garden* says: "These very elegant and hardy shrubs should be more extensively used in our gardens and lawns. The flowers and foliage both are ornamental; the latter remaining till quite late in the season. Its numerous branches are profusely covered with very delicate, slender, thread-like leaves, which give them a feathery effect; somewhat like, but more elegant, than those of the graceful Pines. The flowers are very minute, appearing in the spring before the foliage, and covering the plant with long terminal spikes of pinkish blossoms. The shrubs bloom a second time in autumn, but not so profusely. They require a deep sandy soil, and present the best effect when planted singly in the grass. When once established, no further attention is necessary except an annual pruning. But this is of great importance. Cut them back, half-way down, every spring, as otherwise the

branches will grow scraggy and awkward.—*American Farmer*.

TRAINING THE GRAPE.

Following are some hints on Grape culture offered by the *Home Journal*, of New Orleans, which may prove of service to our California readers, although given in view of the special peculiarities of Louisiana:

"Perhaps the most essential element to success in Grape culture is the proper mode of pruning and training the vine. The soil, location, and aspect may be all right; the varieties may be such as are exactly adapted to our peculiar climatic conditions, and yet, if some intelligent system of training is not adopted, and the pruning not done in accordance with the requirements of such system, we need not expect permanently healthy vines or remunerative crops. It is of the very first importance to know, therefore, when we plant a vine, how we are going to manage it.

"Our first lessons in Grape culture came from the Old World, where they cultivate an entirely distinct species of Grape, and one which, from long culture under a universal *procrustean* system of pruning and training, has become pretty well reconciled to its stubbing-in treatment. It was very natural that our early cultivators should follow the examples and instructions given to them by the great lights of European Grape culture, without investigating too critically the difference in species, habits, soils, and climates, that existed between the two countries.

"Our native species of the great *Vitis* family—great in importance, if not in numbers—prove refractory under the severe pruning to which the European Grape patiently submits, and fail when thus treated to yield the cultivator that

several healthy plants have been obtained and found true to color. The form and fragrance of the parent Rose are fully preserved, while the leaves are all beautifully variegated in red and white, blending in the most perfect manner.

THE VEGETABLE MARKET OF SAN FRANCISCO.

If one hundred tons of vegetables were massed in one pile, and the beholder were told that this is San Francisco's regular daily ration in the vegetable line, he would probably be somewhat amazed. Yet such is supposed to be the case by those who have taken the dimensions of our daily vegetable market.

This vast quantity, however, is not exhibited in one stack, but is placed on the sidewalks of Sansome Street in goodly sized mounds, or piled up on the wagons ranged along the sides of the street. This grand vegetable display commences on the south a little below Commercial Street, extending thence northward to the length of five or six blocks. In order to condense this business as much as possible, the greatest economy in space is used. Many of the wagons stand closely backed up to the curbstone, while those that stand lengthwise of the street are not allowed space for their poles, but are placed body against body as closely as possible. On a recent early visit to this market we counted eighty-eight of these wagons. Many of them bring to market fully three tons, while scarcely any of them bring less than one ton. And be it remembered that the "market days" here are six to the week, throughout the year. And it should be borne in mind that San Francisco does not obtain here its tons of Potatoes for its daily consumption, for these are not in-

cluded in the vegetables sold here. The smaller garden vegetables—Radishes, Celery, etc.—are grown at the Mission; while the coarser grades—Cabbages, Turnips, etc.—are brought from a greater distance, some of them fifteen miles. Many of these immense loads are brought to the city at night and placed in position, ready for the earliest morning customers. It is about day-break that this trade is most active; for the great number of local markets and groceries scattered through all parts of the city get their supply of vegetables here, and they must be in time for their early customers. It is almost exclusively to dealers that the sales at this great market are made. Neither party has any spare time to waste in haggling, one being as impatient to buy as the other is to sell; consequently quick sales and a rapid transfer of stock follow.

Later in the morning, a few men and women, smaller purchasers, appear and procure their daily supply for families, boarding-houses, etc. And from the opening to the close of the market, scores of boys and girls are going about amid the scene with sacks and baskets, into which they thrust all the refuse vegetable material, such as cabbage leaves, turnip tops, etc. The owners cut and trim freely; much of this refuse is undoubtedly available for table uses, though it is mostly gathered for feeding to cows, goats, and fowls. When it has been closely picked over, and as the wagons disappear, the sidewalk, gutter, and street are swept, and even these sweepings are bagged; and by half past eight or nine o'clock, when the mercantile business of the locality commences, these stirring Italian vegetable-growers are returning to their distant ranches, and of those mountains of vegetables there is not left enough to "keep their memory green."

These vegetables are grown by those who sell them, and who are almost exclusively Italians. Any person will, we think, at once admit that they deserve commendation, both as producers and as business men. They have done justice to the horticultural resources of the country, and present the valuable products in a very attractive condition; and it will be difficult to find in any department of trade the same amount of business done in so short a time and in so business-like a manner.

There is evidently an idea prevailing in the little world outside of San Francisco that we are given over to extravagance and waste. But we have abundant evidence wherewith to refute this charge, and may find one available point in this vegetable market. As we stated above, there is plenty of refuse here, but no waste. Men and women, boys and girls (not the representatives of squalid want and misery, by any means), come here regularly with their baskets and bags, and carry off to their homes what would otherwise become a nuisance. Every leaf is utilized.

There are several gratifying points brought out by a visit to this market. The display of vegetables there is fully up to the idea that has gone abroad concerning Californian Horticulture. We are not so "green" as to claim that there is anything really practical in the sight of even such mounds of mammoth Cabbages and other vegetables, yet we do claim that they are decidedly refreshing to behold, and while they are appealing to a wholesome appetite, they gratify other tastes and feelings.

Regarding the eating habits of the people and their consequent healthiness, it is a satisfaction to know that they consume daily a hundred tons of vegetables, exclusive of Potatoes (and

this is too low an estimate), seven days in a week throughout the year; but they ought to consume still more. About the only complaint against our popular eating-houses is, that they do not furnish vegetables in sufficient quantity and variety. This is a want that should not remain unsatisfied in our great vegetable abundance.—*Pacific Rural Press.*

SUN-DRIED FRUIT A FAILURE.

Owing to the peculiarity of our climate, a climate in which fruit may be dried as rapidly and with as little expense as in any other country, the system of drying fruit in the sun is practically a failure. It may strike those who have had no experience, as a strange proposition; but, to the practical man, the man who has dried fruit in the sun and kept the same any length of time before disposing of it, and to the merchant who has been dealing in sun-dried fruits and had box after box returned to him, it is very plain and easily understood. In whatever country you dry fruit in the sun, exposed to insects, they will deposit more or less eggs upon it. If that country be a cold one, like the Atlantic States, for instance, the cold weather generally sets in so early that these eggs are not hatched out in the fall, and the fruit is consumed before the warm weather of the following spring, and the consumers are none the wiser for having consumed with the fruit millions of insect eggs. In this State, however, these eggs hatch out in the fall, and very generally destroy the fruit before it is required for consumption. Our dealers generally understand the danger of dealing in sun-dried fruit, for many of them have suffered by so doing; and we, in the line of our business, have also had a little experience, which we will relate. While Secretary

of the State Agricultural Society, we made an exhibition of some of the products of our State, at the International Exposition at Paris. At the State Fair of 1866, Briggs Bros., the extensive orchardists of Marysville, exhibited a number of boxes of dried fruits of various kinds, put up in a good shape for commerce. The fruit itself was in splendid order, and attracted general attention at the fair, and we solicited and obtained the whole to send, among other articles, to Paris. After the fair, some two months elapsed before it was time to forward the goods to New York, and the boxes remained in a safe place, undisturbed. When ready to ship, we opened one of the boxes, and found the fruit had turned to a mass of worms. Not one box was found but was in the same condition.

The peculiarity of our climate, therefore, requires that our fruit be dried by artificial means, or that all sun-dried fruit, to keep or to ship, be put through some process by which the insects' eggs may be killed. Unless subjected to some process that will effect this, it is neither safe to the individual, or good policy to ship it out of the State, or to sell it to those who desire to keep it for winter use.—*Sacramento Record*.

MANY persons fail with the Apricot on account of the situation selected. If we give it a southern exposure, the blossoms will likely enough expand before the danger from late spring frost is past, and the consequence is a blasting of the prospective crop. A specimen in a neighbor's collection planted on the north side of the house, and where it can only enjoy a little sunshine late in the afternoon, has given good results. Place it in such exposures; attend to the "borer" at the root;

wage a war of extermination against the curculio; and gather Apricots almost as fine as do the Mormon horticulturists at Salt Lake City.

BEAUTIFY YOUR HOMES.

It should be our constant object and aim to render our homes and farm life attractive. A false idea seems to prevail among all classes that they can devote five, ten, fifteen, or twenty years to the accumulation of capital, wherewith to purchase enjoyment, and then sit down and enjoy it. He who builds upon such a basis founds his superstructure upon sand. It is a delusive hope, an ignis fatuus, that tempts us to sacrifice health and, it may be, that fine perception of the beautiful, which can only be strengthened and cultivated by its daily use and enjoyment. How often do we see farm-houses mere boarding-houses, not surrounded by a single ornamental tree, or shrub, or flower, when they might easily and cheaply have been made beautiful homes?

If we have no regard for ourselves, and no ambition but to accumulate capital, we should, at least for the sake of our children, build up a pleasant home, whether it be a villa, a cottage, or even a log-house. The saddest thing of all is to hear it said of any man or woman, that he or she never had a pleasant home. The importance of a pleasant home, where love reigns supreme, and where the external adornments ever minister to the gratification of the nascent perception of the beautiful, the good, and the true, can never be overestimated, when we consider their influence upon the æsthetical and moral culture of our children. It is only by degrees that the young, hungry soul, born and bred in a hard, unlovely

home, accepts the coarse fate to which, not the poverty, but the indifference, of parents condemn it. A meagre, joyless home often makes of the spirited boy a shrewd, narrow-minded, and selfish man; and as the years pass by, these influences culminate in a covetous and unloving disposition, and he eventually disappears from the earth, uncared for and unloved. The home should be made so beautiful that the children would love it above all other places. It is by improving and beautifying our homes that we become contented with farm life, and contentment in this respect is great gain. Then let each child plant a tree, shrub, or flower, that it can call its own, something upon which they can bestow some care, something that in after years will call up some pleasant association connected with its planting—for it is such things as these that attract us in after years to the home around which so many fond associations will ever cluster. The habit which we as a people have acquired, of roving hither and thither over the face of the earth in search of happiness, should be checked. Happiness of the purest kind is not to be found in this way. It is to be found in making our earthly homes as near as possible like the ideal one which we are ever cherishing, ever hoping to create. All things must have a beginning; then why should we not begin at once, and without delay, to make every earnest longing for a beautiful home at no distant day an accomplished fact?

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CALIFORNIA WOODS FOR ENGLAND.—The superior character of California wood is attracting the attention of people living abroad, and visitors, who are fairly delighted with the fine grain and the high polish of the material used

in the manufacture of furniture and the ornamentation of apartments in this State. A few months since Lord Skelmersdale, while visiting this city, was struck with the fine finish of the Lick House, and also with the rich paneling of Laurel and Redwood in the Capitol at Sacramento. He remembered his admiration of the woods after his return to London, and finally concluded to send for a collection for the adornment of his palatial residence in the great British metropolis. The order was received by Jacob Strahle & Co., who will forward by the bark *Cuba* some of the finest specimens of California woods the market affords. The same firm recently supplied fine woods for the re-arrangement of the cabin of the clipper ship *Carrollton*, of New York.

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FERTILIZING PLANTS.—A process invented by Hooibrenk, facilitating the fertilization of plants, has lately been successfully tried, according to *Les Mondes*, in the Botanical Gardens of Vienna. This consists in simply touching the extremity of the stigma of a flower about to bloom with a brush dipped in honey, or still better, in honey mixed with the pollen of the plant to be operated upon. This, in the case of *Hibiscus Mexicanus*, which had never borne fruit, resulted in the production of perfect seeds. The operation has succeeded very well with certain fruit-trees, some of which have thus been caused to produce fruit for the first time. As an explanation of this result it is suggested that the honey keeps the grains of pollen upon the stigma, and thus favors the development of the pollen-tube, which is indispensable to fertilization. The substitution of glycerine for honey in the experiment has been suggested.

ABUTILON VEXILLARIUM VARIEGATUM.

(SEE FRONTISPIECE.)

We take pleasure in bringing this handsome foliage shrub to the notice of our readers. Although this Abutilon has been introduced several years since, it is not so frequently met with as it really deserves. Its golden-blotched leaves make it a conspicuous ornamental foliage plant, while its bell-shaped flowers, consisting of a bright red calyx and golden corolla, are most pleasing.

The *A. vexillarium* var. should be treated as a greenhouse plant, and as such it is adapted to various purposes. Its climbing nature is well calculated to decorate a wall or trellis; its graceful habit makes it an exquisite basket-plant, and if frequently cut back and pinched off, it will make an admirably compact pot-plant. The foliage may be much improved in color by keeping the roots rather dry and exposing the plant to the sun or light. It can be most effectively used to ornament a rustic flower-stand.

All the Abutilons are readily grown from cuttings at any season of the year, and no particular treatment is required in their cultivation. They may be had in nearly all of our nurseries at a small cost.

 FLOWER CULTURE.

As your flower seeds ripen, gather them, and after you have dried them good, clean all the seed-pods, trash, etc., out of them. Put them in neat paper or cloth bags, labeled with the name and color of the flowers. Put the small bags in a large bag or box, that you must have on purpose. Then next spring, when you want your seed to plant, you will know where to find them. So many folks put their seed in

an old rag or paper, stick them in or on the top of the cupboard, or in some drawer, and never think anything more about them until the next spring, when they can't find them. So when you can save plenty of all varieties of flower seeds, you can make many a heart glad by giving them a few packages. I always take the largest and prettiest, mark them, and save the seed. By doing this each year, my flowers get larger and nicer. The Dahlias and Gladioli tie securely to strong stakes, to prevent them being broken by winds that are so destructive at times. Now is a good time to bud Roses. I have budded them quite late in August, but I would rather bud in July. I have a red running Rose at one of my bedroom windows that I budded one bud of a white in, and it does look beautiful when in bloom. Try budding different colors together once. Now is a good time to strike Rose-cuttings in any convenient place. Trim out all decayed blossoms and superfluous wood; prune Monthly Roses and they will bloom much nicer. Guard the Verbenas and Carnations. If they are too much in the sun, shade them. Hyacinths, Tulips, etc., should be taken up and the beds planted with annuals. Many plants can be transplanted, and by good care and watering, can be grown with success. All creepers require constant care. Keep them tied and trained up their trellis; they grow so fast that they require constant care. Don't forget the potted plants; keep them well watered, they will need water every day this warm, dry weather. Give them a good watering of liquid manure once a week. If you water them out of the well or cistern, draw the water in the morning or at noon, and set it in the sunshine so it will be warm by evening. It chills the plants to put cold water on them.

Editorial Portfolio.

THE HORTICULTURAL EXHIBITION.

As we announced before, the Fourth Annual Exhibition of the Bay District Horticultural Society, in conjunction with the Mechanics' Fair, opened on Tuesday, August 18th. The fact that the Exhibition was to continue for five weeks made it doubtful that many of our florists and nurserymen would participate, notwithstanding that the Horticultural Exhibition was divided up in four weekly shows. All those concerned in our horticultural affairs seem to agree with us, that a Horticultural Exhibition can not be kept up for weeks at the expense, loss, and sacrifice of exhibitors. Circumstances, too well known to members of the Horticultural Society, made a co-operation with the Mechanics' Fair desirable this present year, while we sincerely hope that sufficient strength will be developed in the ranks of our horticulturists and florists to inaugurate exhibitions of their own.

As for the Exhibition, the space devoted to horticulture was limited, and it was difficult to arrange with a view to produce effect. If we add to this that only certain classes of plants could be entered during the first week, to make room for other classes during the second week, then again to be replaced by others during the third week, and so on until the close of the Fair, it is surprising that so creditable an exhibition has been made. While but few of our most prominent nurserymen participated, those few have done their work well, and deserve praise.

The leading features of the Exhibition were during the first week.

Tropical plants were entered by R. B. Woodward and Miller & Sievers, the former carrying off the first prize.

Ferns were shown very extensively. The very select collection of forty varieties exhibited by Miller & Sievers was awarded the first prize. Among these we noticed in particular some fine specimens of *Adiantum Farleyense*, *Adiantum amabile*, *Cibotium glaucum*, and *C. Chamissoi* (Pulu Tree-ferns from the Sandwich Islands), *Pteris argyrea*, *Lygodium scandens*, *Platyserium grande*, *Asplenium nidus avis*, *Gymnogramma chrysofila*, *G. Lancheana*, and others.

Greenhouse and conservatory plants were well represented, as usual.

A collection of Japanese plants, by Miller & Sievers, was attracting much attention.

During the second week, Roses, Fuchsias, Geraniums, Coleus, Bouvardias, etc., were shown. The most prominent collections, however, were tender ornamental foliage plants, shown by three competitors, R. B. Woodward, Miller & Sievers, and Mr. Thompson, of Oakland. Colored *Dracænas*, *Caladiums*, *Crotons*, *Dieffenbachias*, *Alocasias*, *Anthuriums*, and many other choice varieties, presented a charming appearance.

Much interest was felt in the collection of California native plants by Miller & Sievers, which was far superior and more numerous than on any former occasion.

The third week brought out tender climbers, new and rare plants, *Begonias*, *Pelargoniums*, *Pansies*, *Gloxinias*, *Marantas*, *Caladiums*, and *Verbenas*.

Ornamental foliage *Begonias*, in three collections, and new and rare plants, attracted the most attention, and were unusually good.

The Cut-flower show was not as largely attended as might have been expected; however, the display of *Roses*, *Dahlia*s, *Gladioli*, and *Pinks* was very fair.

The fourth week's show consisted of

bouquets, floral decorations, and fruits; also, Fern-cases, rustic stands, and baskets. The "Temple of Liberty," by August Duhem, in the employ of Miller & Sievers, was probably the best piece of work in the way of floral decoration ever exhibited.

The fruit show was also creditable. We were particularly pleased with the wine and table Grapes of W. B. West, of Stockton, and the Apples and Pears of D. C. Young, of Sonoma, which have hardly ever been equaled.

It is generally conceded, that if the various collections had been on exhibit at any one time, instead of being cut up into weekly shows, the Exhibition would have been equal to any former display, at least in point of quality and variety.

OUR EXCHANGE TABLE.

THE OVERLAND FOR OCTOBER is at hand, and is remarkable for the unparalleled length of its table of contents, nineteen names appearing opposite headings suggestive of interesting articles; a promise well fulfilled by the body of the magazine. Too little attention is generally paid by readers to book reviews; but we promise anybody that turns to this month's OVERLAND—especially to the notice "The Gods, and other Lectures"—a treat of terse, instructive, and severe criticism. John H. Carmany & Co., Publishers, San Francisco. \$4 a year.

Moon's Bee World; a monthly periodical, devoted to Bee Culture. A valuable work in its department. A. F. Moon & Co., Publishers, Rome, Ga. Price, \$1 per year.

Vick's Floral Guide (No. 4), 1874. This valuable publication contains full and complete directions for fall work in the garden, much of which is useful in

California. This work is published for the low price of twenty-five cents a year, and furnishes a vast amount of valuable information.

CATALOGUES RECEIVED.

The *Descriptive Catalogue* of the Drobroyde New-Plant Nursery, of Sydney, N. S. W.

Premiums, Rules, and Regulations of the Berks Co. (Pa.) Agricultural and Horticultural Society.

WORMS IN FRUIT.—Heretofore California fruit has been exceptionally free from worms of all kinds. So much so, that this fact has been considered one of the best recommendations to our State as a fruit-growing country. We are sorry to learn, as we have, by report and personal observation, that this year worms are making their appearance among the Pears and Apples to an alarming extent. These varieties of fruits are dropping from the trees much more this year than heretofore, and we have no doubt that the presence of the worms is the cause of it. Fears were expressed by some of our fruit-growers when the Eastern fruit was sent out here and exhibited at our State Fair, some years since, that the fruit-worms would thus be introduced. If the fruits only about Sacramento are affected in this manner it is possible that these fears were too well founded and that they are being realized. We wish our contemporaries throughout the State would examine into this matter in their several localities and report the result of their inquiries. We would also suggest that the fruit-growers of the State, at their meeting on the 27th instant, compare notes on the subject and publish the result of their comparison.—*Sacramento Record*.

NEW AND RARE PLANTS.

A New Evergreen.—It is always a pleasure to record an addition to our list of really hardy new plants, and especially so when they are very beautiful and desirable in all respects. We now urge the claims of a new evergreen from Japan, which as yet has no common name, but which is called by botanists *Retinispora obtusa*. For the last five years, two of which have been more trying to our hardy plants than any within the recollection of our oldest horticulturists, this lovely tree has succeeded as well as the Norway Spruce. It grows rapidly and forms a very graceful tree, having drooping silver-green branchlets, and appearing equally indifferent to the extremes of heat and cold. So far as we have been able to judge, it is not affected by any particular soil or situation, but succeeds well wherever placed. So many of the newer evergreens have been injured of late years, that our horticulturists have been about ready to give up the whole family in despair, as too fickle for this climate; but we think a fair test with this charming plant will assure them that one at least will prove desirable.—*New York Tribune*.

Cyrtanthera Chrysostephana.—

A new and very distinct species of the tropical American genus *Cyrtanthera*. It is of elegant habit, and conspicuous for the vivid red color of the midrib and nerves of the leaf beneath. The flowers, instead of being disposed in a dense thyrse, or in axillary cymes, as in most species of the genus, are collected into a crown-like corymb at the tips of the branches, and are of a bright golden color. It is a plant of easy culture, and considered a most desirable acquisition, for it produces its showy flowers in midwinter.—*Horticulturist*.

Singular and Rare.—There has been found recently in Southern Australia a remarkable flower, of the shape and size of our common Morning Glory, but having five streaks of color on its bell-shaped calyx. In the early morning, when it opens, the streaks are of a pale, delicate blue; as the day advances the color intensifies, and changes gradually to a dark, rich purple, which is succeeded by a light pink tint. As evening approaches, the color fades gradually, and when night comes on, the flower, from which all vestige of color has disappeared, closes and dies.

The French Bishop of Canton has sent to the Jardin d'Acclimatation a plant whose flower changes color three times a day. This is mentioned as a remarkable instance of the skill of the Chinese florists. It is probable, however, that this plant belongs to the same family as the first mentioned, and its wonderful changes are simply natural phenomena.

A rare plant has lately been discovered in Bucks County, Pennsylvania, by Dr. J. S. Moyer, of Quakertown. It is the *Trollius laxus*, or Spreading Globe-flower. It is found in a very few other places, and is considered by all American botanists as a great desideratum.—*Park's Floral Gazette*.

Dracæna Shepherdii.—Originated and named by W. Bull after Mr. Shepherd, a well-known nurseryman of Sydney. It is a very noble form of *Dracæna*, and considered one of the finest in cultivation. Mr. Bull says: "Unlike most of the forms already known, which color most on the free young growth of vigorous plants, this plant takes on its distinctive coloring gradually on the older leaves, the young ones being green, and showing paler green stripes on those parts which take on at

a later period the peculiar bronzy orange hue. It is very free-growing, of ample proportions, the broad oblong linear leaves, $2\frac{1}{4}$ feet long and five inches broad, being arranged in a distinctly spiral manner, and having channeled marginate petioles, six inches long, tinted at the edge with the same bronzy orange color, which is continued along the marginal portions of the lower half of each leaf."

New Liliputian Pelargonium

Commodore Nutt.—This is one of a strain of liliputian Pelargoniums originated by Hovey & Co., a few years ago, and the Commodore Nutt is of the same style as the Dolly Dutton. It grows only ten or twelve inches high; very compact in habit, with small leaves, and entirely covered with large trusses of flowers, of a deep rosy lilac, spotted on the upper petals—a very beautiful acquisition.

Crocus Scharojani.—This new and hardy autumn-flowering bulb is very pretty, and produces its blossoms before the leaves appear. The flowers are of a deep saffron color, and are developed in the early autumn months.—*Park's Floral Gazette.*

A new Geranium, the Pride of Mount Hope, is announced and highly spoken of.

NEW AND RARE FRUITS.

Seedling Gooseberry, from Mr. H. M. Engle, Marietta: "I send by to-day's express a few seedling Gooseberries. The variety originated on the grounds of a neighbor of mine. It is evidently a seedling of the American Cluster, or Houghton, as there were no other kinds on the premises. It has now been fruiting about four or five years, side by side of the above-named

kinds, and has thus far proved itself as profuse a bearer, and as free from mildew as either of the above; and in addition is a sweeter berry, and its fruiting is now over, just as the others commence to ripen. The samples which I send you are about the last that were on the bushes, and are not fully average size."

[There is no mistake about this being of the American species. The berries are very smooth—we think equal, and another to whom we submitted them thinks better in flavor, than the Houghton's Seedling. It probably averages larger, and we think well worthy of naming and disseminating.—Ed. G. M.]
—*Gardener's Monthly.*

A New Species of Fruit.—It is said in the English papers that a new species of fruit of a character that will place it among leading articles, has been introduced from Japan. We have seen no account of it, but that some of the plants were exhibited at the Royal Horticultural Society—awarded there a first-class certificate. It is called *Pyrus Maulei*, so it is probably allied to the Apple, Pear, or Quince.

HOW TO GROW THE OLEANDER.—The Oleander is a very ornamental plant when properly grown, but we seldom see fine specimens. There is scarcely one of my readers who has not seen dozens of tall, straggly plants. I propose to give a few directions by which fine plants may be grown. Take a healthy cutting, place it in a bottle of water, and let it remain there till roots appear; then pot it, shifting it into larger-sized pots as its roots require more room. Do not try to have it branch until it blooms. It will then have a long, straight stalk—a good foundation for the plant you desire.

After blooming, three shoots will start; allow them to grow, as they are the flower-shoots: but after these have bloomed, cut back all the shoots to within four or five inches of the former branching-place. Do this each time the plant blooms.—*Kilty Clover, in Floral Cabinet.*

REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPER.

One of the best reforms now much needed in the business of the sale of fruits is to dispense with the hurtful services of the middleman, who, at the expense of the producer as well as the consumer, reaps such immense and unproportioned profits in this great and important trade. It would appear that it is very probable that those Grangers who are especially interested in fruit-growing will, by next season at least, mature a plan by which the existent evils of this middle traffic will be remedied, and greater fairness be extended to the two parties chiefly interested, and who in this matter should not be so grossly imposed upon. To quote the language of a writer in one of our city papers:

“A large amount of fruit is annually wasted from the lack of knowledge of an economical method of preserving it. Between the profits paid to middlemen and the actual destruction of fruit, there is little profit to the producer. For instance, a Grape-grower in Sonoma sells his fruit in this city for fifty or sixty cents per box, but his profit on this sale is very small, as will be seen when the expenses are deducted. Picking and packing costs ten cents per box, the boxes themselves cost ten cents each, the freight another ten cents, wharfage and drayage one or two cents,

and eight per cent. commission on the sales, making in all some forty cents per box, which the producer pays out of his own pocket. He makes from twenty-five to fifty per cent., while the retail dealer makes from two hundred to three hundred per cent. profit. The fruit-growers affirm that if suitable arrangements could be made in the city they could enable the consumer to obtain fruit at greatly reduced rates, and at the same time obtain a much larger profit on their sales than they do now.”

Now this certainly must appear fair and reasonable for the interests of the large majority of the people, who should be regarded in this important particular, and who, next to the price of the “staff of life”—wheat—are concerned in that of fruit. As the old saying is, “Fair play is a jewel,” and no one should complain when that “golden rule” is carried out. Two years ago the writer saw this crying shame in this affair between the persons who worked to raise the fruit and those—many of them poor persons—who had to provide it as a helpful and healthful diet for their households, and he spoke of it in his articles on the fruit and vegetable markets, in order to lead the parties whose concern it was, to apply the proper remedies where the injustice existed. Many of the cultivators of fruit are Grangers, and from their increase of numbers, power, and united efforts, they will soon be able to make arrangements to have their own depots in the cities under suitable agents for the sale of their productions.

About the 21st of last month (August) fruit was very plentiful, especially Peaches, and the supply of Grapes was increasing. Flaming Tokay was added to the list then in season, and was quoted at 6c. to 10c. per lb.; Black Hamburg and Rose of Peru retailed at the

same price, while the poorer descriptions of Muscat of Alexandria commanded a couple of cents more, the range being from 8c. to 10c. Sweetwater were in little demand, superior varieties increasing in supply; retailed at 4c. to 6c. per lb. There was an abundance of ripe Figs, and a corresponding reduction in price was the result. Pears were improving; fine ripe Bartletts were coming in in large quantities, but there was no change in price compared with last week. The Bellflower variety was conspicuous among the exhibit of Apples, and retails freely at 6c. per lb. Raspberries found few purchasers at 10c. to 15c., and Apricots were pretty much neglected at 5c. to 8c. Plums were the rage, and commanded, as a rule, good prices. Egg Plums were quoted at 8c.; Cherry do., 6c. to 8c.; Peach do., 8c.; Green Gages, 3c. to 5c.; German Prunes—the favorites—8c. to 10c.; Damsons, 5c. to 6c. Clingstone Peaches were in season, and offered at 5c. to 8c. Immense quantities of the early freestone varieties were begging on the market. From 3c. to 10c. per lb. will cover the range. Crab Apples were quoted at 5c. to 6c. per lb.

Sweet Potatoes increased in supply and improved in quality, while there was a steady decline occurring in prices, which ranged at 4c. to 6c. Okra is to-day retailing at 15c. per lb.; Chile Peppers, 15c. to 25c.; Egg Plant, 5c. to 6c.; Marrowfat Squash, 2c. to 3c.; Summer do., 5c. to 6c.; Artichokes, 25c. per doz.; Kale, 50c. per dozen bunches; Green Corn, 10c. to 25c. per doz.; Cantaloupes and Watermelons, 10c. to 25c. each; Nutmeg Melons, 8c. to 10c.; Asparagus, 10c. to 12½c. per lb.; Butter Beans, 4c. to 5c.; Lima do., 4c. to 6c.; Garlic, 15c.

The only addition to the list of seasonable fruits during the latter part of

August was the Quince, two varieties of which could be had at 6c. to 8c. per lb. Seckel Pears were more plentiful and cheaper. There were few Peaches in market except Clings, some of which were very fine. Grapes were very plentiful and the varieties numerous. Prices of some of them were as follows: Sweetwater, Chasselas, and Mission were plentiful at 4c. to 5c.; Rose of Peru and Black Hamburg, 5c. to 8c.; Muscat of Alexandria, 8c. to 10c.; Flame Tokay, 8c. per lb.

Plums and Blackberries were very plentiful and cheap, especially when purchased by the box. Raspberries were getting scarce. Apples, by the box, retailed at 75c. to 1 75; Peaches, by the basket, \$1 to \$1 75, delivered.

About the 12th of this month (Sept.) the market was abundantly supplied with Tomatoes from across the Bay. Artichokes were a shade cheaper, and with this exception vegetables were unchanged. Spinach was quotable at 8c.; Lettuce, 20c. to 25c. per doz.; Salsify, 8c. to 10c. per bunch; Potatoes, by the sack, delivered, \$1 25 to \$1 50 per cental.

Bartlett Pears were very scarce, and brought fancy prices; Seckels were in better demand in consequence. Blackberries will be out of market before the end of another week, and although very scarce show no advance. A few Currants were still coming forward, but there was little inquiry, and prices continued low. Mountain Peaches were in fair supply, and brought high prices. Grapes were plentiful and cheap. We quote some of the varieties as follows: Mission, Sweetwater, and Chasselas, 5c.; Rose of Peru, Black Hamburg, and Catawba, 6c.; Isabella, 8c.; Muscat of Alexandria, 6c. to 8c.; Flame Tokay, 8c. to 10c. A cargo of Tahiti Oranges is just at hand, and the

market is still plentifully supplied with the Australian variety. Sailing vessels have brought consignments of Bananas from Honolulu during the week, and the Panama steamer Pineapples and Limes from Mexico. Apples, by the box, retail at 75c. to \$1 50; Pears, 75c. to \$2 25; Peaches, by the basket, \$1 to \$1 75, delivered.

Following were the retail prices of Grapes: Isabella, 8c. per lb.; Tokay, 6c. to 8c.; Catawba, Black Hamburg, Muscat, and Rose of Peru, 6c.; Sweet-water and Mission, 5c. Plums were as follows: Egg, 6c. to 8c. per lb.; Peach, 5c. to 6c.; Damsons, 5c. to 6c.; Green Gages, 5c. to 6c. Prunes are represented to be worth from 6c. to 12c. per lb.; Hungarians retail at 8c. to 10c.; Germans, 6c. to 8c.; Italians, 8c. to 12½c. Several lots of Prunes have been received by recent steamer from Oregon, but they are no better than those grown in this State, notwithstanding they command higher prices. We quote Quinces at 5c. to 6c. per lb.; Blackberries at 10c. to 12½c.; Clingstone Peaches, 5c. to 12½c.; other kinds, 5c. to 8c. Pears—Bartletts, 6c. to 8c.; Flemish Beauties, 4c. to 5c.; Seckel and Sugar, 6c.; Winter Nelis, 6c. to 8c. Pomegranates, 10c. each. Nectarines, 8c. to 10c. per lb. Apricots and Raspberries are no longer in season.

SACRAMENTO WINE IN GERMANY.

On the 10th of March last, Jacob Knauth, of this city, shipped a barrel of wine to some friends in Eltville, Germany, for the purpose of getting an opinion on it from the wine experts of that country. The wine was made from Grapes from the vineyard of the O. H. V. A., at Cache Creek, Yolo County. It was in a pure state, with no addition

of spirits, and was sent by steamer by way of Panama. When shipped the wine contained 13-2-10 per cent. of alcohol and .005 part tartaric acid. The climatic temperature of Germany was 90½ degrees Fahrenheit when it arrived there, yet it had lost nothing of its fineness, and the experts pronounced it excellent. It was expected that the wine would arrive in Germany in April, but it did not reach there until June. On opening the barrel it was found that some one had taken a great deal out—the space of “eight thumbs” was gone. They suspected that the wine was spoiled—it was “bath warm”—but it was found in good condition. A general invitation was extended to the neighboring wine-men to test the wine. It was kept for three weeks before the test, and it was desired to keep it longer, but the wine-men became impatient, and it was decided to try it. As the men placed the glasses under their noses and to their lips, they uttered exclamations of surprise—that wine so excellent should come from a State so young. They discussed as to which of their own wines it came nearest, and concluded that it was something like the Hungarian wine, but finer and more delicate, and that it was just as good as any Rhine wine. They expressed great respect for the wine, and were surprised that it had lost nothing in quality on its voyage and after being opened. After the barrel had been emptied it was discovered that it had been tapped in seven places, by removing the hoop and boring through the staves. They recommended that whenever wine is shipped in barrels hereafter, that an outer barrel be put on the wine-barrel proper, with several inches of room between the two, which is to be filled with straw, to prevent this boring nuisance.—*Sacramento Union.*

Editorial Gleanings.

GREEN GAGE PLUM—ORIGIN OF NAME.

—The origin of this name is said by *Notes and Queries* to be as follows: The Plum was brought into England in the middle of the last century, by Rev. John Gage, a Roman Catholic priest, connected with a monastery near Fontainebleau, France. The laws at that time against Roman Catholic priests were so severe, that Mr. Gage lived abroad, but frequently visited his brother, Sir Thomas Gage, of Hengrave Hall, near Coldham, in the county of Suffolk, fifth baronet. In one of these visits he brought over from the garden of the monastery grafts of the fruit, which were cultivated in the garden at Hengrave Hall, and soon were spread throughout England. This story is vouched for to absolute accuracy.—*Horticulturist*.

HOW TO DRY FIGS.—The Florida *Agriculturist* gives the annexed as the best method of drying Figs:

“The fruit should be picked before it is over-ripe, placed in a coarse sieve, and dipped in boiling lye to remove the furze; let them drain a few minutes and place them in a kettle of hot syrup, to bring them to a boil; afterward remove carefully and place in glass jars, covering with hot syrup, seal tightly, and set away in a cool, dark room. They may be flavored with lemon, ginger, or anything to please the taste. All fruit preserved in syrup can be easily converted into crystallized fruit by simply draining off the syrup, covering the fruit with powdered sugar, and gradually drying in an oven, turning them frequently, sifting fresh sugar over them every time. They must be kept in a very dry place. They make a handsome and delicious dessert dish.

“To dry Figs in the sun or in kilns, dip the fruit in boiling lye, made from wood-ashes, strong enough to bear an egg. They should be placed in shallow trays or pans and put in the sun, covering carefully at night. If a kiln is used, care must be taken to maintain a steady gentle heat. When dried they may be packed carefully in boxes with a layer of powdered sugar between.

“Figs may be preserved by dipping them in boiling lye, placing them in cans or jars, and covering them with boiling syrup, filling them full, and sealing while hot. Care must be taken to prepare the glass jars before pouring in the hot syrup, by heating them gradually in an oven or boiling them; for excluding the air, common sealing-wax answers the purpose admirably.”

BUCKTHORN, NOT WILD COFFEE.—For several weeks a discussion has been going on in various parts of the State relative to a tree growing wild in many counties, the leaves and berries of which bear a striking resemblance to the Coffee-tree of commerce. A rancher of Tuolumne, if we mistake not, first raised the question whether this tree was not allied to the Coffee of commerce, and people in all sections of the State began to inquire whether we had not for years overlooked a valuable product. Citizens of many other counties—Napa, Placer, Lake, El Dorado, etc.—came forward, stating that they, too, had noticed this tree growing in their localities. All had observed certain peculiarities about the berry, but the general impression was that it was poisonous. The *Bulletin*, in order to elucidate the matter, asked that specimens might be sent to this office for examination by experts. Our request has been complied with in so far that samples have reached us from Alameda, El Dorado,

and elsewhere. Doctor Gibbons, of Alameda, who has paid some attention to the science of Botany, has examined one of the samples, and he makes a statement concerning the tree and its berries which is substantially as follows: The name of the tree is the "Wild Buckthorn." It is found in all parts of the State, and grows to the height of from four to twelve feet. It somewhat resembles the Coffee-tree, but the leaves appear alternately on different sides of the stem, whereas in the true Coffee-tree the leaves grow in the same place and directly opposite each other. The berries of the Buckthorn are not poisonous, as has been supposed, but they are strongly cathartic, which any person who requires a purgative can test by personal experience. They have been in use for medical purposes for hundreds of years.

We may here state that at present Coffee has only been discovered in a wild state in Ethiopia, Abyssinia, and Liberia, all in Africa. The Dutch appear to have been the people who introduced it into general use among Europeans, after they had planted it in their colonial possessions in the East Indies and Java. It was first brought to America by the Dutch in 1715, and it was planted almost simultaneously in the West Indies and at Surinam, in South America.—*Bulletin*.

THE value of the fruit crop of California last year may be estimated in round numbers at two millions of dollars. From the tenor of the reports from all portions of the State, the fruit crop of 1874 will exceed that of last year by about fifty per cent., and as the largely increased demand for packing will keep up the price, its value may be estimated fairly at three million dollars.

THE *News*, of Denver City, says no grander object is met in the mountains about that place than the Snow-plant. It is an inhabitant only of the higher Rockies, being rarely found below an altitude of 4,000 feet, and its glorious crimson spike of flowers may be seen, early in May, forcing itself through the snows which at that period cling about the sides of our Pine forests. The portion of the plant which is visible above the soil is a bright, rosy crimson in color, and presents the very strongest contrast to the dark green of the Pines, and the "shimmer of the snow." Its root is succulent, thick, and abundantly free from moisture, attaching itself to the roots of other plants, principally to the species of the Pine family. Hence, it is among those curious members of the vegetable world which are known to botanists as parasites, and is consequently entirely incapable of cultivation.

TEA CULTURE.—We have been talking of Coffee, wild Coffee, and Coffee culture of late, and we have pretty nearly established the fact that we have an indigenous Coffee or something very closely resembling genuine Coffee, in general appearance of the bush on which it grows, the form of the berry, its color, taste, and smell; and numbers of persons will experiment with the product, whatever it may be, the present season.

Now we want to revive no undue excitement, but a moderate interest on the subject of Tea culture—the genuine Tea of China or Japan; for though past attempts have been anything but satisfactory, in fact have been failures as regards its culture in California, yet the project should not be abandoned, for we are perfectly confident that it can be successfully grown here if we give it

the proper climate, altitude, exposure, soil, and cultivation.

We have been studying these points carefully, and we have arrived at the following conclusions: That it is time lost to attempt its growth in any of the interior, intensely heated valleys. It is a mistake to attempt its culture among the foot-hills of the Sierras, wherever the air is excessively dry in summer, though the frosts of winter would be in no wise detrimental. Tea should have a thick, meaty, pulpy leaf, to enable it to carry the requisite amount of theine and tannin which all Tea leaves must contain to render them of the least commercial value.

Grown in a hot and dry atmosphere, the leaf is so thin as to be nearly valueless, and the same to a great extent affects the leaf of the Mulberry, injuring it for silk-worm feeding. We have been seeking for a climate in California, not too humid, and yet sufficiently so to grow Tea, and we believe we have found it in the most of the middle and western portions of Santa Cruz County, not too nearly adjacent to the sea. Take the highlands of that county, the Redwood section, receiving the cool ocean air, laden with moisture so that nightly dews are the rule and not the exception, and if there is any place in California where Tea can be grown with success it is there, and we hope renewed attempts will be made by some enterprising horticulturist of that district to establish our position, and add to the agricultural wealth of the State by the introduction of a new and important product.

DESTROY ALL INSECTS AND BUGS.—To protect Roses and Currant-bushes from slugs and insects, dust the bushes with powdered white hellebore; best apply it while the dew is on the bushes.

MANURE FOR ORCHARDS.—An essay read by Washington Gilbert, of Bath, Me., before the State Pomological Society, is now printed in pamphlet. It is a matter of history that Maine was once successful with what our author calls the "hardy, fragrant, and salubrious Apple;" success is still sure on new soils, and he maintains that want of culture is the cause of the general "decrepitude and decay." This condition is characterized as disgraceful as it is deplorable, since it can be remedied by means within easy reach. The trees are simply starved. Interesting instances of the effect of good cultivation are cited; farmers are advised to buy Western Corn and feed it during winter to fattening steers; to grow Mangel Wurzels among the young trees, and thus secure another supply of material which may be advantageously transmuted into manure. Again, sheep, swine and poultry may become worthy occupants of the orchard. In conclusion, the profits of Apple-trees under high cultivation are declared to be so great as to repay for all the intelligent care and labor which may be bestowed upon them. "If any farmer is ambitious to bequeath an estate of \$100,000, he has only to leave his heirs well-planted and well-kept Apple orchards of 100 acres. If he is less ambitious, let him plant and sustain fifty acres, or twenty, or ten, or five, or at least one acre, if that is the measure of his capacity. If he can do no more, let him not fail to plant one tree and nourish and protect it. The petted tree will learn to lean on him as the child looks to the parent for protection and sympathy; and it will return to him a grateful and exceeding great reward. His children shall disport themselves in the shadow of its branches, and find health and solace in its fruit, and his children's children to

the fourth generation, when perchance, no other monument remains to declare the story of his life."

USE OF SULPHUR IN THE VINEYARD.—M. B. Bateham, in the *Horticulturist*, says of the reports made of recent experiments in the use of sulphur on Catawba vines on the Islands: "It was stated by one of the Grape-growers from there, that sulphuring the vines had been practiced to some extent for several years past, and that when judiciously done, it was found a certain preventive of mildew and rotting of the fruit, and also of the blighting of the foliage; and where this was practiced in 1872, the vines ripened their wood so well as to suffer but little damage from the winter, and thus produced a half crop, while vineyards not sulphured bore no fruit at all." These facts will cause a very general use of sulphur hereafter, and much improvement is expected therefrom. The practice is to mix the sulphur with an equal quantity of fine, air-slaked lime, and apply the powder with a bellows, of which they manufacture a very cheap style for the purpose. The first application is made as soon as the blossoms are off in June, and repeat once a month or so during the summer. The labor and expense are quite small compared with the benefits; and the practice is recommended to Grape-growers generally, especially for varieties that are subject to mildew or blighting of the foliage. Let us all give the experiment a trial, and report the results next year.

FRUIT DRIERS.—Mr. A. F. Knorp, formerly of Suisun, is now engaged as foreman in the manufacture of Ryder's American Fruit Drier in San Francisco. He writes to this paper as follows: "Taking an interest in every-

thing that concerns the people of Solano County, among whom I have lived so many years; and knowing that large quantities of fruit are wasted every year from the want of proper drying facilities, I desire through the columns of your paper, which I know to circulate very largely among the people of Suisun, Vaca, and Pleasant valleys, to call the attention of those interested to our fruit drier. Being constructed of wood and iron, it is portable, and not very expensive; the largest, of sixty bushels capacity daily, costing only \$335; thus enabling even the poorest to have his own fruit drier. There are three sizes, of twenty, thirty-five, and sixty bushels daily capacity respectively, and as I have seen samples of dried fruit, consisting of Cherries, Apricots, and Peaches, I am satisfied that it is just what is wanted."—*Ex.*

PLANT OLIVE-TREES.—There is no experimental risk in planting Olive-trees in southern California. They have grown luxuriantly and borne fruit copiously in every southern county for nearly a hundred years. The fine Olives of the church gardens in San Luis Obispo have yielded fruit since 1782. The Olive orchards of Santa Barbara and those of San Buenaventura, San Fernando, and San Diego have all flourished and yielded their exquisite berries for nearly a century. Our readers will therefore see that there is no experimental risk in planting Olive-trees anywhere in southern California. The Olive is one of those trees which can be easily raised in our climate. It requires but little irrigation, and once it has taken root will grow with about as little care as any of the class of ornamental trees our people are now so profusely planting. And there is certainly no tree more beautiful to the eye than the Olive. Its oblong,

lance-shaped leaves, with their deep-green shade on top, and light feathery color underneath, when disturbed by the breeze, produce a peculiar and pleasing effect. The tree grows to a height of thirty or forty feet, and its branches spread laterally in every direction, making a most desirable shade-tree for roads and for the entourage of houses. But its most inviting advantage is in the fact that the fruit will pay for the cultivation of the tree.—*Los Angeles Express.*

COTTON in FRESNO COUNTY.—J. P. Yeargin informs us that Messrs. A. T. Yeargin & Co. have a forty-acre field of Cotton on Upper King's River, about three miles below Centreville, which is said to be the finest in the county. It stands about three feet and a half high, and is literally covered with bolls in the various stages of growth and ripening. As high as 170-odd bolls of various sizes have been counted on a single stalk. From present appearances it is estimated that the yield will be at least one bale, or 500 pounds, per acre. Our informant, who has himself engaged in the culture of Cotton in the Southern States, says this crop is not surpassed by any that he ever saw growing in his native State, Alabama. He claims an advantage for this section over the old Cotton-growing regions in the fact that the seasons here are at least six weeks longer. If the yield is anywhere near as good as is now anticipated, it will be a remunerative crop.—*Fresno Expositor.*

THE GRAPE WORM.—Chas. Otis, writing from Rio Vista, under date of June 18th, says: "Since writing my hurried communication of the 4th, concerning the ravages of worms in the vineyards near Vacaville, I have been in-

formed that the green worms are the "Tobacco Worm," and those which are dark on the back, with yellow lines, are the "Columbia Worm;" each having a horn about one-fourth or one-half an inch long on the posterior part of the back. In tobacco plantations they were destroyed by taking them by the horn and dashing them on the ground, their size making it easy to find every one. Their eggs are laid on the under side of the leaf. As to the origin of those now at work no one knows, only that they have traveled from one vineyard to another; the road at the time was covered for hours as they crossed in their journey. I am not an expert in Grape culture, or the pests that infest vines; but this evil, from all I can learn, is something new, and those interested should be on the alert to give information that will throw light on the subject, that means may be taken to prevent further spread of the pests. In this spirit I have written what little I could learn concerning the subject."

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING AUGUST 31st, 1874.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office).

BAROMETER.

Mean height at 9 A. M.	30.08 in.
do 12 M.	30.07
do 3 P. M.	30.07
do 6 P. M.	30.06
Highest point on the 5th, at 12 M.	30.20
Lowest point on the 25th, at 6 P. M.	29.89

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	62°
do 12 M.	66°
do 3 P. M.	66°
do 6 P. M.	60°
Highest point on the 7th and 12th, at 3 P. M.	71°
Lowest point on the 10th, 19th, and 29th, at 6 P. M.	56°

SELF-REGISTERING THERMOMETER.

Mean height during the night	53°
Highest point at sunrise on the 15th and 26th	59°
Lowest point at sunrise on the 2d, 8th, and 10th	47°

WINDS.

East and north-east on 4 days; west on 27 days.

WEATHER.

Clear on 12 days; cloudy on 4 days; variable on 15 days.



WATKINS, PHOTO.

FOR "HORTICULTURIST."

Woodward's Gardens, San Francisco, Cal.

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. IV.

OCTOBER, 1874.

No. 10.

TROPICAL PLANTS ADAPTED TO CALIFORNIA.

BY F. A. MILLER.

[Continued.]

There are other varieties of Palms which no doubt will prove hardy in our climate, but it seems prudent that we should confine ourselves to varieties which are sufficiently well known to be adapted to this coast.

The most graceful and elegant of tropical plants are undoubtedly the Tree-ferns, and if we can grow them, or some of them, in the open air here, they would soon become the most popular decorative plants. The opinions of practical men differ as to the hardiness of Tree-ferns; however, these opinions are not based on practical experience, and therefore are of little value. Tree-ferns require moisture and a fair degree of heat to grow them luxuriantly, yet they have a season of rest, and during that time the agency of moisture is a minor consideration. I am convinced that the atmosphere near the Coast Range is sufficiently moist for the growth of Tree-ferns, such as *Dicksonia antarctica*, *Alsophila excelsa*, and others. The only objectionable feature I find is,

the heavy winds, which prevail in certain exposed localities to such an extent that the fragile and rather delicate fronds would be disfigured; and unless the fronds can be had in perfection, Ferns are of little value as decorative plants. But there are many localities sufficiently protected from strong winds, where Tree-ferns would vegetate freely. Specimen plants can be readily obtained now in this market at a reasonable rate, and I hope that some of our enterprising amateurs will give them a fair trial in their grounds.

The most hardy Tree-ferns, to the best of my knowledge, are the *Cibotiums* (Pulu-ferns) of the Sandwich Islands. The trunks of these Ferns are thick, and therefore less liable to be affected by the chilling winds which prevail near the coast; the foliage is of greater substance than most other Ferns, and hence less affected by the winds than the more delicate fronds of other varieties; the leaf-stalks—if I may use this term—are thick and tough, and not liable to be broken off by hard winds. In every respect this Fern promises to do well here. There are several species of *Cibotiums*, and all of them seem equally hardy.

Cibotium glaucum, foliage tri-pinnate, is a most robust - growing Tree-fern, forming fronds ten feet long and four to five feet across; the foliage is bright green and glaucous underneath; at the base of the leaf-stalk a woolly hair-like substance grows in great abundance, better known in commerce as Pulu.

Cibotium Chamissoi is of a more dwarfish habit; fronds twice-pinnate, dark green; hair at the base of the leaf-stalk bristly.

Cibotium Menziesii resembles *C. glaucum*; the fronds, however, are of a more upright growth and not glaucous underneath.

To the list of hardy Tree-ferns I will also add *Dicksonia antarctica*, a native of Australia, and growing there to the height of thirty to forty feet. The fronds of this noble Tree-fern are tri-pinnate and of a very rich shining dark-green color.

Dicksonia squarrosa is another hardy Fern; fronds tri-pinnate and of a rich dark-green color; native of New Zealand.

Alsophila excelsa, a fast-growing Fern, of thirty feet in height, with large and spreading fronds.

Other Tree-ferns could be added to the list, but they are more difficult to obtain and less known. Those enumerated above can be obtained in this market at a reasonable price, and if established plants are procured for planting out in suitable localities, I have strong faith in the successful cultivation of them.

A BUNCH of Black Hamburg Grapes exhibited at Manchester this past season, weighed thirteen pounds and four ounces, which, it is said, surpasses anything ever before produced in England. —*Gardener's Monthly*.

THE NAMES OF PLANTS.

The titles given by our ancestors to distinguish one plant from another, before they were marshaled by Linnæus into battalions of orders and species distinguished by the number of their stamens and construction of pistils, or arranged into more natural families by Lindley and the later botanists, are often extremely poetic. There is a wealth of imagery and fanciful allusions, "playing with words and idle similes," in them, which is something very interesting to trace out.

Some plants are named, like the "Eye-bright," according to the "doctrine of signatures"*—i. e., the notion that the appearance of a plant indicated the disease which it was intended to cure—"the black purple spot on the corolla proved it to be good for the eyes," said the medical science of the day.

Next come the similitudes:

"The Day's eye,' whose leaves spread,
Shuts when Titan goes to bed."

The "Hell's Weed," (the Dodder) which strangles the plant to which it attaches itself.

The Columbine, so called because in reversing the flower the curved nectaries look like the heads of doves (*colombes*) sitting close together in a nest.

There is a gardenful of plants sacred to the Virgin Mary, generally be-

*Or bird or beast, as in the owl's note. "They say the owl was a baker's daughter," sings poor Ophelia. The legend declares that our Saviour went into a baker's shop and asked for some bread; the mistress put a piece of dough into the oven for him, but her daughter said it was too big, and took it away all but a little bit. It immediately swelled to an immense size. The girl began to cry "Heugh, heugh," and was transformed into an owl, to cry so all her life for her wickedness.

cause they flower at some period connected with "Our Lady's" days—the Visitation, the Assumption, the Birth, the Baptism, Purification—such as the "Lady's Smock," "Lady's Mantle," "Lady's Fingers," "Lady's Slipper," "Lady's Tresses" (the pretty little green Ophrys with a twisted stem). "The Virgin's Bower" begins to blossom in July, when the Feast of Visitation occurs, and is in fullest flower at the Assumption in August.

The "Lady's Bedstraw" belongs to no particular month, but has a very particular story for its name. The different plants were summoned to come and form a litter for the Virgin and her Child in the stable of Bethlehem. They all made excuses one after the other; some were too busy, some declared themselves too insignificant, some too great, or it was too early or too late for appearing. At last this pretty little white star offered herself humbly for the place, and she was rewarded afterward for her virtue by her flowers being turned to a golden yellow.

St. John's-wort and St. Peter's-wort flower about the time of their respective saint's days. The Star of Bethlehem, Rose of Sharon, Joseph's Walking-stick, and Jacob's Ladder (the beautiful Solomon's Seal), are apparently accidental fancies.

The Holy Ghost flower, the Pæony, flowers of course at Whitsuntide.

A series of traditions connects some peculiarity in a plant with an event in Bible history. The Knot-grass, *Polygonum persicum*, has a large black spot on its smooth leaves, caused by a drop of blood falling from our Saviour, at the time of the crucifixion, on one of the plants that grew at the foot of the Cross.

The "Judas-tree" is that on which the wretched traitor hanged himself in

his misery—rather an unsafe stand to choose, but then it broke under his weight, as we are told.

The Cross was made of the wood of the Aspen or trembling Poplar, and its leaves have been smitten by the curse of perpetual quivering restlessness ever since.

The "Virgin's Pinch" is the black mark on the Persicary.

"Job's Tears," so called "for that every graine resembleth the drop that falleth from the eye."

The Passion-flower, in which all the five emblems of the Passion are to be found by the faithful—the nails, the crown of thorns, hammer, cross, and spear. "Christ's Thorn," the *Cleditchia*, from which the Crown of Thorns was supposed to have been made.

Cruciform plants are all wholesome, "the very sign of the cross making all good things to dwell in its neighborhood."

Evergreens have always been held emblematical of the hope of eternal life. They were carried with a corpse and deposited on the grave by the early Christians, to show that the soul was ever living. An earlier Pagan use was when the Druids caused "all dwellings to be decked with evergreen boughs in winter, that the good spirits might take refuge there against the cold, till they could return to their own homes in the forests, when spring came back again."

There is one group of plants named from human virtues and graces, quite independent of any qualities of their own: Honesty, Heart's-ease, Thrift, True Love, Old Man's Friend, Herb-o'-grace. Others from some resemblance to bird or beast: Larkspur, Crowfoot, Cranesbill, Coltsfoot, the Devil's Bit (where the root seems to have been bitten off), Adder's Tongue, Cat's Tail, Pheasant's Eye, Mare's Tail.

Each month had its own particular flower — the “Christmas Rose,” the pretty green Hellebore, Snow-drops, “Fair Maids of February,” the “May-flower” that covers the hedges with beauty, the “June Rose.”

The “Poor Man’s Weather-glass,” the Pimpernel, closes when there is rain in the air; the “Shepherd’s Hour-glass,” by which he knows the time of the day. The extreme regularity, indeed, with which many flowers open and close at particular hours is such that Linnæus made a dial of plants, by which a man might time himself, as with a clock, by watching their petals unclose.

The merely pretty allusions are many — Venus’ Looking-glass, Love lies Bleeding, Queen of the Meadow (the beautiful Spiræa) Crown Imperial, Monkshood, Marvel of Peru, Sundew, Silver Weed, Goldie-lockes, “a moss found in marish places and shade dry ditches, where the sun never showeth his face.”

There remain a number of names which have accidentally been chosen to express particular ideas. “Lad’s Love,” given to your flame in the country, when the swain’s words are scanty :

“Violet is for faithfulness,
Which in me doth abide.”

—*Sonnet* 1,354.

The “Pansy” (“that’s for thoughts”) or “Heart’s-ease,” still called in country places “Love in Idleness,” as in the Shakspearean compliment to Elizabeth in the *Midsummer Night’s Dream*.

“Yet marked I where the bolt of Cupid fell:
It fell upon a little western flower, [wound,
Before milk white, now purple with love’s
And maidens call it ‘Love in Idleness!’”

“Rosemary” (“that’s for remembrance; I pray you, love, remember,” says Ophelia, in her madness.) It was carried at funerals.

“Marygold that goes to bed with the sun,
And with him rises weeping,”

And the marsh edition of it, “all aflame,” as Tennyson describes it.

“Speedwell,” said the little blue Veronica in the hedge to the old folk who went before us. “Forget-me-not,” called the turquoise-blue Myosotis from the water as they passed by.

“Bloody Warriors,” the dark Wall-flower, and bright blue “Canterbury Bells,” filled their gardens.

We pay for the convenience of our present nomenclature, by the piling up of Greek and Latin words on each other, the barbarous compounds, and the almost unpronounceable words, such as “Habrothamnus,” “Ortiospermum,” “Intybaceum,” and the like; while the utterly irrelevant proper names, such as the “Wellingtonia,” for a pine-tree belonging to the far-west American mountains, scarcely even heard of while the “Duke” was still alive—the Roses dedicated to French marshals, most unfloral of men—are symptoms of our present poverty of language-making.

The host of new shrubs and plants now continually introduced require a more systematic kind of name-making than of old; but we can not help sometimes regretting the poetry of invention which has passed away from us, the loving transfer of our human thoughts and feelings to the inanimate things around us, the beautiful religious symbols into which our ancestors translated the nature about them, and which so often must have helped them to “look through nature up to nature’s God.”

FERNS FROM AUSTRALIA.—An Australian correspondent tells us that it is quite probable some of the gigantic Tree-ferns of that country will be on exhibition at the Centennial Exposition in Philadelphia.—*Gardener’s Monthly*.

THE SO-CALLED COFFEE-TREE OF CALIFORNIA.

BY DR. HENRY DEGROOT.

The question with us here in California just now is not so much whether we have a "Bourbon among us," as whether we have such a thing as a genuine Coffee-plant among our indigenous productions. As in the case of the Bourbon, this is not, perhaps, a question of much practical importance, since it is little likely that we shall in any event be able soon to count the growing of the Coffee-berry among our domestic industries; and even if it should hereafter appear that its culture could be carried on here with profit, the California grower would be likely to obtain his seed from the cultivated varieties raised in Coffee-producing countries, and not from our wild stock. In a utilitarian point of view, then, the problem is not one pressing for immediate solution.

But the question having been raised whether or not we have this shrub native to the country, and having led to considerable disquisition, we naturally desire to see it settled in accordance with the facts of the case. Whether we have the true Coffee-plant, known to science as the *Cafœa Arabica*, or not, one thing is certain, we have here, growing abundantly in many parts of the State, a shrub bearing a strong resemblance to that plant—so strong that this resemblance has gained for it in popular usage the name of the wild Coffee-tree. Nor is this similitude confined wholly to external appearances; it marks, so it is said, to some extent, the inherent qualities and properties of the fruit itself. Then, too, the habitat of the Californian bush and the Arabian tree would appear to be much the same. Both thrive best at a moderate altitude,

along the slopes of the mountains, below the region of severe frosts and above the hot arid atmosphere of the plains. In this State the bush most abounds in the midland and northern counties at an elevation ranging from one to three thousand feet, where there is furnished to it a climate much like that prevailing along the mountain sides of Arabia and Persia, the native home of the Coffee-plant. Moreover, the Californian bean when roasted emits something of the fragrant caffeine odor, and when prepared in the usual way affords a beverage flavored not unlike that made from the spicy and aromatic berry of commerce.

The foregoing constitute the leading facts tending to establish for the Californian shrub relationship to the caffeine family. It is not denied that there is a wide difference between it and the cultivated tree, nor is it pretended that its fruit is equal to that produced by the latter. The most that is claimed for the native plant is that it belongs to the genus *Cafœa Arabica*, that it is a species of the true Coffee-tree, and through culture can be developed into a tree very nearly like it, and be made to produce a similar fruit.

But now comes the man of science, the painstaking and unimaginative botanist, and with his exact facts and inexorable logic knocks the very life out of these popular fallacies and fancies. He shows us that this bush is not a Coffee-tree at all—that it has no relationship to that family, but occupies a different and much lower position in the vegetable world, being nothing but a worthless buckthorn—its raw fruit a violent purgative, and taken in quantity a virulent poison. He grants that, through roasting, it so far parts with these pernicious properties that it can, like Peas, Barley, old boots, and a thousand other

substances, be converted into a sort of Coffee. But that the barrier placed by nature between it and the genuine Coffee-tree can be overcome by culture or improved conditions, he utterly denies, clinching his argument with the statement that this, instead of belonging to the family *Rubiaceae* of the *Pentendria* of Linnæus, is nothing in the world but a *Rhamnus oleifolius*, by some botanists called the *Frangula Californica*, which, of course, is conclusive as to its true place in botanical history.

We fear the man of science has the best of the argument, and that our people will have to forego the pleasure of enumerating this plant among their sources of prospective wealth. It is some consolation, however, to know that it bears a delicate and sweetly scented flower, and we are not without the hope that the shrub may, through careful selection and judicious culture, yet be made to bear a much-improved fruit. If the delicious Pippin has sprung from the sour and gnarled Crab-apple, and the luscious Tomato from the worthless Love-apple, it is possible that the fruit of the *Frangula*, so despised and rejected of science, may yet be so improved as to redeem it from its low estate. In Arabia, the original home of the Coffee-plant and where the best fruit is grown, they have several species of the tree growing wild and bearing berries equally worthless with those grown on the Californian tree. This affords us an additional gleam of hope, as there can be no doubt but the plantations of Mocha itself were originally produced from these wild varieties.

We should be glad if our Californian shrub had been able to establish for itself a little more respectable standing in the vegetable kingdom, feeling, in

view of its failure to do so, a little like the old pioneer, who declared his unfeigned sorrow that the tape-worm was no more than one hundred yards long, seeing the thing was wholly a Californian production.



GREEK CURRANTS AND ENGLISH PLUM PUDDINGS.

The Currant takes its name from Corinth, but the Greek Currant is a diminutive kind of Grape, of no close botanical relationship to our acid garden fruit of the same name, which was so called merely on account of its external resemblance to the Currant proper. Several other fruits owe their names to the localities where they were first found or where they grow in the greatest perfection, as the Peach from Persia and the Damson from Damascus; but these have been introduced into many other countries, where they flourish as well as in their original *habitat*. The Currant, on the other hand, remains to this day an exclusively Corinthian or Greek product, all attempts to naturalize the vine in other lands having failed. In Sicily and Malaga it degenerated into the common Grape, and in Spain it would not grow at all, though the climate of those regions was similar to that of Greece, and the other conditions were apparently favorable to the success of the experiment.

The Currant is not only confined to Greece, but it is, commercially, the most important product of the country. The foreign trade, indeed, depends almost entirely upon this one crop, and the increase in the yield is counted as the most accurate indication of national progress. According to the last official reports there were more than 50,000 acres under Currant cultivation, and the crop in 1872 was reckoned at 82,-

000 tons, valued at about ten millions of dollars. About three-fourths of the whole, or 60,000 tons, went to Great Britain, where it is mainly used in furnishing the plums for the puddings of which John Bull is so voracious a consumer. The single fact that he pays £1,557,000 (nearly \$8,000,000) for a year's supply of these plums is sufficient proof that this traditional fondness for plum-pudding is as truly a national trait as the love for roast beef with which it is familiarly coupled. And the demand for the fruit in England is continually on the increase, especially since the reduction in the duties. No wonder that the Greeks consider the English as "a nation of pudding-eaters," and pray that they may long continue to be so.

The growth of the Currant-vine extends along the northern coasts of the Peloponnesus up to Corinth, but seldom above two or three miles inland; upon the continent, in the district around Missolonghi, and in the islands of Cephalonia, Corfu, and Zante; but the portions best adapted for the cultivation are the southern shores of the Gulfs of Patras and Corinth, these localities being less subject to storms and heavy night-dews. The vine is of a dwarf description, and of delicate nature, requiring much care and attention during its growth; the plants, which grow low, are supported with sticks, and several years must elapse before the yield is remunerative. In the autumn the earth is loosened and gathered up in small heaps until the pruning time in spring, when it is again laid down smooth around the roots of each plant. Women and children are largely employed; in the vineyards they carry away the cuttings of the vine, take manure to the plants, collect the stones when necessary, break off the

tops of the shoots and the leaves to give the fruit more sun, collect it, and in some places they dig the ground. The system known as "ring-cutting," or peeling off the vines while they are in blossom, is greatly practiced. This is considered to aid the secretion of a portion of the sap of the tree in the young forming berry, producing a heavier and more delicate fruit, with a thinner skin. During harvest many hired laborers are engaged, who move about from one district to another. The crops are liable to injury in the spring from the blight, and rainy weather in the harvest season produces great mischief. The gathering takes place about August and September, and the time required for drying the Currants is a fortnight to three weeks, according to the state of the weather.

The returns yielded by Currants are very uncertain. Whenever, owing to a severe winter, or the lateness of the rain-fall, the crop is backward in ripening, it rarely happens that it is got in undamaged. During the month of August thunder-storms with heavy falls of rain invariably occur in this climate, and should the fruit then happen to be on the vines, and especially should it be exposed on the drying areas, it must suffer. It often occurs that on such occasions the crop is partially damaged, and sometimes when fermented is entirely lost. The vines are subject to attacks of the oidium, which first made its appearance in 1852 and 1853. Even now this blight is kept out only by the repeated use of sulphur during the vegetation of the plants, and by powdering the leaves with it two or three times during the growth. The quality of the Currant is judged by size and color, which should be of a purplish blue. The red berries are either unripe, or else the produce of young vines.

The vine itself is said not to yield profitably after seven years' growth. The Greek government, although sorely in need of funds, levies no export duty upon the Currant, but there is a tithe or tax upon their production, which, for facility of collection, is taken at the custom-house.—*Boston Journal of Chemistry.*

SCALE-BUGS AND ORANGE CULTURE.

The Orange culturist has no enemy to contend with which he has such good reason to dread—none so formidable in numbers, so tenacious of vitality, and so fatally destructive to his trees—as the scale-bug, or *Coccus*. It is the only creature of any kind depredating on Orange orchards whose operations the culturist has been unable to control. Washing the plants with strong soap-suds is regarded by some as a good remedy, and Professor Maynard, of the Massachusetts Agricultural College, recommends washing the afflicted plant with ninety-five per cent. alcohol, applying it with a small bristle-brush. But neither of these washes gives more than temporary relief, and the scourge soon assumes its accustomed threatening proportions.

The Orange orchards of Florida have on sundry occasions been threatened with total destruction by the scale-bug. It seems to have been no unusual thing there for trees to be so infested with this parasite as to necessitate cutting off all the branches close to the trunk. In the Hawaiian Islands the Orange-tree is said to have been completely destroyed by the scale-bug, and the Orange groves of this State are almost all, in a greater or less degree, afflicted with the same pest. In the southern counties, the orchards in the Los Angeles valley were, until recently,

the only ones wherein the insect had made its appearance. Where it came from—whether imported or indigenous—is unknown. Neglect on the part of culturists has allowed it to propagate and spread, and it has now penetrated the most secluded and best protected orchards in the San Gabriel Valley. It has yet, however, done no further injury than to affect the market value of the fruit in consequence of the stain it receives from the secretion the bug deposits. But recently, the most enlightened Orange culturists in that section of the State have become alarmed lest more serious results should follow. Some of them anticipate the complete arrest of the circulation of the sap, consequently the early death of their trees, unless the bug is very soon exterminated.

It would appear from a card recently published in the Los Angeles *Herald*, emanating from the leading Orange culturists in the San Gabriel Valley—J. De Barth Shorb and E. J. C. Kewen—that a perfect method for the total extermination of the scale-bug had at last been discovered. Mr. Shorb claims the discovery, but somehow or other it has got into the hands of the agent of a patent fire-extinguisher with which the experiments were conducted, and now the secret is not to be revealed except to purchasers of the machine, and then only under the pledge of profound secrecy on their part. The element employed in this particular machine is carbonic acid gas, and Mr. Shorb intimates in his card that the ingredients introduced into the machine for the destruction of scale-bugs are only such as will reduce the strength of the charge. He claims that an application of this mixture relieved his trees of the pest at once, and he says there were as many as eight hundred of them threatened with premature death. Colonel Kewen

pronounces it equally efficacious in his orchard. If this remedy possesses all the virtues which it is represented to have, it would seem a duty the discoverer owes to this generation, inasmuch as he lays no possessory claim to it himself, to give it the widest publicity; more especially so as it seems the particular machine with which the solution has been applied is not absolutely necessary to accomplish the desired end. The Orange interest in this State is assuming considerable magnitude, and the man who will furnish culturists an infallible remedy for the evil which threatens it with death at its outstart will be, indeed, a public benefactor.—*Bulletin.*

THE DATE-PALM.

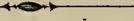
It is somewhat remarkable that so little attention has been paid to the cultivation of the Date-palm in California. There can be no question as to its perfect adaptability to our soil and climate. And it is certainly the second, if not the first, in value of all the noble order of Palms. In all eastern countries, which are congenial to its growth, it forms a most important portion of the subsistence of man.

It holds such an intermediate space between the fruits of the temperate and tropical climates, that it may be classed with either, but it is more of a temperate than tropical growth. Immense forests of Dates are found in southern Europe, particularly in Spain, Italy, Greece, Turkey, and in the islands of the Mediterranean. It is indigenous all along the northern portion of Africa, in Palestine and Arabia. It will flourish abundantly almost everywhere between the 30th and 40th degrees of latitude—the latitude of central California. As an ornamental tree it has no superi-

or, and it lives many hundred years. Indeed it continues slowly to rise in height until it is 250 or 300 years old. We have been led to these remarks at this time because of the recent importation here of a small invoice of trees from the peninsula of Lower California. Mr. Jacobs, formerly a resident of Santa Clara, now of Lower California, sent by the last steamer about 150 young Palms, which have arrived in good order, and which are going off very fast. They were consigned to R. J. Trumbull & Co., 427 Sansome Street, where they are to be seen at this present writing. This invoice consists of three different varieties, and from the region known as Pocopau, an interior mountain district. They were obtained at an elevation of some 6,000 feet above the sea-level, and within the line of occasional snow. The tree is indigenous there, grows to great perfection, and furnishes a large portion of the subsistence of the inhabitants. The Date-palm will probably grow and perfect its fruit wherever the Orange will flourish. The interior valleys of California would, no doubt, be much more favorable for its growth than the sea-board, on account of the high winds which prevail in the latter locality, and which would seriously interfere with the proper growth of its immense feather-like leaves and its heavy branches of fruit.—*Rural Press.*

A MEDICAL correspondent of an English journal says that cases of rheumatism and gout can be cured by the free use of Asparagus, the active principle of the plant having the effect of neutralizing the lithic acid in the system, which is the cause of all inflammatory rheumatic ailments. Hail the millennium of physic, when rheumatics shall be cured with asparagus, head-

aches by celery, and catarrhs by quail and toast!



ON MILDEW AND BLIGHT, MOSSES
AND LICHENS.

BY E. J. HOOPER.

The greatest complaint made by florists this year—although the disease has been prevalent for some time in California as well as elsewhere—is mildew and blight, especially on the leaves of the Rose. The discoverer of a remedy for it would indeed be a benefactor to both professional horticulturists and amateur cultivators. It would be also a profitable discovery to the person who could find its cause and cure.

These mildews and blights are ordinarily minute and almost countless forms of vegetation, made known by the microscope; and the prematurely yellow and blotched leaves of the Rose and other plants are probably produced by the atmosphere—that being the apparent originator of the malady. At nearly every period of the year, not only in late summer and autumn, but in the spring, there are many of our plants besides the Rose that afford examples of this.

All mildews and blights are not necessarily in all cases pernicious; but some species, without question, are injurious, causing quaint distortions and yellow and brown spots as in the Rose foliage, consuming the substance of the leaves or other portions of the plant they may be seated upon, and eating into them as rust eats into iron. Others, however, appear to be more of the nature of the mosses and lichens that so beautifully embroider and emboss the bark of the aged tree; that is to say, they are simply epiphytes, dwelling upon the plant without apparently damaging it, and comparable to the birds that build

their pretty cradles or nests among the branches. When moderately magnified, these little vegetables present forms of the most exquisite symmetry, and are so amazingly varied that the nobler shapes of plants of a larger growth seem but fulfillments on a greater scale of designs primarily patterned in themselves.

One of the most common and prettiest of these pigmies of vegetation is a species of the common blue mould called *Aspergillus*. When viewed through the microscope every plant consists of a slender stalk, and at the summit a tuft of beaded filaments. Another sort, of yellow patches, when magnified becomes a crowd of fairy vases, the rims notched and thrown backward like the petals of a flower. Botanists have discriminated many hundred species of this race of plants, and the number seems daily on the increase; more beautiful under the microscope than beneficial to our plants, shrubs, and trees, and therefore not agreeable to the naked eye at any rate.

Some of the smallest mosses, when viewed under the microscope, assume, besides the prefigurement of flowers, the forms of the most stately and handsome trees. There are miniatures of the Oak and Chestnut, which botanists call *Hypnum dendroides*—such as have been preserved to us, too, in a larger form, in some fossils of the Old World's history. The mossy carpet at our feet, in forests where the climate and soil are congenial, are very much the same delineations that make a walk there so delightful to us. Take the little moss-flowers, magnified; no gem of the garden will excel them. In the *Hypnum* above referred to, and in all its genus, the youngest state of the flowers presents nothing very remarkable, any more than do the buds of true flowers, al-

ways excepting the buds of the Rose, which stand alone in presenting qualities as lovely as those of the fully expanded blossom. When, however, a rather advanced condition has been reached, it seems to me at first sight to be the prototype of the Daisy; a circle of rays spreads from the margin of a round cup, which reminds me of the milk-white aureola of that pretty European field-flower. Sometimes the rays are like gold; sometimes they are rose-color, with horizontal yellow bars; in some species they are forked, in others bent inwards.

The study of these unconsidered little productions — mosses and lichens — is enough for any man's leisure, and in pursuit of it he becomes a child once more; that is to say, he lives over again in the intense and inexpressible surprises and sensations of novelty that make up so large a portion of the heavenly era of early life. While it is good that in entering upon the study of philosophy we seek to do so with the meekness and humiliation of a little child, among the mosses, with a fair microscope in the hands, we are children once more, without knowing it — yes, whether we will or no. Whatever tends to foster and keep alive the emotions and susceptibilities of childhood is precious beyond all measure; for, though manhood gives exaltation to pleasures, and though pleasures of the highest dignity only become possible when youth has passed away, the keenest and most vivid relish still belongs to the childlike heart that is simple without being juvenile, and joyfully expectant without the air of illusion.

In subjecting the leaves of the Rose-bushes to the microscope, I can not discover any mildew of vegetable existence or formation, but it appears to be what may be termed a blight from

the atmosphere, commencing early in the spring, or, in some instances, in the winter during the rainy season, and is most prevalent, like the curl in the leaf of the Peach, near our coast, although it extends some distance in the interior. Atmospheric affections of vegetation, like the blight (distinct from the insect blight) in the Pear-tree, which either killed or injured so many Pear-trees, are probably entirely beyond our control.

THE BROAD-LEAVED ACANTHUS.

Within a few years the taste for plants with handsomely formed and stately leaves has much increased. We do not refer to leaves attractive for their color, but to those of marked outline and habit. Plants of this class are for convenience called sub-tropical, though many of them are not natives of warm climates — sub-tropical being a convenient term for that style of gardening which depends upon beauty of form rather than color for its effects. Among the plants that have come into prominence for this use are several species of *Acanthus*. This name is the Greek word for thorn slightly modified, some of the species being very thorny; and we are quite sure that the greatest stickler for common names will prefer it to "Bears-breech," the name given to one species in England. The Spiny *Acanthus* (*A. spinosus*) is the plant that is said to have suggested the idea of the ornamentation of the Corinthian capital. The story goes, that Callimachus, the architect, was in great trouble how to finish off the capitals to his columns, and as he was pondering upon the matter in the garden, his eye fell upon a jar, around which *Acanthus*-leaves had grown in the most graceful manner. The largest and finest of all the species

used in European gardens is called *A. latifolius* and *A. Lusitanicus*, but it is probably a variety of *A. mollis*. It is a fine, bold plant, with dark-green leaves of pleasing outline. It is said that well-established clumps of this form a dense mass of fine foliage three feet high, and five feet across. The flowers, which are upon a long spike about five feet high, are white or lilac, each in the axil of a large leafy bract. The only plant of this we have seen is one which Messrs. Olm Bros. received with other things, and treated as a greenhouse plant. As far as can be judged from a specimen grown in a pot, the European accounts are not overdrawn. It is perfectly hardy in England, and we hope it may prove so here, as it is a fine plant for the decoration of large gardens. — *American Agriculturist*.

A NEW AMERICAN INDUSTRY.

A new source of agricultural production has recently been developed in the South; one which may before long encourage and bring into active operation a valuable branch of manufactures heretofore monopolized by the Old World, and especially Great Britain. The progress that has been made in the manufacture of cotton and woolen fabrics has indeed been great since the war, and it is considered surprising that no attention has ever been turned to the manufacture of fibrous products, such as linen, etc. It has been clearly demonstrated that Flax can be cultivated with profit in this country, Ohio alone producing, in 1870, nearly 18,000,000 pounds; but most of the Flax raised has been solely for the seed wherewith to make linseed oil, while the stalk, which contains the most valuable portion of the plant, has been almost thrown away

or burned up as useless rubbish. The production of linseed oil has certainly increased since Flax was first introduced into this country for planting, the value of the product for 1850 being only \$1,948,934; whereas in 1870 it had increased to \$8,801,962; but the neglect of utilizing the stalks has been a great loss to the country. During 1873 the United States imported 3,059 tons of raw Flax in addition to Flax manufactures and the seed, making an aggregate value of \$22,823,026 in gold. A large proportion of this might have been saved by the utilization of the Flax-stalks of the West, etc.; but heretofore it has been considered that the cost of cleaning the Flax fibres from the bark, etc., would be too great to make the work remunerative. France and England, during the same year, imported nearly \$53,000,000 worth of Flax, and America might have contributed somewhat toward this supply if proper care had been taken. Hemp, Jute, and Ramie would also form staple products if properly cultivated, as the soil of America, and especially of the Southern States, is peculiarly fitted for it. Over \$3,500,000 in gold is annually sent out of this country for the purchase of Hemp and its manufactures, while \$4,398,481 was sent abroad in gold to buy Jute-butts, and manufactures of Jute. Altogether the large sum of \$30,741,958 in gold was sent out of the country in 1873 to purchase products and manufactures which could have been produced at home; while at the same time America shut itself out of a market with England and France, into which countries nearly \$95,000,000 worth of raw material was imported for manufacturing purposes—the farmers of the West and elsewhere “actually wasting the material which would supply a portion of that trade.” In 1870 the United States raised 27,133,034

pounds of Flax-straw, a portion of which was turned into Flax moss for upholsterers' use instead of hair; whereas under skillful treatment the whole amount of money sent abroad in 1873 for raw Flax might have been retained in the country, and half the additional money saved that was during the year sent abroad for manufactures. Only 12,437 tons of Hemp were raised during 1870, and it might easily have been 50,000 tons, which would not only have given more than was required for the American market, but also have left between 20,000 and 30,000 tons for exportation. There is no apparent reason why America should not be able to compete with Russia in supplying Europe with raw Flax, and with India and China for the supply of Jute, Hemp, and Ramie for manufacturing purposes, besides growing a sufficient quantity to supply all the wants of the American manufacturers. With the introduction of the machinery before alluded to, a great amount of labor and time can be saved in the preparation of the raw material, and as a natural consequence mills will soon be established for the manufacture of all those articles of linen which are now imported so largely. It is believed that crash or coarse linens could be made in this country at the present time at a cheaper cost than the imported goods, and yet leave a good profit for the producer and manufacturer. The linen works of Scotland were first established under government bounty, and in the course of a few years the town of Dundee, with only 100,000 inhabitants, had sixty-one linen-mills, containing 170,552 yarn-spindles, and 6,709 power-looms, giving employment to 36,020 persons; yet in 1870, the United States, with over 40,000,000 of inhabitants, had only eleven linen-mills, working solely upon imported Flax,

while millions of pounds of material were being wasted continually. The subject is about to be brought before the United States Government.

LOCO AND RATTLE-WEED.

The Department of Agriculture Report for July contains the following: In the monthly report for October, 1873, we gave some account of a poisonous plant, called loco, which grows in California, and is sometimes destructive to sheep and cattle which feed upon it. We there stated that the plant was a species of *Astragalus*. We have recently received specimens from Mrs. J. S. Whipple, of San Luis Obispo County, of what is called loco, and also of a similar plant called rattle-weed. They are both species of *Astragalus*, but the leaves and flowers are so much broken up that the particular species can not be accurately determined. They have smooth, inflated pods, that called rattle-weed being about an inch and a half long, thin and bladder-like. Mrs. Whipple writes:

"The description of the loco plant given in the monthly report was correct. It grows in abundance in several counties in lower California, and appears to be a natural production of the locations where found. It occurs on high and low, wet and dry lands. Animals are not fond of it at first, or do not seem to be, but, after they get accustomed to the taste, they are crazy for it, and will eat little or nothing else when the loco can be had. There seems to be little or no nutriment in it, as the animal invariably loses flesh and spirit. Even after eating of it they may live for years, if kept entirely out of its reach, but if not they almost invariably eat of it until they die. I sent to Bakersfield for the specimen of loco, as it does not grow just here. The rattle-weed, of which I send a sample, seems to be a kindred plant and of the same nature, producing the same effect. It grows in

this locality in abundance. This also flourishes on the mountains and in the valleys, on wet or dry land, but is confined to certain counties, or is not found in all parts of the State. If eaten freely of at first the animals sometimes die in three days, but sometimes live two or three weeks, and, as with the loco, if but little is eaten and the animals are kept away from it, they may possibly get over its effects."

Subsequently to the reception of the specimens above named, the Department made application to another correspondent in Bakersfield, California, who has sent well-prepared specimens of what is called loco and also of the rattle-weed. These specimens were submitted to Doctor Gray, who decides the former to be *Astragalus Hornii*, Gr., and the latter to be *Astragalus lentiginosus*, var. *Fremontii*. This correspondent has had practical experience with these plants, having lost by their poisonous effects a large number of horses and other stock. He entirely confirms the account of symptoms and effects previously given.

THE PALMATE SPIRÆA.

There are certain genera of flowering plants so large already, that we always dread to see a new species added to the list. This is the case with Spiræa, of which there are more than one cares to keep the run of, and with the shrubby ones, at least, half or more of the list might be dropped out of cultivation without detriment. Therefore, when we saw the *Spiræa palmata* announced in the foreign journals as a new acquisition from Japan, we did not feel very enthusiastic over the matter, notwithstanding all the praises bestowed upon it. Last year we received a plant from Mr. Chitty, of the Bellevue Nursery, Paterson, N. J., and are forced to ad-

mit that it is a valuable addition to our garden. This is not a shrubby species, but a herbaceous one, that reminds us, as to its foliage, of the old "Queen of the Prairie," *S. venusta*. The leaves, as its specific name indicates, are palmately lobed, and the lobes are sharply serrate. The stem is one or two feet high, and bears at the top a large, much divided panicle of small rich crimson flowers. The plant is as yet little known in this country, but at the exhibitions in England, this summer, it has attracted much attention, and received high commendations. With the Queen of the Prairie Spiræa, and others related to it, the trouble is that the flowers in the cluster open unevenly, so that by the time the outer ones in the panicle are well opened, the central ones have already dropped their petals, and taken on a seedy look. Whether this will happen with the Palmate Spiræa we can not say, as our only flower-cluster was sacrificed for the sake of an engraving. We have no doubt that it will prove hardy here, as our plant stood out all last winter without protection, and came up strong this spring.—*American Agriculturist*.

DAHLIAS.—If desirable to increase Dahlias by cuttings, do so at once; in a brisk heat they will root in a few days and be established by planting-out time. We consider the dwarf varieties the most desirable; the plants flower earlier and more abundantly, and the plants do not require stakes to prevent the wind breaking them; but, of course, when exhibition flowers are required, the size of plant and abundance of bloom is a secondary consideration, as the buds are usually trimmed to a small number, and there are not sufficient varieties among the dwarfs to make up a collection for competition.

GRAMA - GRASS.

While California dairymen, stock-raisers, and farmers generally, says the San Francisco *Rural Press*, are so enthusiastically engaged in investigating the merits of and experimenting with the different varieties of grass now grown or being introduced into the State, we suggest that a trial be given to the wonderful Grama-grass of New Mexico. Not that we believe it to be any better or even so good a hay-making or pasturage grass as some of our other well-known varieties, as Clover, Alfalfa, the Italian, etc., but because we think its properties make it peculiarly adaptable to our pasturing or dairy-ing localities, which are not suitably situated to render the others a success. The places where it promises to be of most value will be at once indicated by the short description which we here give of it. It is a hardy perennial, with a tendency to grow in dense bunches, and in its natural home—the plains, *mesas*, and even mountains of New Mexico—attains a height of from eight or nine inches to about two feet. It thrives in the most dry and sandy locations, and in fact seems to be like the Water Cactus of the deserts of southern Arizona, especially created to supply the place of vegetation which derives most of its moisture from the air or immediate surface of the ground. It takes kindly, however, to moisture, as in the vicinity of springs or streams it grows much ranker. But its great and distinguishing peculiarity exists in the fact that when it matures it does not “dry up” like others of the class, but cures into good hay as it stands. The process by which other grasses return their sap and substance to the earth and air seems to be arrested by some unknown agency in this variety entirely, and the bunches

remain throughout the winter as little cocks of well-cured hay. Of course, it has not such a body as housed or stacked tame grasses; still it is very nutritive; and the Mexican burros, antelope, elk, and black-tailed deer, keep fat upon it the winter through. Now, in our foot-hills and mountain country, where the grass is never very luxuriant, and where it soon becomes worthless by drying, it seems to us that the introduction of this grass might give very good results. We are certain, that, once having gained a foot-hold, it would hold its own thereafter without difficulty, and the expense of procuring seed sufficient to give it a trial would be very trifling.

FISH GERANIUMS.

Those of our readers who are in the back country have little idea how the old race of Fish Geraniums, as they are called, have been improved. Even the name has been blotted out. They are Geraniums no more. In most of the leaves there is a black zone, or, as we old folks used to say, a horse-shoe mark, and these old-time plants are now *Zonale Pelargoniums*.

At the time we referred to, the little bright scarlet flowers and the dark-green leaves were about all we had of the real old Fish; now there is no end to the colors of both flowers and leaves; and they are of many forms, and some are double as well as single. Blue ones are, however, yet a desideratum, and though some have been named yellow, we can not see it. After the scarlets, we remember, came bright pinks, and then white, and after this various shades of these all in the one flower. About four years ago the French gave us a double one, and now we have double scarlet, double rose, and double white.

A remarkable advance has been made in what are known as tricolors. These have the leaves with the old horse-shoe of the usual dark shade, but margined by crimson or white on the usual green ground. Sometimes, however, the edge is white or silvery, and at others a yellowish instead of a green tint.

The same rule, however, seems to hold good with these improvements as we often find in human progress. With refinement seems to come effeminacy, and these advanced forms are very sensitive as to how they are treated, either in the greenhouse or the open air.

The strong old-fashioned kinds in many cases give the most satisfaction, either as window-bloomers or for making a display in the open air—at least those kinds which in the most degree resemble them are deemed the best. For instance, the silver-edged and the tricolors are said not to do much good in the sun, and the double ones, though they grow somewhat rank, seldom give half the heads of blossoms that the single ones do. Again, many of the single ones which charm us so when we go to the florist's greenhouses to buy in the spring, are of little account when they have to run the gauntlet of a hot summer's sun. Indeed, so well is this recognized now by the florists themselves, that to be "a good bedder," as we see by their catalogues, has come to be a special and honorably distinctive character.

Still there is no evil without its charm. We have lost in a measure some of the old-time hardy character of the old Fish Geranium in its transformation to a Zonale Pelargonium, but the almost endless variety and beauty make amends for much of the tenderness.—*Germantown Telegraph.*

THE HOLLYHOCK FUNGUS—COTTON IN DANGER.

This disease among Hollyhocks, which has spread in Europe with fatal activity, has already been briefly noticed. But little is known about it, save that it came from South America, and that it appears suddenly in widely separated districts, and causes the death not only of Hollyhocks, but other plants of the Mallow Family. The disease shows itself in small spots upon the leaf, which, when magnified, are seen to be groups of minute fungi. The spread of this pest seems to be mysterious, it appearing at once in all parts of a large plantation; and yet Prof. W. G. Smith has entirely failed to propagate it, although he has wrapped the diseased leaves around the stems of healthy Hollyhocks, and buried others in the soil at the root of the plant; this failure may be accounted for by the fact that the spores were not yet ripe and ready to germinate. Thus far no application of sulphur, or other fungus destroyers, have been of use, and the only known remedy is to root up every affected plant. The venerable Mr. Chater, a distinguished florist, who has devoted half a century to the improvement of the Hollyhock, and to whom we are indebted for the present perfection of the flower, may well be despondent at the loss of the favorites he has so long cherished. While this disease prevails, no malvaceous plants should be imported to this country from England or the Continent. Our importing florists should bear this in mind, and let all the new varieties of Abutilon, Hibiscus, and everything else of the Mallow family, remain with the ocean between them and us. This warning should be heeded, for if the fungus is once introduced, it will no doubt prove a greater enemy

Now is the time to attend to bulbs.

to the Cotton crop than all of its insect enemies together. As it, so far as known, attacks all of the Mallow family indiscriminately, there is every reason to believe that Cotton will prove no exception. Its introduction would be a national calamity, and one that can not be too zealously guarded against. —*American Agriculturist.*

POTATOES ON DRY LANDS.

One of our foot-hill contemporaries has a little item, which it considers rather wonderful, of some fine, large Early Rose Potatoes, raised on red land without irrigation; the ground prepared in the common way; seed placed on the ground and covered with about six inches of half-rotten straw. No other cultivation, it says, was given, and the yield was most excellent.

Now this recalls forcibly to our minds that the same plan was extensively practiced in many districts of "droughty Kansas," before the introduction of railroads, telegraph wires, and the general cultivation of the soil had rendered this term a misnomer, and we believe it would be an excellent course for many of our foot-hill farmers, who have not good facilities for irrigation, to pursue. In the State referred to, the Blue Neshannock and Peach-blow were the varieties which seemed to do best under this treatment; but without doubt it is applicable to all varieties which mature early enough to escape the chilling influence of the straw after the cold, damp weather of late fall and early winter has set in.

The ground should be allowed to become thoroughly warmed and dried out by the sun in the spring, then prepared in the usual way and planted in hills or drills, according as preferred. Ground so treated will stand a heavier seeding

than if otherwise cultivated, owing to the manure derived from the decaying straw. After the seed has been in the ground a few days—some think it best to let the Potatoes get fairly up—take straw of any kind and cover to a depth of from three to six inches, and the cultivation is completed. The straw keeps the ground moist and loose, furnishes manure for the growing tubers, and last, but not least, effectually prevents the growth of weeds, as these latter must have sunshine. We have seen ground so covered in the spring, as clean as a garden-bed in the fall when the covering was removed to dig the potatoes. Some cover the entire surface, while others prefer to cover only the hills, fastening each bunch of straw by placing a little earth on the edges.

Of course this method is not applicable in naturally wet, cold soils, but on dry or sandy locations one will be surprised to see the amount of Potatoes so produced. The whole energy of the plant seems to be directed to the tuber, the tops in some cases not appearing above the covering.

We would be pleased if some of our foot-hill readers would give the experiment an intelligent trial during the next season, and report the result to the *Press*. A very small spot would be sufficient to test the plan, and as covering the ground is all the labor necessary to be expended in cultivation, the expense would be but trifling in case of failure, which we believe would occur very rarely indeed.

We ought, perhaps, to mention that with us the best success followed when the Potatoes were lightly covered with earth, allowed to come up, and then covered with straw not too heavy and rotten; although we have known of good results from simply dropping the Potatoes on the surface of freshly

plowed ground and covering them with nothing but half-rotten straw, as was done in the case cited by our contemporary. In the latter case, the Potatoes often present the somewhat curious anomaly of growing on top of the ground, the tubers being found half buried on removing the covering. But, from considerable experience in both methods, we prefer the former—to lightly cover with earth, and after sprouting to cover with straw. And the plan of only covering the hills with straw is perhaps preferable in close soils, as it admits of the usual cultivation between the rows.—*Rural Press.*

SLEEP AND ODOR OF FLOWERS.

Sir John Lubbock, in speaking before the British Association, concerning the fertilization of flowers by insects, said: Everybody, however, has observed that even in fine weather certain flowers close at particular hours. This habit of going to sleep is surely very curious. Why should flowers do so? In animals we can understand it—they are tired and want rest. But why should flowers do so? Why should some flowers do so, and not others? Moreover, different flowers keep different hours.

The Daisy opens at sunrise and closes at sunset, whence its name, "day's eye;" the Dandelion (*Leontodon taraxacum*) opens at seven and closes at five; *Arenaria rubra* is open from nine to three; Ear Hawkweed (*Hieracium pilosella*) is said to wake at eight and go to sleep at two; the scarlet Pimpernel (*Anagallis arvensis*) to wake at seven and close soon after two; while *Trogopogon pratensis* opens at four in the morning and closes just before twelve, whence its English name, "John-go-to-bed-at-noon." Farmer boys in some parts are said to regulate

their dinner hour by it. Other flowers, on the contrary, open in the evening. Now, it is obvious that flowers which are fertilized by night-flying insects would derive no advantage from being open by day; on the other hand, those which are fertilized by bees would gain nothing by being open at night—nay, it would be a distinct disadvantage, because it would render them liable to be robbed of their honey and pollen by insects which were not capable of fertilizing them. He believed, then, that the closing of flowers had reference to the habits of insects. He observed also, in support of this, that wind-fertilized flowers never sleep; that some of those flowers which attract insects by smell emit their scent at particular hours—thus, *Vesperis matronalis* and *Lyckins vespertina* smell in the evening, and *Orchis bipolia* is particularly sweet at night.

He had been, he said good-humoredly, accused of attacking the busy little bee, because he had attempted to show that it does not possess all the high qualities which have been popularly and poetically ascribed to it; but if scientific observations do not altogether support the intellectual eminence which has been ascribed to bees, they have made known to us in the economy of the hive many various peculiarities of which no poet had ever dreamed, and have shown that bees and other insects have an importance as regards flowers which had been previously unsuspected. To them we owe the beauties of our gardens, the sweetness of our fields. To them flowers owe their scent and color—nay, their very existence in its present form.

Not only have the brilliant colors, the sweet scent, and the honey of flowers been gradually developed by unconscious selections of insects, but the very arrangements of the colors, the circular bands and radiating lines, the form, size,

and position of the petals, the arrangement of the stamens and pistils, are all made with reference to the visits of insects, and in such a manner as to insure the grand object which renders these visits necessary.

In conclusion, he observed that, while he had attempted to point out relations which exist between insects and some of our common wild-flowers, the whole subject is one which will repay most careful attention; for, as Muller has very truly said, there is no single species the whole history of which is yet by any means thoroughly known to us.

CHERRY CULTURE.

C. W. Reed, of Washington, Yolo County, produces this year about ten tons of Cherries. W. H. Pepper, of Sonoma, produced, in 1872, about ten tons; in 1873, about eight and a half tons. This year his crop is not quite so large, on account of the cool, wet spring, but is better in quality. J. W. Cassidy, of Sonoma, in ordinary good years, produces about eight tons; this year not quite so many. Prices for Cherries generally start at twenty-five to fifty cents per pound; they are now quoted from eight to ten cents for common, and fifteen to twenty-five for choice. We do not now remember the number of trees in Mr. Reed's orchard, but Mr. Pepper has about 800, and Mr. Cassidy about 400. From these figures we learn that Mr. Pepper's trees average in good seasons about thirty-three pounds to the tree, and Mr. Cassidy's about forty. Placing the average price per pound at fifteen cents, it would make Mr. Pepper's trees average him say \$5, and Mr. Cassidy's \$6 a tree; or would give Mr. Pepper an income for his 600 trees of \$3,000, and Mr. Cassidy, for his 400 trees, an income of \$2,400.

Allowing 20 per cent. for rent of land and interest on cost of orchard and labor, it would leave Mr. Pepper a net income of \$2,400, and Mr. Cassidy \$1,920. Allowing 200 trees to the acre, Mr. Pepper's trees occupy three acres, and Mr. Cassidy's two acres; this shows that Mr. Pepper's land brings him \$800 and Mr. Cassidy's \$960 per acre, per annum. Now we state these facts to show those who do not know what to do in this State how little capital is required to begin and build up a good business in a few years. Land just as good for Cherry culture as that of Mr. Pepper, Mr. Cassidy, or Mr. Reed, can be had almost anywhere in Sonoma or Yolo counties at from \$15 to \$50 per acre. Just as good and better land can be had in the foot-hills of the Sierra or Coast Range Mountains, in Butte, Placer, El Dorado, Amador, Tuolumne, Mariposa, Stanislaus, or any other county in the State lying partly in the foot-hills, at from \$1.25 to \$5 an acre. The trees will cost on an average, say 30 cents apiece, or \$60 to plant an acre of land. They will begin to bear the third year after being planted, and at six years, after being planted will bring in a good profit. Here then is a plain straightforward road by which an industrious man or boy can in the course of six or eight years, by an outlay of \$300 or \$400 at the most on the start, secure an income of \$3,000 to \$4,000 annually. While his orchard is coming into bearing he can, besides attending the same, make his living by working for wages, by raising poultry and vegetables, or Strawberries, or other berries, all on the same land, without injury to his Cherry orchard. With such openings before him in California no one need be without something that will pay to do. We should mention that the varieties principally cultivated in this State for the

market, and which pay the best, are Black Tartarian, Governor Wood, Napoleon Bigarreau, White Heart, and Early Purple.—*Sacramento Record*.

HORTICULTURAL MATTERS.

Pears, Peaches, and other California fruits have been so abundant in New York this season that they have been hawked in the streets, although most of the fruit has been sold at remunerative prices. At this date the Eastern markets are well supplied with fruit grown near by. Grapes are about the only fruit which would find a profitable sale now, and only the very best, such as are not produced in the Eastern States. We have now the old story of more fruit than can be sold. It will be so until the drying business has assumed far more permanence than it now has.

There is more mildew observable this year than in any previous year. It is making a steady encroachment on vineyards, appearing this year where it has never been seen before. It is found in hill-side vineyards quite as much as upon flat land. It is identical with that which has affected the vines for years in Ohio and other States. The Rose-bushes this year are badly off. The mildew which appeared here and there two or three years ago, now hardly leaves a Rose-garden in any of the bay counties untouched. Some kinds are much more affected than others. In most cases the Rose-buds are blasted and the leaves of the shrub are corrugated much like the curled leaf in the Peach-tree.

Those who have tried sulphur and various strong liquors have found no satisfactory results. One gardener who laid the roots bare, throwing out all the old earth and replacing with new, says that no mildew appeared on Rose-bushes thus treated. Sulphur has long been

known as a remedy for Grape mildew, it being applied in a powdered state. If it would not help Rose-bushes it would seem that the mildew of the latter is not like that which affects the Grape-vine.

JUTE MANUFACTURE.—In the large list of home industries which was very fairly represented at the Mechanic' Fair, may be included as an important display that of the Pacific Jute Manufacturing Company. The enterprise of this company affords hope that our grain sacks will in time be wholly fabricated on this coast, to the manifest advantage of the farmer. This Company employs nearly 500 operatives, and its sacks are extensively used in the farming districts, being acknowledged at least equal in strength and holding capacity to the imported English article. Like most local undertakings of this kind, at first considerable prejudice had to be contended against; at last, however, an unbiased test on the part of farmers has made them declare in favor of "Oakland sacks," a reward fully deserved, to judge from the samples on exhibition. The works of the company are situated at East Oakland, and the raw material is worked up, spun and woven from the crude condition in which it arrives from the East Indies. The institution, therefore, is distinct from the bag factories in this city, where the imported burlaps are merely cut up and sewed into sacks. The machinery in motion at the Oakland factory is of latest designs, and the institution, in its vast proportions, constitutes one of the largest manufacturing establishments in California. The Company, by their successful competition with English manufacturers, have been the means of keeping rates lower than farmers would have to pay were this local factory not in existence.

Editorial Portfolio.

A SEVERE LOSS TO CALIFORNIA.

It is with a feeling of great sorrow that we are compelled to record the death of Hiram G. Bloomer, whose career as a California botanist has been most successful. As director of the Museum of the Academy of Sciences, he has labored day and night for the best interests of the society. Always courteous to members and visitors in imparting information, his death is lamented by all who knew him. He came to California in 1852, and ever since he has devoted soul and body to the advancement of natural science. The loss seems irreparable.

WOODWARD'S GARDENS.

The clear, sharp, and beautiful photograph of this very popular place of public amusement, which forms the frontispiece of the present number of our magazine, is certainly taken from the best point for a favorable view of the buildings and grounds, and in the best style of the works which proceed from the splendid gallery of that eminent photographer, Mr. Watkins. One of the most interesting features of these famous gardens, of course, to the readers of the HORTICULTURIST, are the fine specimens of both native and foreign trees, shrubs and flowers, which are grown and spread-around the premises, as well as the tropical and exotic plants with which the elegant conservatories are filled. Here may be seen the Norfolk Island Pine, 10 feet in height; *Acacia verticellata*, 20 feet; *Acacia linearis*, 25 feet, from Australia; *Callistema lanceolata*, from New Holland; *Pittosporum Tobera*, from Japan; *Cupressus Lawsoniana*, 20 feet; Japanese Loquat, 12

feet; *Leptospermum lanigerum*, 15 feet; *Pinus insignis*, 20 to 30 feet; *Veronica macrocarpa*, from New Holland; European Laurustinus; *Metaluca decussata*, 25 feet, from New Holland; *Metrosia*, from New South Wales; *Fabina imbricata*, 5 feet; Japan Spindle-tree; Dwarf Pomegranate, from the West Indies; Chinese Cypress; *Vinca major*, 6 feet by 8 feet; Deodar Cedar, 15 feet high by 10 feet broad—this tree is remarkable for its handsome, graceful, drooping habit; Peruvian Mastic-tree, remarkable for its large head, 20 feet high and as broad; Norway Spruce, 30 feet high.

The exhibition by Mr. Woodward, of tropical and other collections of plants, at the late Mechanics' Institute Fair, and which took premiums, speaks well for his public spirit in these as in his other endeavors to amuse the mind and instruct the taste of the public in horticultural matters; and we trust that he will be encouraged by the people's approbation still further to increase his collection of plants, and most effectively keep pace in all that is new and choice in Horticulture, so that in all exhibitions in this city, at least, he may succeed in taking all the first premiums in each department, and distancing all competitors in that interest, formidable as many of them are. As Mr. Woodward has so ably and successfully taken the lead in illustrating natural history, too, both in living and prepared specimens in his gardens and cabinets—in other words the *Fauna* of the world—so do we trust he will pay as much attention to its *Flora*. By so doing he will be giving us lessons of great importance. He will be showing us that no country seems so liberally gifted by nature as California, where can be grown side by side trees from the snowy summits of the Sierra Nevada and the tropical

Palms, the Coffee-plant and the Orange; and even the tropical animals thrive better here than in the East.

Independent of other attractions at this unique spot, nearly surrounded by sand-hills soon to be built upon by our now most rapidly improving metropolis, visitors will find the horticultural features of the place alone worthy of close and careful attention and study.

OUR EXCHANGE TABLE.

The Overland Monthly for November is received, and presents a varied and entertaining table of contents, embracing some fifteen articles, with a more than usually full "Etc." department. It opens with another of John Muir's Sierra studies, entitled, "Post-glacial Denudation." We have also one of Miss Coolbrith's exquisite poetic thought-studies, entitled, "Unto the Day." Stephen Powers gives us a very graphic description of "A City of a Day," referring to the California Pompeii—Meadow Lake. Charles Hinton, a young and new contributor, furnishes a rather remarkable poem, under the title of "A Dream of Doubt." John H. Carmany & Co., Publishers, San Francisco. \$4 per annum. Now is the time to renew subscriptions. The new volume commences with January, when *postage will be prepaid by the publishers.*

The Gardener's Monthly: Charles H. Marot, 814 Chestnut Street, Philadelphia; \$2 a year. One of the best.

The American Farmer: Samuel Sands & Son, 9 North Street, Baltimore, Md.; \$1.50 per annum. An excellent monthly.

The American Gardener: Beach, Son & Co., 76 Fulton Street, Brooklyn, N. Y.; \$2 a year. This is a monthly publication succeeding the *Flower Garden*

(quarterly), and is full of interesting matter.

The American Agriculturist: the Orange Judd Company, 245 Broadway, New York; \$1.50 per annum.

The Monthly Report of the Department of Agriculture for August and September, 1874, is before us, filled with statistics and correspondence relating to the crops, from all parts of the United States.

CATALOGUES RECEIVED.

From *E. G. Henderson & Co.*, Wellington Road, St. John's Wood, London, N. W.; *William Bull*, King's Road, Chelsea, London, S. W.

Also, *Briggs & Brother's Floral Work Catalogue*, Rochester and Chicago.

NEW AND RARE FRUITS.

New Strawberries.—The following are Pennsylvania seedlings, which have good reputations. The account is by Mr. Amos Miller:

CUMBERLAND TRIUMPH.—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 alongside 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 unrivaled—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.

SPRINGDALE.—Plant low set, fruit stem heavy; berries very large and perfect, thirteen berries filling a pint measure; remarkably firm, will stand distant shipping and rough handling equal to Black Defiance or Triomphe de Gand; dark colored, and in flavor one of the best for so large a berry under cultivation. Not as strong and vigorous a grower nor as productive as the Cumberland, but its fine form, rich color, large size, firmness and exceedingly fine flavor gives it the highest rank in market; does very well by promiscuous culture.

GOLDEN DEFIANCE.—Plant vigorous, fruit large, of the most brilliant golden hue, fine flavor and firm, moderately productive, very late. Last season we gathered some of the finest fruit when other varieties were over, and this season shows the same lateness.

KOHOOKEN.—Plant very vigorous; in point of size, productiveness, flavor, and firmness, equal to Green Prolific. A few days later.

EARLY QUEEN.—A seedling grown from Metcalf's Early. Moderately vigorous and productive, as large as Wilson, second-rate in flavor, but for the past two years has been four days earlier than Wilson. Its earliness and fine appearance makes it a marketable variety.—*Gardener's Monthly*.

NEW AND RARE PLANTS.

Varieties of *Viola cornuta*.—This Violet, which has more the habit of a Pansy—*Viola tricolor*—than any other in cultivation, has been much improved

by English florists, and is very popular. Mr. B. S. Williams, of Upper Holloway, London, has a figure of one of these in his pretty catalogue, now before us, of which he says: "*Viola cornuta* '*Sensation*.'—Although we have been successful in distributing several fine forms of this beautiful plant, all have been distinct and capable of being used in conjunction with each other, and the present one is not an exception. It is quite distinct from any other variety yet sent out, robust in habit, and a most profuse bloomer; flowers large and of great substance, standing well up above the foliage; upper petals intense deep violet purple, lower ones clear violet; eye small, yellow, and rayed with purplish violet, and flowers a month earlier than any other Violet."—*Gardener's Monthly*.

***Diplopappus chrysophyllus*.**—X. says: "The new evergreen shrub, *Diplopappus chrysophyllus*, described by L. Van Houtte as being entirely hardy in Belgium, has proved to be the same in New Jersey. Plants—even those that were severely cut back for cuttings—withstood the cold of last winter unprotected, without injury, and made a strong growth during the spring and summer. The flowers are white and inconspicuous, resembling Sweet Alysium in appearance, but smaller. The plant, although having 'a heath-like appearance' as described, does not possess the delicate and graceful beauty of the *Ericas*, and is not, in our estimation, a *handsome* shrub. However, its marked oddity, hardness, and strong growth, make it desirable as an evergreen shrub, and entitle it to a place in all extensive collections."—*Gardener's Monthly*.

***Chrysanthemum catananche*.** Natural ord., *Compositæ*. Linn., *Syngenesia superflua*.—Dr. Hooker says: "This,

which is one of the most beautiful plants of the Greater Atlas, was discovered in 1871 by Messrs. Ball, Maw, and myself, in valleys of that range, at elevations of 7,000 to 9,000 feet, flowering in May, and has since been cultivated both in Mr. Maw's garden and at Kew, where it flowered for the first time in April of the present year. In its native country it forms patches of a silvery green hue, and of considerable size, in rocky valleys, and on mountain slopes exposed to the sun. The [flowers are yellow and the] broad white involucrel bracts are conspicuous for their silvery whiteness, hyaline texture, and transparency, relieved by a narrow purplish herbaceous central band; their resemblance to the bracts of *Catananche* has suggested the specific name."—*Botanical Magazine*.

Lilium Washingtonianum Purpureum.—This fine Lily was imported by Mr. W. Bull, and was distributed in considerable quantity last year under the name *Lilium Purpureum*. Mr. Baker, however, in his notes on the *Tulipeæ* published in the *Journal of the Linnean Society*; makes it a variety of *L. Washingtonianum*, as no doubt it is, notwithstanding some discrepancy in the bulbs. He describes it as smaller and more slender than the type, with a stem from 1 to 1½ foot high, and whorled leaves 1 to 1½ inch long, as having from four to eight flowers on an umbel, the perianth being of a wine-purple and covered with minute dots. Our illustration, prepared from a small specimen flowered and exhibited by Messrs. Veitch & Sons at one of the meetings of the Royal Horticultural Society, shows its peculiar pyramidal habit of growth, with one of the flowers of the natural size; but in a specimen of much finer growth exhibited by Mr. G. F. Wilson, the flowers, which were several in number, were distinctly racemose: the color, moreover, on their first opening, was nearly white, with purple spots, becoming, in age, suffused with a purplish tint not deep enough to obliterate the

spotting. It is a native of Humboldt County, in California, which enjoys a climate of perpetual spring.—*Gardener's Chronicle*.

We are glad to notice that this distinct and beautiful California Lily has found its way to European gardens. This is the same Lily which has been introduced by Messrs. Miller & Sievers, of this city, as the "*Lilium sp. Eel River*." We are informed by Mr. Miller that this Lily is very scarce, and only a very few of the bulbs were obtained this season..

Hydrangea Japonica speciosa.—

This is a beautiful sub-evergreen variety; the leaves are broad and dark green, beautifully striped along the centre with pure white. It forms a dwarf and compact plant, admirably adapted for conservatory decoration, or for use in the flower garden during the summer months.—B. S. WILLIAMS, in *Gardener's Monthly*.

NEW POTATO.—Dr. Glynn has produced a new variety of Potato that excels nearly all the known varieties in most respects. This variety was propagated from the seed three years ago, and this season the doctor has raised nearly half a ton of them in his garden at the lower end of town. In appearance and taste they resemble the Kidney Potato, but are larger than any we ever saw, are very solid, cook beautifully, and are as good as we have ever eaten. The inside is slightly flecked, similar to the Neshnock. They come to maturity in from three to four months after planting, and are very prolific, a single seed-end producing from eight to ten pounds. They have been kept until the first of June in perfect condition, and no rot has ever appeared. They have been named the Glynndales.—*El Dorado Republican*.

REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPER.

It is now high time, considering the increasing importance of fruits in this State, that more attention should be paid to their nomenclature; and it is greatly to the interest of both the producer and consumer that the public should be better educated than it is to a knowledge of the correct names, character, color, flavor, and value of the different varieties of each kind. There were placed by me in the art department of the late Mechanics' Institute Fair, three picture-frames containing colored illustrations from life of a large number of the chief productions of Pomona, in great variety. They were taken from one of the first editions of Downing's work, the *Fruit and Fruit Trees of America*. They are drawn and painted on fine paper, and the book is now very rare and valuable, with illustrations so handsomely and truly engraved and colored. Every fruit is properly named and shaped according to nature, and their inspection forms quite a delightful study to many persons, but, of course, more especially to pomologists. But, as few can have access to this splendid edition of Downing, we need other modes by which a complete knowledge of our fruits can be gained. One good plan is to have all the fruit shown at our fairs labeled by the exhibitors, as perfectly and plainly as possible; better that the names should be printed, to be readily deciphered by visitors. A writer in the *Alta* makes a capital suggestion, I think, when he says: "Fresh fruit decays so rapidly, and suffers so much from handling and thieving, that a question arises whether we should not have a collection of samples of the chief varieties of

our fruit in wax, each sample to be marked with its name, its year, and its producer. Such a collection could be best made and kept in this city, and would be of much service in educating the people. Wax fruits, skillfully made, are scarcely distinguishable from the genuine articles. Inclosed in glass cases, they would occupy little space, and lose nothing by time. Kitchen vegetables might also be imitated in wax or plaster, and thus we might at any time see the most singular and wonderful specimens grown in a series of years. The different kinds of grain should be represented by the berries in bottles, and the little sheaves of heads in glass jars." I would add to this, there is no association could perform this better, or to whom it would be more appropriate, or could afford it better, than our intelligent and now rich Academy of Sciences. It would be a noble performance for them to undertake and accomplish, and would be a grand accession to their cabinet, by and by to be removed to their new hall and edifice. Money is often applied to much less useful objects than this would be. It would be expensive, but the result would be magnificent. How much such knowledge has been neglected! But it is to be hoped that better times are in store for the people, and that in the future, science of all kinds will be provided for them for their progress in education; and nothing can be more beneficial to them than to have cabinets of all natural history, and specimens exhibited to them for their amusement, edification, and instruction. I am sure this would meet the approval of the munificent Mr. Lick. It would only be carrying out his object in one of its best phases.

It is to be hoped that next year we shall have a more extensive display of

fruits at the Pavilion than we have had at the late exhibition. Four or five exhibitors, however, deserve great credit for their displays, both in flowers and fruits. Mr. Young, of Sonoma, sent sixty-seven varieties of Grapes. The collection of Apples, Pears, and Peaches, was also commendably good. The show of Japanese and Chinese fruits, nuts, cones, seeds, etc., by Miller & Sievers, was interesting. At the State Fair at Sacramento, J. R. Nickerson, of Lincoln, had the largest display of Grapes. It comprised nearly two hundred and fifty varieties. Among these was a limb from a two year-old Black Hamburg vine with one hundred and twenty-one pounds of Grapes on it, and a solid cluster of White Malagas, which, with none of the wood of the vine, weighed ninety pounds. But the most varied and interesting exhibition of fruit was that made by Ira S. Bamber, of Placerville. It consisted of seventy-four varieties of budded Apples, ten varieties of seedling Apples, sixteen of Pears, twenty-four of budded Peaches, eighteen of seedlings, and nineteen varieties of Plums. Mr. Bamber has spent nearly twenty years on his little orchard, which consists of ten acres, in collecting from all parts of the world the choicest fruits, and his fruit bears ample testimony to the success of his labors.

About the last of September there was no change in the price of Plums. The lot of Prunes then received from Oregon was very superior to any fruit of that description before offered. Blackberries were numbered, then, among the fruits that had disappeared for the season. Strawberries, from San José, became once more in season, retailing at 12½c. to 15c. per lb. Apples became lower in price. The various descriptions of Pears were in good sup-

ply at unchanged prices. Choice Clingstone Peaches commanded as high as 20c. per lb. Red Currants were once more offering at 5c. to 10c. per lb.

The market was glutted with Tomatoes, and large quantities were dumped. By the box the price was very low. Other vegetables were steady at the former quotations. Spinach was quotable at 8c.; Lettuce 20c. to 25c. per doz.; Salsify, 8c. to 10c. per bunch.; Potatoes, by the sack, delivered, \$1.25 to \$1.50 per cental. Eastern Cranberries came to hand about the 30th of September, retailing at \$1.00 per gallon. The last Peaches, probably, from Sacramento, were received. Bartlett Pears from the mountains still come forward.

Apples and Grapes were very plentiful in the beginning of this month (October). Considerable quantities of late Plums continued to come forward, but most of the varieties had disappeared. Small quantities of Strawberries continued to come forward.

We are sorry to have to quote the following from the *Bulletin's* Fruit and Vegetable Report of the 25th of September, an evil which we trust is not general: "It has recently transpired that considerable of the late fruit (such as Apples and Pears) received, has been packed with deliberate intent to defraud. The upper and lower layers in the boxes, which are the only ones exposed to the view of the wholesale and retail dealers, are made up of good fruit, and correspondingly good prices are realized, but when opened the interior is found to be stuffed with the most unmarketable trash. No one but the fruit-grower can be responsible for this, as the packages undergo no change until they are broken at the retailer's stall. Retailers, of course, complain of the cheat, and housekeepers grumble at the poverty of the fruit and the unreasonableness of

the price, as they have to foot the bill, being charged extra for selected fruit and full price for inferior. No terms of censure can be too severe to denounce these dishonest practices. The evil can be readily cured by retailers positively refusing to purchase packages of fruit other than those bearing responsible brands, in which case commission agents will take more care to ascertain what is the character of consignments."

The rains which fell about the first week in this month (October), were the means of giving the markets new vitality for some time to come, and there was, indeed, immediately after them, a visible improvement in many descriptions of vegetables, resulting in an increased demand. There was a notable change since the last part of September. Fruits in season were in good supply. Fine mountain Clingstone Peaches were very abundant. A few Freestones occasionally found their way on the stands. Grapes were selling at prices ruling the latter part of September. A few small lots of Bartlett Pears were offered at 12½c. per lb. The range for other varieties was from 4c. to 8c. The receipts of Wisconsin Cranberries about the 9th inst. were large, but prices remained steady. Strawberries were quoted at 20c. to 25c. per lb., but supply and demand were very limited. Vegetables were firm. Cabbage Sprouts are among the week's receipts; quotable at 6c. to 8c. per lb.; Red Cabbage 10c. each; Green Corn, 25c. per doz.; Spinach, 8c. per lb.; Chile Peppers, 15c.; Egg Plant, 8c.; Horseradish, a trifle easier—20c. to 25c. per lb; also Cantaloupes, being 15c. to 35c. each.; Watermelons, 25c.

An English company is at work reclaiming about 20,000 acres of swamp land near Alviso. A large force of Chinamen is employed.

THE ZANTE GRAPE-CURRENT.—J. E. Browne, a well-known viniculturist, whose vineyard is about a mile out from San José, has recently been paying attention to the cultivation of the above-named variety of Grapes. Zante Currants form an important article in our commerce, large quantities being every year imported into this country from the Ionian Islands, on the western coast of Greece, formerly under the protection of Great Britain, who ruled them under a Lord High Commissioner, but since formally ceded to Greece. The Currants form the principal article of export from the Ionian Islands, immense quantities being sent yearly to Great Britain and the United States. Californian Grape-growers are now turning their attention to curing Grapes for raisins, which bids fair to become an important industry among us. But the consumption of Currants is little less than that of raisins, and if we can cure the latter and make a profitable trade from it, there is certainly no reason why the Zante Grape-currant cannot be extensively grown and utilized in a similar manner. As yet, Currants do not form an item in California commerce, but they will do so before long. Mr. Browne has several of these Zante vines grafted on to old Mission stocks under ground. They yield as prolifically as the Mission Grape. The Zante Grape grows in large handsome clusters, is white in color, is very sweet and juicy, the Grape itself being but little larger than a good sized Pea. Some few that had dried on the vine I tasted, and no person could have recognized the difference from the imported article. The cultivation of the Zante Grape is worthy the attention of viniculturists, for supplying the Californian and Eastern markets with the dried fruit.—*San Francisco Call.*

Editorial Cleanings.

AN ORCHARD IN THE MIDST OF A DENSE FOREST.—Some twelve miles below this city, says a correspondent of the *Inter-Ocean*, writing from Fort Madison, Iowa, are situated some very fine-looking Apple-trees growing in the midst of the forest. For a long time their origin has been a matter of conjecture. The peculiarities of these trees are: First, the shape of the leaf, which is much larger than the ordinary Apple-leaf, being long and quite slender. Second, they bear fruit of the finest flavor, and parties come for miles around to taste them, and some take leaves, and press them to keep as curiosities. An old settler who resided in this part of the country before Black Hawk and numerous other Indian chiefs left, gives us the following information: He says that the honor of planting these trees lies between the respective tribes. St. Louis being the central trading-point of the "Far West" at the time, these tribes of Indians had to go there to procure supplies of General Clark, who was acting as agent of Indian affairs at that point.

He informs us that between the years 1795 and 1798, Red Wing, then a famous young chief, on his return from St. Louis, spent a few days at St. Charles, Mo., then a small settlement, now a flourishing city. While there, he was given a few Apples to eat, which he seemed to enjoy very much, and asked for some of the trees. One of the settlers procured some twenty-five young sprouts, carefully covered the roots, and gave him the necessary instructions for planting them. These he carried a distance of one hundred miles to his home, and planted around his wigwam. Black Hawk gave this as the "true origin of the trees." They are nearly one hundred years old, and, from present appear-

ances will live the balance of this century.

WHAT FIVE YEARS WILL DO.—Those who would understand what may be done in a few years on a small piece of land in Los Angeles Valley, should read the following: Five years ago J. E. Reed purchased eighty acres of land just west of the Adams Street terminus, for which he paid \$700. It was bare ground and entirely unimproved. To-day the entire plat is surrounded on every side with Monterey Cypress. On the north side two rows of trees—one each of Cypress and Eucalyptus—are set out. Inside of the green-walled inclosure is the work of Mr. Reed. His nursery contains 4,000 Orange-trees that are five years old, and 40,000 younger trees, some of them Lime and Lemon, but the great majority Orange. There is also an orchard of Apple, Peach and Pear trees. The Lime-grove contains 160 five-year-old trees. The proprietor is preparing to set out an Orange-grove of forty acres. The remainder of his land he will plant with other varieties of semi-tropical trees. When irrigation was necessary, it was done entirely with water raised by horse-power. Mr. Reed, however, has just purchased a large Wilcox steam-lifter, which he will use for raising water hereafter. The value of this little piece of ground is perhaps, \$30,000 or \$35,000. The five-year-old Orange-trees are worth \$2.50 each, to say nothing of the 40,000 smaller trees, the Lime-grove, and the long lines of Cypress. It is a valuable and beautiful home, and has all grown out of the ground in five years. What Mr. Reed has done hundreds are doing, and thousands may do. But here comes in the question, What are we to do, and on what are we to live during the five years our trees are growing? The an-

swer is, Cultivate your ground with grain and small fruit. Your nursery will take up but a small space, and the remainder of your eighty acres you may plow and sow—and reap. This is the way Mr. Reed lived and thrived, and others may do as he has done.—*Los Angeles Herald*.

SOMETHING MORE ON THE EUCALYPTUS.

—The properties and attributes of the Eucalyptus are being discussed all over the world, and there seems to be no end to the virtues ascribed to this wonderful tree. French scientists claim that it has acted as a disease-destroyer in Algeria, and that malignant fevers have disappeared from districts in that country since the tree has been extensively introduced. A French chemist has extracted from the leaves an essence similar to camphor, to which he gives the name Eucalyptol, and which, he states, exercises upon the system the same beneficent action as most other essential oils. In the island of Mauritius the leaves of Eucalyptus are extensively used as an antidote to malarial fever.

The Australians, where the tree is indigenous, also claim to have discovered some new virtues. When the English began to colonize Australia there were no bees there. Several swarms were introduced and turned into the forests, where ninety-nine per cent. of the trees belong to the Eucalyptus species. It has now been demonstrated, say the Australian journals, that the flowers of these trees produce largely of honey. A Melbourne chemist makes the dried leaves into cigars, and urges their use in cases of bronchial and pulmonary complaints. Some few years ago, before coal had been so extensively developed in Australia, the question was discussed whether the resinous qualities of the tree and leaves could not be utilized in the manufacture of

gas. Possibly some of the statements which have been made regarding this tree are exaggerated, but actual experience in California has demonstrated sufficient concerning it to encourage its extensive planting.

A NEW TREE.—Every new forest-tree which can be added to the small variety of hard woods in this State is of the greatest importance. We have now a good variety of Gum-trees propagated here. There is a great difference in the durability of the wood now furnished by these trees. The teredo, we believe, attacks all but two or three kinds. Those which makes the slowest growth, as the Iron-wood, are the most durable. In Australia the Jarrah-tree, a species of mahogany belonging to the family of Eucalyptus, is most highly esteemed. It is as hard as ebony, and the teredo will not attack it.

We have before us a sample of an Australian tree with the botanical name of *Syncarpia laurifolia*, raised from seed procured and planted by R. J. Trumbull, the seedsman on Sansome Street. His memorandum is as follows: "It is remarkable as being a most difficult wood to consume by fire, as it can not be burned unless considerable trouble is taken to keep the fire alive. It is also peculiar as a timber which that very destructive worm, the coora or teredo, will not penetrate; hence it is the most suitable for piles for wharves, etc., and in such situations it must prove extremely valuable. The tree attains a height of from 150 to 200 feet. I call it the Salamander-tree."—*Rural Press*.

ACCORDING to the *Humboldt Times*, Prunes equal in size to any produced elsewhere in California, have this year been raised in Humboldt County.

TRANSPORTATION OF SEMI-TROPICAL FRUIT TO THE EAST.—On this subject J. J. Warner, of Los Angeles, thus writes to the *Express* of that city: "As the question is frequently asked, and as a negative answer is usually given—Can our fruit be sent to the Eastern States from Los Angeles and reach its destination in good condition?—I will tell my experience in that matter. On the 16th of June last I packed a redwood box with Oranges, Limes, and Lemons, and sent it hence that day, by Wells, Fargo & Co's Express, to Lynn, Conn. The agent informed me that it would be twelve days in reaching its destination. The Oranges were freshly gathered from the trees—part of them from B. D. Wilson's orchard, and a part from that of Mr. Wolfskill. They were all fully ripe, and in fine condition for eating. Each Orange, Lime, and Lemon was separately wrapped in thin white paper. In the bottom, top, and sides of the box a large number of half-inch holes were bored. The person to whom they were sent writes me as follows: 'The box of fruit came in due time and in excellent order, and all agree that they never tasted such delicious Oranges. There were only two of them touched with a speck of decay. We enjoyed them very much.'"

A NEW FLORAL ORNAMENT.—A writer in *Les Mondes* suggests a new idea for floral decoration. An ordinary earthenware flower-pot is filled with water, and allowed to stand until its porous sides are completely soaked. The water is then thrown out, and the pot is repeatedly dipped until it will absorb no more, and its outside becomes thoroughly wet. On the outer surface fine seed is thickly sprinkled and allowed to remain sticking thereto. The pot is then refilled with water, and set in the shade under

a bell-glass. In a short time the seeds will germinate and throw out shoots, so that, to prevent their falling from the pot, some thread or wires must be repeatedly wound around the exterior of the latter. Eventually the entire vessel will become a mass of living vegetation, which is nourished by the percolation of the water contained within through the porous sides. A non-porous receptacle may also be used, but some thick cloth must be wound about its exterior and the seed sprinkled thereon. This cloth is kept continually moist by repeated applications of fresh water.

GRAPES AND THEIR CULTURE.—It is surprising that so many families in the country are willing to live year after year without cultivating a single Grapevine about their dwellings. They are compelled to purchase this delicious fruit for the table or not taste it during the season. There is a common impression that to cultivate Grapes perfectly, a vast amount of knowledge and tact is required. To many the simple trimming of a vine is a mystery. This is an erroneous view and ought not to prevail. Any person of common intelligence can learn in an hour how to trim and nourish vines; and if instruction can not be obtained from some experienced cultivator, there are books filled with cuts and illustrations which make everything plain.—*Science of Health*.

GUANO VS. PHYLLOXERA.—It was announced at a recent meeting of the Académie des Sciences, that the methods adopted in the Department of the Hérault for flooding the vineyards with water strongly infiltrated with guano, have proved perfectly successful in destroying the phylloxera, and arresting all traces of disease produced by its

presence. It is reported that by the use of these guano floodings the most severely attacked plants have been restored to a healthy condition in a very short period, and have exhibited their normal vigor and productiveness. Various experiments are at present being tried in the department to ascertain the simplest and most efficacious method of employing guano; and also to test the practicability of the schemes that have been proposed for destroying the insect by the abstraction of the oxygen from the surrounding medium; but this process, although it may be feasible in theory, is beset with almost insurmountable practical difficulties when it has to be applied to widely extended areas.

COMPOST FOR FLOWERS.—In cleaning off the garden and flower borders, there is more or less of leaves, litter, etc., that must be disposed of in some way. Take it and make the basis for a compost heap for the winter: empty all the coal and wood ashes of the house over it, as they accumulate from time to time; save all the bones and refuse of the kitchen, and all the greasy dish-water, and the chamber-lye, and add them daily to the heap. Gather, if you can, from the blacksmith-shop or elsewhere, iron filings or scales from the hammering of heated or rusty iron, the parings of horse hoofs, and, with a little of sharp sandy soil, add them to the heap. This, well mixed, in the spring will form one of the cheapest fertilizers for all kinds of flowers in the open border.—*Horticulturist*.

CATALPA FOR POSTS.—The fact that Catalpa-wood almost if not quite equals Locust for durability when set for posts has long been known. The tree is injured by the winter in the colder portions of the Northern and Eastern States,

but though put back in its growth will establish itself upon good soils and grow well. It is one of our most ornamental trees both for bloom and for foliage, and on account of its rapid growth is a favorite in lawns and long avenues. The annual rings seen when the stem is sawed across are often one inch in thickness, and this gives the wood great beauty when worked for furniture or put to other like uses. In the Southern States, it thrives on good soils and will run up tall when planted close, which is very different from its habit when standing alone.

THE GRAPE AS FOOD.—The venerable editor of the *New York Evening Post* has a world-wide fame as a poet, but to this accomplishment he also adds an extensive literary and scientific reading. His observation and experience have been vast; his recommendation should therefore go for something, although we believe he has no pretensions as a physician. He says to his readers:

“Emphatically, we say that Grapes are strong food; that in them we have not only the most healthful and the only naturally adapted sugar, called by chemists Grape-sugar—ininitely superior to that chiefly exotic product, cane-sugar, being more digestible, more natural, and more healthful, especially for sedentary persons in temperate climates—but we have, also, the healthful acids and a notable amount of those nitrogenous essentials which are blood-makers, not to speak of the various salts which also become necessary constituents of the blood.”

The public generally do not realize what has been discovered in Europe, to wit: that the free use of Grapes will work a complete cure in certain diseases. To such an extent is this idea carried, that “Grape-cure” establishments are thronged with invalids. The treatment consists in making the diet of the patient

consist in great part of Grapes. We doubt not thousands of persons will eventually come to California annually in order to receive benefit from a free use of Grapes.—*Call*.

THE LARGEST LILY.—Rev. R. Wylie, of San Francisco, has a *Lilium Arum* in bloom. The flower is very large, measuring in length nearly two feet six inches, and of a deep maroon color. One disagreeable thing about it is, that when the sun shines on it, it smells worse than carrion. Lyell's Encyclopaedia has the following in regard to this remarkable Lily: "The Dragon-root or Jack-in-the-pulpit, inhabitant of wet lands, is common in the United States. Its scape 8-12 high is erect, round, embraced at the base by the long sheaths of the petioles; fruit, a bunch of bright scarlet berries. The corm loses its fiercely acrid principles by drying, and is then valued as a carminative. The corms of the *Arum maculatum* are macerated, steeped, and the powder obtained from them is eaten by country people in England under the name of Portland Sago. They are universally cultivated in India."

MAGGOTS IN APPLES.—Mr. D. A. Learned brought to the Mechanic's Fair a plate of Apples for the purpose of showing the ravages which a certain kind of insect is making in the Apple-crop. He states that while the tree is in blossom the male crawls up the tree into the blossom, where he is joined by the female, which flies there, and an egg is deposited. This develops as the Apple matures, until it works its way out and flies off. Mr. Learned states that it is the same insect that is so destructive to the Apple-crop in the Eastern States. His theory is that the insects were imported into the State in Apples

brought across the continent, and have continued to multiply until they are likely to become a pest to the fruit-grower. This is the second year Mr. Learned's trees have been troubled with the insect, and he knows no way of getting rid of it.

FROM THE SUBLIME TO THE RIDICULOUS.—An illiterate keeper of a fruit-stand on Broadway, New York, labels his Beurré d'Anjou Pears "Dan Jo." This is as bad as in England, where the Josephine de Malines Pear is called "Joseph on the Palings." And the French give a special twist to "L'Abstone Quidney" Potatoes, while the English are satisfied with Lapstone Kidney.—*N. Y. Horticulturist*.

At an auction of a collection of Orchids, some plants of *Aerides Shroderi* and of *Dendrobium Falconeri* sold for \$60 each.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING SEPTEMBER 30TH, 1874.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office.)

BAROMETER.

Mean height at 9 A. M.....	30.03 in.
do 12 M.....	30.03
do 3 P. M.....	30.02
do 6 P. M.....	30.01

Highest point on the 22d, at 3 P. M.....	30.14
Lowest point on the 14th, at 6 P. M.....	29.86

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.....	62°
do 12 M.....	68°
do 3 P. M.....	67°
do 6 P. M.....	60°

Highest point on the 2d, at 12 M.....	86°
Lowest point on the 18th and 29th, at 6 P. M.....	53°

SELF-REGISTERING THERMOMETER.

Mean height during the night.....	55°
Highest point at sunrise on the 15th.....	66°
Lowest point at sunrise on the 9th.....	48°

WINDS.

East on 2 days; north and north-west on 11 days; south-west on 3 days; west on 14 days.

WEATHER.

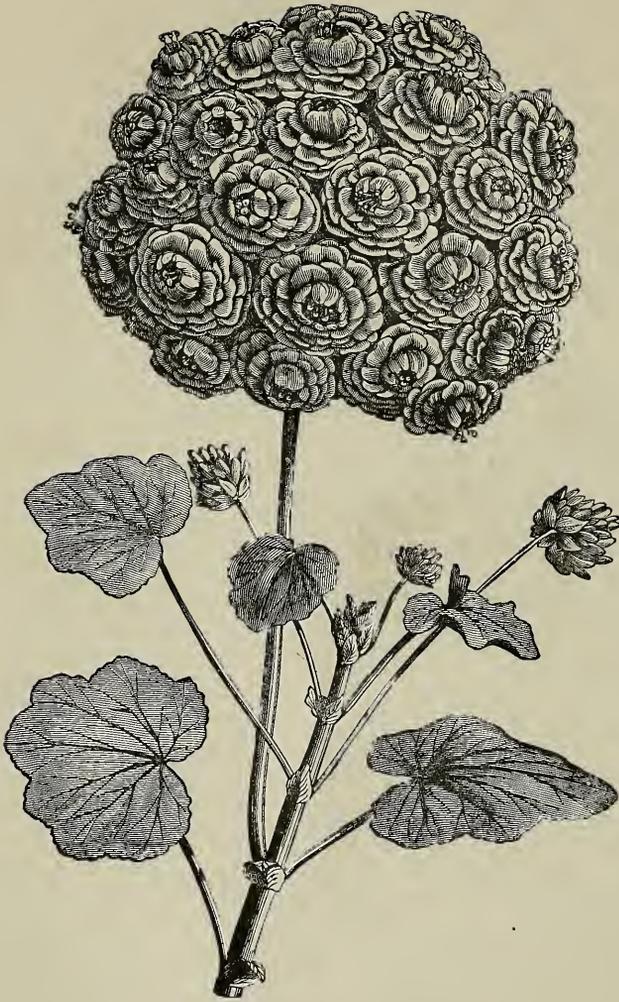
Clear on 13 days; cloudy on 4 days; variable on 13 days.

RAIN GAUGE.

3d.....	0.02
30th.....	0.06

Total..... 0.08

Heavy thunder and lightning on the 3d, at 11 A.M.; lightning on the evening of 29th; thunder and lightning on the 30th, from 6 to 7.30 P.M.



DOUBLE WHITE GERANIUM.

(Aline Sisley.)

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. IV.

NOVEMBER, 1874.

No. 11.

HIBISCUS.

BY F. A. MILLER.

The Hibiscus (natural order, *Malvaceæ*) comprise a number of flowering shrubs which deserve our attention much more than we are accustomed to bestow upon them. All the varieties produce flowers freely, and while some of them are well adapted for the greenhouse and conservatory, we find others to be perfectly hardy in the open air.

Hibiscus rosa sinensis, native of Asia, is frequently met with in our conservatories, and some of its varieties are undoubtedly hardy here, and could be cultivated in the open air, if a fair trial was given. In their native country they grow to the height of twenty-five feet, and form objects of great beauty. A very pleasing habit of these shrubs is, that they bloom when very young. Plants raised from cuttings flower during the first year. As for the varieties of the *Hibiscus rosa sinensis*, we find them with double as well as single flowers, white, red, purple, yellow, and variegated. The flowers themselves are most elegant in form and in color, measuring fully two inches in diameter. Every one of the varieties is worth cul-

tivating, and succeeds well under ordinary treatment.

A most elegant variety is *Hibiscus Cooperii*, with extremely handsome variegated foliage, producing a most brilliant flower of a rich, dark purple. This is one of the prettiest plants for the conservatory, being effective in all its stages. Although it has been cultivated for a number of years, it is yet rarely met with on this coast.

Hibiscus alba variegata is of late origin. As a variegated foliage plant it is also very remarkable and pretty. I do not know what the color of its flowers is. The plant we imported from England last summer I believe is the only one on this coast.

Hibiscus Syriacus (commonly known as *Althæa*) is a hardy shrub, and while many varieties have been cultivated in the gardens of the Eastern United States for a number of years, I have met with but very few plants on this coast. It is certainly well adapted to our climate, and being a late bloomer, is much more valuable for California, inasmuch as during the autumn months but few shrubs grace our gardens with their flowers. The flowers of this *Hibiscus* are large and very showy,

and are produced in great abundance. Like the *H. rosa sinensis*, it comprises a number of varieties, with white, red, and blue flowers of various shades, both double and single. These shrubs are certain to become popular with us as soon as they can be readily obtained in our nurseries. They will form a fine contrast with our Australian shrubs and trees, which we find almost exclusively in our gardens.

All varieties of the *Hibiscus* are easily propagated from cuttings, and make in one season plants strong enough to flower well.

I must not forget, before closing this communication, to state that a very handsome variety of this hardy *Hibiscus* has been introduced of late, having variegated foliage, which in itself is a very striking ornament to the garden.

Although the varieties of the *Hibiscus Syriacus* are deciduous shrubs, they retain their foliage much longer with us here than they do in the East, and in some cases I have noticed the foliage to be persistent during the entire winter season.

ORIGIN OF THE FORGET-ME-NOT.—This popular tradition, which tells how the name came to be applied to the plant which now bears it throughout Europe, is not generally known. It is said that a knight and a lady were walking by the side of the Danube, interchanging vows of devotion and affection, when the latter saw on the other side of the stream the bright blue flowers of the *Myosotis*, and expressed a desire for them. The knight, eager to gratify her, plunged into the river, and, reaching the opposite bank, gathered a bunch of flowers. On his return, however, the current proved too strong for him, and, after many efforts to reach the land, he was borne away. With a

last effort he flung the fatal blossoms upon the bank, exclaiming as he did so, "Forget me not!"

THE EUCALYPTUS.

The growth of the *Eucalyptus* is declared to be almost fabulously rapid; but even this term fails to convey an adequate idea of the rate at which the interest in this tree has grown in the public mind. And as popular manias are represented at Washington—with some other failings of the American people—we find that the *Eucalyptus*-tree has taken root there. A firm in San Francisco recently received an order from Government for a large quantity of the seed of this tree. A portion of the order has already been filled, from an invoice received a few days since per ship "Tartar." For the balance Uncle Sam will be compelled to wait awhile; until San Francisco can catch another "Tartar," or some other ship from Australia.

The avowed object of Government in ordering this seed, is to plant the *Eucalyptus* in places where miasma prevails to an extent that almost unfits them for dwelling-places for man, but where it is necessary that we should maintain military posts. In this far-sighted provision for the health of our soldiers, Government has acted considerately and we think wisely; for although the prevailing estimate of the power of the *Eucalyptus* in dispelling fever has itself become almost a fever, its claims in this respect are admitted by those whose heads are not turned by anything sensational. Whatever may be the effect of the *Eucalyptus*-trees on the health of the posts where Government plants them, the country will receive a large return in valuable timber; the value in-

creasing as the time of the return is deferred.

We would take this occasion to put the public on their guard against planting seed from the Eucalyptus grown in California. They will not germinate. The tree produces seed in abundance here. We have at the present time some of them in the office of the *Press*. They are all right as far as appearance goes; but those who are well posted in the matter, and could make money from the sale of them were they so disposed, declare they are valueless. Use none but imported seed.

We give below a portion of an article from the *Evening Post* on the value of the wood of the Eucalyptus-tree. The article was contributed to the *Post* by Charles J. Fox, of San Francisco, and contains much valuable and interesting information. There are worthless species of the Gum-tree and there are valuable ones. There are some (the South Australian Stringy Bark, for instance), which rot under ground as easily as our Redwood, and there are others which will stand intact for a quarter of a century; and while farmers and others in California are planting Gum-trees, it behooves them to make a proper selection.

The Jarrah, or Mahogany, of West Australia (a species of Eucalyptus), has a world-wide reputation for durability, and very justly so, for I have seen a Jarrah bridge-pile, after twenty-five years, taken up as sound as the day it was driven. The surface of the same pile was planed and polished and exhibited at the last World's Fair in London.

I have noticed that the museums of the other Australian colonies make a point of placing specimens of the Jarrah in a prominent position, with incontestable proof that it resists the ravages of the teredo, is impervious to the white

ant, and possesses death-dealing properties to all insects that infest and destroy timber.

Jarrah is one of West Australia's chief items of export. The other colonies have discovered and appreciate its value for wharf and ship-building purposes; and India rejoices in the fact that whereas heretofore all its railway sleepers have succumbed to insects, the insects now succumb to Jarrah sleepers.

This Jarrah is a dark-colored wood, somewhat resembling Rosewood, and is hard, heavy and close-grained. It is adapted to all purposes, and is never complained of in any way except by carpenters, who say that the wood is so hard as to induce the belief that it was never intended to be worked up.

Well, what I started in to say is, that while our people in California are setting out Gum-trees in such large quantities, they should plant none but the best species. By and by there will be a demand in this State for durable timber for fencing and other purposes, and many who are now planting Australian Gum-trees will then be astonished to find that their timber is of no use for durability, and will make but very indifferent fire-wood.

I am inclined to believe that all the species of Eucalyptus which are now in this State came from the colonies of Victoria and New South Wales, which colonies acknowledge the superiority of the West Australian mahogany to any of their native timbers by importing it from West Australia.

The Jarrah, I have not the slightest doubt, will flourish as luxuriantly here as any other species, and the seed can be obtained as cheaply and in as great a quantity as that of any other variety; but I suppose it will be found necessary to import it from West Australia.

I have no axe to grind in this matter,

and am actuated only by a desire to give a little information upon a subject that may possibly, prove of more importance in this State than is now supposed.—*Rural Press*.

NATIVE GRASSES OF CALIFORNIA.

BY DR. HENRY DEGROOT.

As the season has arrived for the native grasses of California to renew themselves, some remarks upon the several kinds indigenous to this State would be timely. The varieties of our natural grasses are quite numerous and many of them wide spread and highly nutritious. The most abundant, if we include its different varieties, is the Bunch-grass (*Festuca scabrella*) found growing in all parts of the State—and, indeed, nearly everywhere west of the Rocky Mountains. Instead of being scattered or springing up in small stools closely set together, like Rye, Timothy, and many other grasses, the blades of this grass grow up in widely separated tufts or bunches; hence the name. Of one variety the bunches are large, from six inches to a foot or more in diameter, the blades reaching in height from fifteen to thirty inches. A species of this kind, called Grama-grass, is very abundant in south-eastern California and Arizona. The clumps are large and stand comparatively close together, affording an immense amount of feed. Aided by a strong root and the occasional showers that occur in that region, it remains green and succulent during the greater part of the year; cattle feeding upon it at all times with avidity. A variety something like this, though not so large or nutritious, abounds throughout all parts of our Pacific States and Territories; there being in Central Nevada tracts covering

many thousand acres, where this grass grows with wonderful rankness.

Another kind of Bunch-grass grows in small scattered stools, the leaf being very delicate. This kind never reaches above ten or twelve inches in height. It is extremely sweet and tender, and bears on its top a cluster of small black seeds strongly resembling when ripe those of the Onion. These, which taste not unlike parched Wheat, are gathered by the Indians, who esteem them a great luxury, while horses and stock prefer them to any kind of grain.

Animals love the grass also, while green, more than any other kind. This species of Bunch-grass grows only in the most arid and barren places. It is not often met with in California, its habitat being in the desert region farther east. There is a variety very like it produced in this State, save that it lacks the peculiar seed. It consists of the little velvety tufts that spring up with the first rains on the hills about San Francisco and almost everywhere else in California.

There is also a small species called Sheep's-grass—by the botanists *Festuca ovina*—found growing sparsely on the hills. Though scanty, the cattle, especially the sheep, are fond of it.

In its habits the Bunch-grass is singular and not very well understood. Sometimes it will grow with great rankness in rich moist soils, and again equally so on the sandy and arid deserts. The choicest variety, that which bears the comestible seed, grows only on the most barren plains, while the more common kind seems to have no preference as to soil and locality, thriving as well seemingly in one place as another. This grass propagates itself from the root which is perennial, and to some extent also, no doubt, from the seed.

If we consider the Wild Oat (*Avena*

fatua), one of our indigenous grasses—and practically it is such—this will be found to be one of the most extensively disseminated of the California family, being met with on the plains and the hills from one end of the State to the other. The only place where we miss the Oat growing wild is on the more extended deserts and the higher mountains. The Oat, however, is not native to this coast. It was brought here by the Spaniards over a hundred years ago, and from their plantings, made first in the extreme southern end of the State, spread afterward in every direction. Forty years ago it had not made its appearance north of the Bay of San Francisco, there having up to that date been but few settlements made on that side of the bay.

Like other grains this is grown only from the seed, the roots being annuals. The berry through lack of cultivation has so degenerated that the straw is never thrashed; yet the kernel possesses sufficient vitality to reproduce itself. To enable it to accomplish the act of self-sowing, nature has provided the capsule of this grain with a long jointed beard similar to the leg of the grasshopper. After ripening this capsule falls to the ground, still retaining the berry in it. With the swelling and shrinking caused by the alternations of moist and dry weather, so much motion is communicated to this beard-like projection as to cause it to advance several feet, carrying the grain with it and scattering it in every direction. So sudden and considerable are these movements sometimes, as to have led to the belief with many that these jointed beards are instinct with a sort of animal life. The wind, blowing these feathery capsules about, further helps to distribute the seed.

Until within the past ten or fifteen

years, most of the hay used in California was made from the Wild Oats, this also formerly constituting the bulk of the earlier pasturage. With the plowing up of much of the oat-bearing ground and the constant cropping of the stalk by cattle before the seed has reached maturity, it is fast dying out, and in a few years this grain will have entirely disappeared in all the agricultural and more densely stocked sections of the State.

Where the Wild Oats have been extirpated by over-close feeding, there springs up often what is called the Squirrel-grass (*Atrophies Californica*). This herbage is perennial, but of no value either for hay-making or pasturage.

Among our aboriginal grasses none possesses greater value to cattle raisers than the Alfilerilla (*Erodium cicutarium*), popularly called Pin-grass, from the long slender spikes it bears. From its resemblance to the Geranium it is also sometimes called the "Wild Geranium." Its powerful root and great mass of stalk and leaves hugging the ground enables it to resist the drouth, while it affords to stock a large amount of nutritious and palatable food. It grows on the hills and in the valleys, preferring the coastwise climate.

California produces several kinds of native Clover, the principal consisting of the Red, the White, and the Bur. In moist localities or with irrigation the White Clover, bearing a yellowish-white blossom, grows to a height of two feet or more, while in a poor or dry soil it reaches scarcely more than three or four inches in height. Green or cured, there is no more acceptable food for animals than this, and the California Indians were accustomed formerly to feed extensively upon it while green, eating it both raw and boiled. The Bur Clover has a wide distribution in

this State, and as a food for cattle late in the season is of much value.

The stalk bears a cluster of small round burs, the seed of which abounds with a rich sweet oil. Stock do not care much for the plant while green; but late in the summer, when the stalk itself is dead, these berries fall upon the ground, and are licked up by the sheep and cattle and eagerly devoured.

Among our native grasses of less importance in a practical point of view, may be enumerated the following: The Bearded Darnel (*Lolium tremulentum*) common in grain-fields, and poisonous to both men and animals, though said to fatten chickens and hogs; Wild Barley (*Hordeum Pratense*), occasionally constituting the greater bulk of the grass found in meadows; Wall Barley (*Hordeum murinum*). If suffered to get into the meadows, it deteriorates the value of the hay, its coarse beards injuring the mouths of the horses. Late in the summer a species of grass covers the hills in many parts of the State, called the *Milium lendigerum*, and according to Cooper, a standard authority in all that relates to the botany of this coast, is to be classed as an indigenous plant. Its value as a grass has not yet been determined. The *Airanthonioides* forms a large proportion of the grass in some meadows, while again in many others it is entirely absent. It is an annual, and affords but little hay. On the downs about San Francisco, and generally on the sandy knolls bordering on the sea, is a sort of coarse, heavily jointed running-grass, called in botany *Brizopyrum Douglasii*. It runs along the ground like a vine, and spreads rapidly, every joint sending down a root. Only the goat feeds upon it. Another species of this grass, called Spike Grass, grows in soils impregnated with salt. It is also useless

for fodder. The *Lophochloa Californica* grows in damp soils all over the State. It has a delicate tapering culm, with slender branches and leaves. So fragile is the stem that when ripe, unless protected by other herbage, a moderate breeze is sufficient to break it off; after which the feathery mass being rolled about is gathered into long and tiny windrows. Animals are fond of this grass.

Besides the foregoing there is a variety of native grasses found growing on the salt marshes and tule lands in different parts of the State. But few of them, however, are of much value for either hay-making or pasturage.

Of the cultivated grasses almost every variety is now being grown in California, very often merely in an experimental way. The great trouble with these exotics is, that unless irrigated, or planted on natural meadows where there is much moisture, they die out during our long dry summers; furnishing but a single crop unless resown. The Alfalfa, when once fairly rooted, becomes perennial, but the roots of the other cultivated grasses, unless they have moisture constantly supplied to them, are apt to lose their vitality in a single season.

THE BANANA.

The *Florida Agriculturist* contains the following upon the culture and treatment of this fruit and the characteristics of its varieties, which we are sure will interest the readers of the HORTICULTURIST. There are several varieties of this fruit cultivated in the Island of Jamaica. Of these the *Martinique*, as named there, but called here the *Jamaica*, is considered the best, as being hardier in growth, easier to cultivate,

not easily blown or broken down, and the nicest for eating. They bear in one year after planting. The bunches are very large. We have seen some that a man could not lift. The fruit is long, and is of a rich yellow color. They are often brought here from Nassau. Once planted they require no care, but will continue growing, suckering out, and bearing in the high woods. They will grow in any soil, but prefer gullies or damp places close to a river or spring. All other sorts of Bananas have been cast aside since these were introduced into the island.

Another long Banana called the *Tiger*, from the skin of the fruit being striped with black, is grown in some places, but the fruit is not considered so good.

The *Otaheite* is another of the same class of the long Bananas. The fruit must be very ripe before fit to eat. The flesh is of a rich strawberry color. They are seldom grown, as they root up very easily and can not bear the weight of the bunch. They are not a profitable kind to grow.

Of short Bananas, *first* is the dwarf or *Chinese*, not growing more than four or five feet high, with a strong, stout body. They bear large bunches of fruit hanging nearly to the ground, and stand firm, but the fruit is of no account, and is usually used as a vegetable, the same as a plantain.

Second. The *Redskin*.—This is a strong-growing plant, bearing large bunches of handsome-looking fruit, and is most salable in this country, but not considered equal to the Martinique in Jamaica.

Third. The *Apple*.—This is not a profitable Banana to grow. The bunches are medium size, and the fruit about the length of a person's finger and very delicious, but the stalks root up

easily, and they require more cultivating.

Fourth. The triangular Banana, usually grown here, is the meanest of all the Bananas. The bunches are medium size, but the fruit is not a nice one, being too slimy. They should be baked before eating.

There are some other varieties grown, but those we have mentioned are the only kinds that are commonly met with in the West Indies.

Every negro hut has Bananas growing around it. They are manured with ashes from the kitchen. As the bunches are fit they are cut off and taken into the house to ripen, for Bananas that ripen on the stalks are not near so nice, as they contain a strong alkaline juice which exudes from the stalk when cut off. The fruit should be allowed to fill out and be fully grown; the bunch is then cut off and hung *upside down* to ripen in the house. The green fruit can be used as a vegetable, by peeling off the skin, washed and boiled, and mashed up with butter and lard, and pepper sprinkled over it. A favorite way in the West Indies is to boil them with salt beef or pork, and mashed up with some of the fat skimmed off the water. When ripe the fruit can be made into pies, same as apple-pies, or a pudding, by peeling them; then place in a dish and pour butter and sugar that has been rubbed together over them, and bake. They are very delicious done in this manner. Many inquiries have been made to us about protecting the plants from frost. We do not think that any Bananas will stand the frost and cold; the leaves are so thin that they are susceptible to any extreme, but some of the species may do better than others here. In the West Indies, when the stalk comes up spindling and weak, it is cut off just be-

low the leaves; this does not kill it, but has a beneficial effect in making it thicken out and become stronger. We think that if this plan was adopted with those that had been affected by frost it might have the same tendency, but it should not be done until the cold weather has entirely passed away and the plants show an inclination to grow. As the bunches are cut, the stalk should be cut down to within a foot of the ground, cut into pieces and placed around the roots; the same with the leaves. This is returning to the land a part of what has been taken away. The juice of the stalk is good for clarifying sugar. The young leaves of the spire are used for dressing blisters; very cooling and soothing when placed on after the blister is clipped.

We would not advise flooding the roots in the winter, for the frost is seldom severe enough to injure them; it is the leaf that suffers. When plants with young fruit are caught by the frost before coming to perfection, we think it is the best plan to cut down the whole stalk at once and chop it up, covering the roots with it. This will enable the plants that are standing to receive the full nourishment on return of spring, instead of wasting its strength on a part that will never come to any good. In the West Indies, if the Banana-plant is highly manured, the stalk, or body as it is called there, will grow very large and succulent, but at the expense of the fruit, the bunches being small. Ashes have been found to be the best manure that can be given, with an occasional sprinkling of salt.

LORD RODNEY took a French ship from the Isle of France to St. Domingo, with a large collection of oriental exotics, and a few plants of the real cinnamon, in 1782.

ABOUT GRASSHOPPERS.

BY DR. W. P. GIBBONS.

Our agricultural friends in Kansas and Colorado appear to be exceedingly exercised on the grasshopper question. They write in dismal eloquence on the ravages committed by this gregarious animal. The editor of the *Boulder News* recently borrowed an amiable jack and took an excursion round the country to get sight of a grasshopper. Though the animals flew so far away before his valorous charge, that he failed to realize his expectations, he saw where they had been, and stopped the mule near Dry Creek, his attenuated index was pointed to a Corn-field, and, with tears streaming down the gutters of his cheeks, he exclaims: "There the stalks stand leafless, trimmed like an Iowa Sorghum patch, stripped standing, ready for crushing." On arriving at Carnahan's his exhausted frame was well cared for, and after recuperating, he spread out his profound knowledge of natural history, by telling his readers that the "grasshopper is a filthy fowl, poisoning everything it touches."

A correspondent of the *Colorado Farmer*, who in the midst of sorrow is not disposed to "hang his harp on the willows," thus mournfully discourses:

"The melancholy days have come,
The saddest of the year;"
And festive hoppers dismal hum
Around the ranchman's ear.
The territorial air is full,
And terra-firma hops!
Ten hundred billion hoppers pull
And gormandize the crops.
On baking bread, and growing grain,
The coolest of the clan
Eat solemnly in grim disdain
And grin contempt of man!
The harvest-hopper "bill of fare"
Beats Paris-ites and Jews!
And nature pays a tribute rare,
To man is left "the blues!"

We have no authentic information as to the species of this grasshopper. That which has at times infested the Atlantic States is the *Acrydium (Catoptenus) femur-rubrum*; it is from three quarters of an inch to one inch and a quarter. The *Canada Farmer* has endeavored to elucidate the question; and it also enumerates the periodical visitations of the insect. Upon the authority of the Rev. Cyrus Thomas, it avers that the western grasshopper is a different species from the *femur-rubrum*. In its migrations it frequently alights amid the common Eastern species, but never mixes with them; and when the migratory species leave, they fly away in masses without taking the common species. It is possible that Mr. Thomas has overlooked the *Acrydium alutacum*, which abounds in southern Pennsylvania, and which is reported as being on the increase. This species is two inches long, and is capable of doing greater mischief than the smaller one. As yet there has been no serious visitation of these insects in California; though there are several species which make an annual appearance in limited numbers. The Digger Indians formerly depended on the grasshopper crop as one of their staple articles of winter food. In October they may be seen forming large circles on meadow land, and with brush in hand driving the insects toward the centre. When fairly corralled, some of the number enter the area and bag the game, which they subsequently roast and dry. As an article of food the grasshopper is not peculiar to the Indians. It is eaten in warm parts of Africa, where they are deprived of their wings and preserved in lime, in which state they form an article of commerce. The *Acrydium migratores* is common in Poland. The south of Europe, Barbary,

and Egypt are frequently devastated by a larger species, the *A. Egyptius*. According to Sarigny, the natives of Senegal dry another species, reduce it to powder and rise it as flour. Thus it may be seen, that though the grasshopper is an occasional scourge to the country, it is not without value among some of the half-civilized races of mankind.

HARDY BULBS AND THEIR CULTURE.

The cultivation of hardy bulbs is without doubt becoming more general from year to year, and very deservedly so, as they withstand and outlive our severest winters, showing themselves on the earliest approach of spring, making glad the eye after the long winter of loneliness. We are filled with delight at the early appearance of the pure, chaste Snowdrop, which is followed by the gay Crocus, the sweet Hyacinth, and farther on by the flaunting colors of the showy, welcome, and desirable Tulip. Later on in the season, at a time though when our gardens abound with their other summer flowers, the stately Lilies begin to put in an appearance. These, if but a few varieties are owned, will continue to make a lengthened display of their very showy and desirable fragrant flowers.

The treatment and culture of bulbs is so simple, and success is so certain to follow, they may be enjoyed by all having the smallest space to devote to their culture. All Bulbs succeed best in a light, rich soil. Those not favored with a good soil may add a quantity of sand, rotten manure, or decayed leaves. If this is all spaded up thoroughly together to a good depth, and provided no water lies on the surface (which is fatal to bulbs), the best success will follow. All hardy bulbs, to

give good results, should be planted in October or November, in a good, well-enriched soil. The drier the situation, the finer will be the blooms. After the beds and spots are planted, they will be greatly benefited if protected during winter with a good covering of coarse manure, rotten leaves, or any good mulching material. This should be carefully raked off in early spring before the plants have grown too much, or injury to the plants will follow from drying winds and the effects of the sun, etc. Bulbs may be planted in beds (which give the finest effect), masses, or in groups, or even as single plants. It is a general custom to plant Tulips, Hyacinths, etc., in beds, which, as the same get through flowering, are filled with such plants as Geraniums, Verbenas, Petunias, &c. When so planted, Crocus and Snowdrops should always be planted in bands thickly around the margin of the beds. It is a good practice to allow these to remain for a number of years before removal; by so doing, the few straggling plants that are first planted grow into large masses of roots, giving such a display as can be only produced by this course of treatment. Never plant the late or show Tulips in beds where it is desired to fill with plants as above, as they are so late coming into flower, half of the summer will be lost before other things can be planted to take their place. Late Tulips should be planted in beds by themselves, or still better in groups in the mixed bed or border.

All bulbs as they ripen can be taken up, dried and laid away in a cool, dry cellar, until they are again wanted to take their accustomed place. This does not apply to Lilies; these should never be taken up to be dried and kept in the house, as it would be a positive injury and sure death to them to do so.

PRESERVING FERNS.

A WRITER in the *English Mechanic* gives the following directions for this kind of botanical work:

"In the autumn, and before the spore-cases or seed-vessels have ripened, cut the frond off close to the root. Wash in clean cold water, by simply dipping and moving the frond in the water. Provide yourself with two planed boards, about half an inch thick, a foot and a half long, and a foot wide, one or two quires of ordinary white demy paper, and a couple of strong leather straps. Place the specimens between the sheets of paper, then place the whole between the two boards and draw the straps tightly round. Change the paper now and then, drying one set of papers while the other set is being employed in the pressing. In the case of small specimens the root as well as the fronds may be dried and preserved. In your 'Fern album' use ordinary cartridge-paper, bound like scrap albums, so that when the specimens are affixed, the book will present a uniform thickness. In affixing your specimens use small straps of gummed paper. It is much better than gumming the paper itself."

On this last point, however, there may be a difference of opinion, and for the benefit of those of our readers who prefer the other way of mounting the Ferns we add the following directions for the process, from which we take another writer:

"After pressing the Ferns, lay them aside for a day or two before mounting. To do this, smear the sheet of paper over with liquid gum, lay the reverse side of the frond on the gummed surface, press gently, remove, and place carefully on the paper where you intend it to remain. Finally pass over a piece of blotting-paper to remove creases."

HORTICULTURE.

BY AN AMATEUR.

The monks were about the first horticulturists in Europe. Orchards and gardens grew round their sequestered homes of learning. It was about the same in California when the missions were established. The Grape and the Olive were at first the chief fruits cultivated. No doubt the fathers brought seed of the best flowers with them from both Spain and Mexico. But doubtless the wild-flowers of California went a great way to content and satisfy them concerning floriculture. In the reign of Henry VIII the Prince Apple was first brought to perfection in England—of course in the hot-house: at that time, also, the earliest Orange-trees were planted. Country villas on the banks of the Thames were then described by Evelyn as being shaded by spreading Elms with their vividly green pastures, Orangeries, groves, fountains and aviaries. Most of the flowers were at that time old-fashioned. There were no American borders, no Kalmias, Azaleas, or Magnolias, or shrubs of that kind. There were in that day no China Roses nor Dahlias. The gardens of the wealthy combined every excellence of the antique pleasure-ground. The terrace gravel-walk, three hundred paces long and broad in proportion; the borders set with standard Laurels, Hollies, and Whitethorns, and which at large distances had almost the beauty of Orange-trees both of flower and fruit; stone steps in series, leading to extensive parterres; fountains and statues; summer-houses; and cloisters facing the south and covered with Grape-vines; these with ivied balustrades, and

“Walls mellowed into harmony by time.”

composed gardens which suited while

they encouraged the meditative temper of our ancestors and religious convents. These solemn terraces, sloping lawns, parterres of flowers, and formal cut or sculptured trees, were common to both rich laymen and richly endowed monasteries. Perhaps these antique systems had more than one feature worthy of praise if not preservation. It is pleasant to contemplate our ancestors sitting in rooms or summer-houses shaded by Plane-trees—

“Deaf to noise and blind to light;”

or sauntering beneath embowered walks of vines, the turf so mossy and velvety (natural to England's damp climate) that in hot weather uncovered feet suffered no inconvenience. Pope says:

“There in bright drops the crystal fountains play,

By Laurels shaded from the piercing day;
Where summer's beauty midst of winter strays
And winter's coolness spite of summer's rays.”

And Milton:

—“Alleys green,
Their walk at noon, with branches overgrown.”

The ample lawn was one of the fine old features of olden gardens, as it should be now in California, when it can be well irrigated and the grass cut close and smooth. Mason wrote:

—“To feast the sight
With verdure pure, unbroken, unabridged.”

What elysiums of gardens, though different in style from ours, were early made in Europe as well as Asia, as in modern times! What beautiful creations for homes! In the words of Shensstone, let us bring elegance of this kind even into our California rustic farms; let us

“Grace their lone vales with many a budding
Rose,

New plants of bliss disclose,
Call for refreshing shades, and decorate repose.”

By degrees from the old formal style

of gardening, taste began to spread. Gardening, like criticism, was taught by the poets. At length we have reached the eras of a Loudon and a Downing. One charm of an English garden is quite peculiar to it (and on a larger scale than, owing to our dry climate in summer, we can well afford on this coast), freshness and beauty of turf. The grass-plot is as much England's own as her green hedges. Comparatively throughout this country, and even Italy, the bright English color is unknown, except in small plants by irrigation.

I need hardly speak of the moral influence of the study and practice of gardening; but it is lively and lasting. Gray says: "Happy they who can create a Rose or erect a Honeysuckle."

— "No works, indeed,

That ask robust tough sinews, bred to toil,
Servile employ; but such as may amuse,
Not tire, demanding rather skill than force."

I will conclude by quoting the lines of a mightier hand than Cowper's (given above), Milton, where he exhibits the earliest gardeners of the world reposing after their toil—

"Under a tuft of shade that on the green
Stood whispering soft, by a fresh fountain side,
They sat them down; and after no more toil
Of their sweet gard'ning labor than sufficed
To recommend cool zephyrs, and made ease
more easy."

NEW ORNAMENTAL GOURD (*Bryanopsis Laciniosa*).—This is a new miniature Gourd introduced last year from Africa by Sir Samuel Baker. It has slender climbing shoots, which are loaded with clusters of pretty little fruits, the size of small Gooseberries. When unripe they are bright green, striped and spotted with white; the green changing when the fruits ripen to capsicum scarlet, make it a very ornamental plant.

ROSES.

BY C. H. MILLER.

THE Hybrid Perpetuals are general favorites, and deservedly so, for of all the hardy kinds they are the most desirable. They thrive under common treatment, and are generally suited for all soils and situations. For the embellishment of the flower garden and shrubbery they are indispensable, and can be relied on for all the various purposes to which Roses are applied in garden and lawn decorations.

Soils.—One of the conditions essential toward success in Rose culture is the preparation of the soil. Good loamy soil requires very little preparation beyond the usual trenching and manuring. It must be understood, however, that if the soil is wet, draining will be necessary, for it is useless and wasteful to put manure on wet soil. In all such cases, then, the first effort must be to drain the soil. Thorough draining airs the ground to whatever depth it drains off the water; therefore it is best to drain deep.

The hardy kinds of Roses are not so particular as regards locality, provided they have an open airy situation, and far enough from trees of all descriptions that the roots of the latter can not reach the soil of the Rose beds; for it must be understood that Roses want all the nourishment the soil can give them, and that they are not willing to share with others that which they require for their own sustenance.

Planting.—Under this head, I will take occasion to say, that the planting of Roses as isolated specimens on a lawn is in my opinion almost always a mistake; in fact, an error in good taste. There are few, if any, that ever form under such treatment an object sufficiently well foliaged to be pleasing, or even

an object of interest when not in bloom. Then the first step toward securing a nice show of Roses is to select the most sunny and airy spot the garden affords; and generally the most favorable spot is somewhere on the lawn. It should, however, be borne in mind that the location thus selected should not be the most conspicuous spot as seen from the principal windows of the dwelling, where their appearance in winter, from their being leafless, and the necessary covering and protection, would be decidedly objectionable; but where in summer, when all is bright and lovely, a walk to the Rose beds would afford a pleasant recreation before breakfast. And here let me say that, if you would see Roses in all their freshness and beauty, you should see their half-expanded buds with the glistening dew on their surface. A pleasure felt, but not easily described.

Arrangement of Beds.—The location selected, next in order is the form of the beds and their arrangement. Allusion has previously been made to the bad taste of planting Roses singly on grass. A decidedly better and more proper way is to plant them snugly in beds, large or small, as suits the means and taste of the grower. For a small collection, one good-sized bed, circular in form, with the four sides scalloped toward the centre, is the most convenient shape. By this arrangement the cultivator has all the plants within reach without having to step on the bed. The cultivator should also make himself acquainted with the different habits of the various varieties he intends planting. This can be learned by consulting the catalogues of the commercial growers. Those marked vigorous should be planted in the centre, distributing the smaller sorts around the larger, thus forming a compact and regular outline, at

once symmetrical and beautiful. For large collections a number of beds would be needed, and a variety of forms could be used. Each form should comprise a complete part of a general plan; each part being complete in itself, a perfect whole would be the result.

In garden decorations the climbing and pillar Roses are very useful; neatly trained to posts for the centre of the Rose bed, and distributed throughout a well-cultivated shrubbery, they are very ornamental, and when blooming above and among the dark-green foliage of well-arranged masses of shrubs, they are seen to advantage.

Pruning.—The following few remarks under this title contain all that is necessary to be said on the subject. Long treatises have been written on it, describing in detail different modes applicable to different classes of Roses, and confusing the Rose-grower by unnecessary and perplexing particulars.

One principle will cover most of the ground. Strong and robust growing kinds require little pruning. On the other hand, weakly growing Roses should be pruned severely.

In shortening the shoots of the majority of Hybrid Perpetuals, four or five eyes should be left; but those of robust and luxuriant growth, such as Madame la Baronne de Rothschild and others of like nature, should be only shortened to about half their length. With the more vigorous summer-blooming varieties, cut off about one-third of their entire length only. Keep the centre of the plant well thinned, and prune moderately; anything like short pruning with such subjects being productive of abundant rank wood and scanty blossoms.

In the short growing Hybrid Perpetuals and Bourbons, two or three eyes or buds are sufficient to be left. In the

more tender Tea-scented and Chinas, all weak and useless shoots should be removed; and the operation must be done with care. And as in many varieties the eyes or buds are far apart, the knife must be sparingly used, or failure may be the result. Much, however, depends on the object or the aim of the cultivator. If a profusion of bloom is required, or a constant supply of buds is necessary, without regard to the size or the perfection of the flowers, then very little pruning is required other than merely thinning out all weak and superfluous shoots, and shortening the ends of the main branches.

Climbing Roses, such as Noisettes, Boursaults and the Prairies, and some of the vigorous summer Roses, are the strongest growers, and require little pruning; first, because of their vigorous growth, and secondly, because profusion of bloom rather than quality is required. The old and dry wood should be wholly cut away, leaving the strong and young shoots of one and two years growth to take its place, with no other pruning than the shortening of the ends of all side or lateral branches, and the thinning out of all useless shoots. In all cases it is the well-ripened, plump-looking wood that bears the best flowers. Old, enfeebled, and soft unripe wood should, in all cases, be removed.

Half pruning in the autumn is very important to lessen the weight that has to stand against the wind, and to prevent undue exhaustion from severe cold dry weather. The final pruning may be done in March, or the early part of April. The exact time depends very much on the season being late or early.

The object of pruning is threefold: first, to give the plant shape and proportion; secondly, to improve the size and beauty of the flowers; thirdly, to

invigorate the plant. The first object is a very important one, as the future shape and health of the plant depend on the first training it receives. No two shoots should be allowed to crowd each other; a mass of thick foliage is both injurious and unsightly. Sun and air should have free access to every part of the plant.

Pruning in summer, when the plant is in active growth, has the contrary effect to that of pruning in winter, when the plant is in a dormant state: the process is weakening rather than invigorating. It deprives the plant of a portion of its leaves, just at the time when they are most needed, and can not in all cases be recommended. It is, however, often desirable, and frequently saves much trouble, and may be effected to a great extent by cutting the blossoms with long stems when wanted for decoration or otherwise, and by removing all decaying and faded flower-stalks. Many of the kinds by this treatment, and by reducing their main branches to one-half their length in June, are much more certain to give autumnal blossoms; besides, the general appearance of the plants will be much improved.

To produce the best effect with Roses, continuous blooms should only be used; such as Hybrid Perpetuals, Teas, Bourbons, and Chinas. Summer Roses, that bloom once in a season and no more, are useless except for exhibition purposes. If you desire to have summer Roses—and none are more beautiful when in bloom—let them have a place by themselves. Never let them mar the effect of the others, by planting among them sparse-blooming kinds, when by a judicious selection of monthly blooms a complete succession can be had of beautiful buds and blossoms, and the Rose garden kept in perpetual and ever increasing beauty.

Transplanting.—As Roses flourish better for an occasional transplanting, and their bloom and foliage is always finer in cultivated than grassy ground, a biennial lifting of the plant should form a part of their culture. The process will enable the cultivator to perform the operation of root pruning, often a very important matter with the strong-growing kinds. And all who desire their Roses to bloom satisfactorily in the autumn, should embrace the opportunity thus offered, to enrich the soil by deep trenching and well-rotted manure.

Now the best time to transplant or lift and replant Roses is when the Roses are ready; and they are ready just before their leaves drop in the fall: say about the last week in October, or the early part of November. If proof of this is required, one has only to take up a few Roses, two weeks after planting in November, when it will be at once seen that a large quantity of delicate white fibres present themselves. These roots are formed by bottom heat, or to put it into plain words, by what ground heat remains of the past hot summer weather, which is sufficient to establish the roots before winter sets in. From November the heat diminishes, and vegetation becomes less active. Therefore, it is easily seen that if the operation is deferred until late in November, the roots will remain stationary, with every probability of their being injured by the winter, for it must be borne in mind that no amount of sun during the winter will have other than bad effect on Roses planted after the time here specified. They may, and probably would survive the winter, and the buds start in spring; but as there will be a deficiency of fibrous roots, the plants will suffer accordingly. Therefore plant early in November, unless the plants have been grown in the greenhouse in pots

all summer; in that case better defer the planting until spring. Plants grown in pots, although smaller, are generally more desirable than those grown and taken from the open ground.

Before leaving the subject, it will be desirable to point again to the fact, that to have Roses in anything like perfection, they require liberal cultivation. They must have a compost of a substantial character; and in practice nothing has been found better than good, rich loam rather close in texture, and well-rotted barnyard manure.—*N. Y. Horticulturist.*

UTILITY AND BEAUTY OF TREES.

BY E. J. HOOPER.

Grand, imposing, and reverence-creating as are woods or forests, trees do not show there always to the best advantage, as they are generally too crowded to enable us to obtain a full clear view of their beautiful forms and the graceful sweep of their almost ceaselessly agitated foliage. Trees, therefore, are seen to the best advantage when standing alone, or in small clumps, which may contain few or many; and the most judicious way to dispose of them, in laying out ornamental grounds to be viewed from the mansion, is to plant few when to be seen near at hand, and several when viewed from a distance. It is in these clumps that we get such a variety of forms, when the boughs cut out sharp against the sky, and not a branch is visible in the whole outline but contributes to the loveliness of the picture or landscape. A clump of trees shows best when tossed together, as it were—planted without form or order, in and out, one here, another there; this catches the full light, that falls back in half shadow, a third goes deepening in, forming the

dark purple of the scene; Elms, Oaks, Eucalyptus, Australian Acacias, Monterey Cypresses, Pine, etc., growing at all angles, wild, irregular, fantastic, yet each tree filling its own space when looked at separately, though, if it were taken away, the charm would at once be broken.

Trees have also a magnificent effect when seen from the bottom of a deep green dell or cañon, from which they go climbing up until the topmost boughs seem lost in the sky; for the trees and sky are all you can see overhead. Then there is generally a stream of water of some description in the bed of the ravine; it may be only a few pools, or a small lake, or a slight brook which at a certain hour of the day gives an eye to the solitude, when the sun's rays dart deep down upon it, and all the little bits of underwood, sage, or chemise scattered at the bottom and along the sides, have at such a time lights of their own. The wild Laurel, or Madroña, or Manzanita, Magnolias, or whatever you may plant, bear no resemblance to the low-growing ferns or dwarfish-flowering plants, nor the latter to the graceful, taller Peppertrees; but each seems to have chosen the light that suited it best, and clothed itself with it. And here the birds build and sing, in this delightful green world of their own, finding it all they require, without any assistance from man. And if such rural places can be preserved unmolested from hunters, the pretty California quail will there raise their young, and the cooing dove its offspring. And here I will mention what I witnessed in a flower-border next to Mr. R. B. Woodward's mansion at Oak Knoll, in Napa Valley, namely: a female quail sitting upon her eggs in a small Geranium, while we looked into her snug domicile as we walked by.

All Oaks, whether the English or Californian, when they attain a good age are always grand, no matter how shattered some of them may be. They always call up old and solemn associations, and are always beautiful, either towering above smaller brethren in a cañon or ravine, or standing in lonely majesty upon a heath or an old English park in England, or on the foothills, mountains, or in the valleys of California. Poets have sung its praises. Shakspeare calls it—

“The unwedgeable and gnarled Oak.”

Spenser has beautifully described it verging to decay—

“A huge Oak, dry and dead,

Still clad with reliques of its trophies old,
Lifting to heaven its aged, hoary head,

Whose foot on earth hath got but feeble hold,
And half-disbowed stands above the ground
With wreathed roots and naked arms.”

It is alike suited to the mountain, hill or valley, mansion or cottage, Indian tent or wigwam. Even in the greatest age it retains a beauty, when the boughs are withered or fallen away, when it bends over the resting-place of the dead, and but little more than the desolate trunk remains to still brave the winds which it has faced for centuries. Almost every other tree shoots out its branches in level lines from the trunk, while the Oak twists its boughs in grotesque forms, like a serpent coiling itself into a thousand fanciful figures as it moves along. There is nothing that grows upon the eternal hills which fills the soul with such emotions of sublimity as those mighty Oaks which cover many of our ranges of mountains and valleys in all their glory of bough and foliage—especially our Live-oaks.

What pictures float before us of late country visits in Napa Valley—what glimpses of rural objects do these glo-

rious old knotted Oaks there call up; while surrounded by merely artificial objects! What memories are awakened within us now of the jay, the woodpecker, and the mocking-bird, flitting among those old Oaks' branches; the hawk poised almost motionless above them; the hare we startled from the Ferns that grew at the roots; the doves we heard cooing, while lying idly in the shade; the brook that seemed to sing for a moment, and then to become silent again, just as the wind went and came among the green Oak-leaves. Surely no man was ever intended to spend his days in walled cities without beholding the beauty with which nature has clothed the earth, to instruct and delight him.

Even a life of toil and anxious business is sweetened by the remembrance of scenes like these, for they are pleasures that pass not away, but are ever stepping unaware upon us, throwing sudden bursts of "sunshine upon the shadowy places," and cheering us in our solitary and sometimes melancholy hours.

HOW TO CULTIVATE THE GRAPE.

The *Gardener's Monthly* says: One of our correspondents, Mr. Roderick Campbell, recently brought to our mind the difficulty some good gardeners labor under of a perpetual interference by those who employ them with the *details*. What would be more absurd than to employ a shoemaker to measure one's feet and then to insist on directing the knife that is to cut the leather out? It would not matter so much if the attempt to pilot the "gardener" was always in the same direction, as it could be soon proved wrong if it was wrong; but they are often as contradictory as they are numerous. It is often

a puzzle to these good gardeners to know where these well-meaning employers get their horticultural knowledge from. Perhaps the following from Max Adeler may afford the clue. It was fortunate that Max Adeler had no gardener, but had to do his work. That is, fortunate for some poor "gardener." The nurseryman who charged "ten dollars" for "advice" strikes us as the most philosophical person in the whole picture:

I have not been very successful with my experiments in Grape culture. I bought a vine some time ago, and the man who sold the cutting to me enjoined me to be careful to water it thoroughly every day; I did so, but it didn't seem to thrive. One day I asked my neighbor Pitman what he thought was the matter with it, and when I mentioned that I watered it daily, he said:

"Be gracious, Adeler, that'd kill anyone! A Grape-vine don't want any artificial waterin'."

Then he advised me to discontinue the process, and to wash the vines with soap-suds in order to kill the bugs. My anxiety to know why it still didn't thrive was relieved some time afterward by overhearing a man in the cars remark that "some men kill their Grape-vines by their durned foolery in putting soap-suds on 'em." He said that all a Grape-vine wanted was to have the earth around it loosened now and then with a spade. Then I began to dig around my vine every morning; but, one day, while engaged in the exercise, Cooley came and leaned over the fence, and said:

"Adeler, you'll kill that there vine if you don't stop diggin' at it. Nothin' hurts a vine wuss than disturbin' the soil around the roots, now mind me. That vine don't want nothin' but to be trained upon a trellis an' fastened with wire."

I ordered a trellis that afternoon, and tied the tender shoots of the vine to the cross pieces. The job cost me thirty-four dollars. On the following Tuesday I read in my agricultural paper that if a man wants to ruin a Grape-vine,

the quickest way is to tie it up with a wire, as the oxidization destroys the bark. So I took off the wire and replaced it with a string. I was talking about it to the man who came over to bleed my horse for the blind-stagers, and he assured me that there was only one sure way to make a Grape-vine utterly worthless, and that was to run it up on a trellis. In France, he told me, the vineyard owners all trained their vines on poles, and that was the right way. So I got the axe and knocked the trellis to pieces, and then fixed the vine to a bean-pole. Still it didn't thrive very well, and I asked a nurseryman near to come and look at it. He said he couldn't come, but he knew what was the matter with the vine as well as if he saw it. It wanted pruning. I ought to cut it down within ten feet of the roots, and then manure it well. I did cut it down and emptied a bag of guano over it; but as it seemed sort of slow, I insisted on the nurseryman coming over to examine it. He said that his fee was ten dollars in advance. I paid him, and he came. He looked at the vine a moment; then he smiled; and then he said, "By gosh, Adeler, that isn't a Grape-vine at all! It's a Virginia Creeper."

So I have knocked off on Grape culture, and am paying more attention to my Cabbages.

INSECT PESTS INCREASING.

We notice, in looking over our country exchanges, that from several localities come complaints of various insect pests having made their appearance. In no case, we believe, have they assumed proportions of sufficient magnitude to give cause for any general alarm; still such visitations should not be lightly passed over, for the causes which this season produce comparatively small quantities of the pests may, in coming seasons, if unchecked, or under more favorable conditions, produce them in destructive numbers. While we believe the appearance of the Grape-worm in

some localities, the Potato disease in others, the curculio and grasshoppers in still others, to be due in a great measure to the almost unprecedentedly wet warm spring and summer we have had and are having, yet we fear a part may be attributable to the train of evils which almost invariably follows the extensive occupation and farming of any country, and which consists in killing and frightening away the natural enemies of these pests—the birds—and in the greater introduction of their normal food in the shape of the crops they prey upon.

The wonderful rapidity with which forms of life may be called into existence under conditions favorable to their development is well known; for instance of which, see the hordes of mosquitoes which follow the overflow of the bottom lands in many States; the stagnant pools and ponds left by the retreating flood, and heated under the rays of a burning sun, forming the best possible nidus for them, and forthwith they put in an appearance in countless myriads and apparently almost independent of parentage. Yet spontaneous evolution is far from being necessary to account for their presence, and in the wonderful powers of reproduction of many of the forms of insect life lies our greatest danger. Hence we can easily see in the destruction of a single moth in the spring the death of almost, if not quite, millions of army-worms, or caterpillars, or similiar pests, in coming summer. For this reason we believe it to be the duty of every farmer to protect and encourage by all possible means those birds which feed upon these pests in all stages of their development, whether larvæ, pupæ, or perfect insects. He can well afford the small per cent. these tiny underwriters ask for insuring his crops against loss from these sources; and

which is more than repaid by the dividends he receives in the way of cheerful, caroling companionship in his toil.

As to the best means of fighting these pests in localities where they are at work, a city contemporary offers a few timely hints which are as follows: "A coat of pitch between earth and air will do wonders with Peach-trees. A sprinkling of salt between Cabbage rows will preserve them from caterpillars and slugs. A little lime slaked and showered over newly turned earth will destroy grub-worms of all kinds, and scarcely an invader known to the insect world is not immediately conquered by easy means." To which we would add, that in those districts where the Grape-worm is traveling from vineyard to vineyard, a deep furrow with the land-side toward the vineyard, ploughed all around, will prove a formidable barrier, and if the same can be filled with water from the irrigating ditches, the defence is almost complete.—*Rural Press*.

GARDEN PRACTICE IN OLDEN TIME.

We delight in poring over the works of some of the old writers upon gardening, and noting their directions for the various operations required. Although their works are generally garrulous in style, and their scientific reasons for their practice very frequently a laughable muddle, yet the directions they give are, for the most part, correct and well founded, and anticipate much that is now regarded as new discoveries in practice. Science, two hundred years ago, in so far as it related to vegetable life, was in its infancy, but while the investigations of the last and present generation have given us much insight into the operations of nature, we have not greatly improved upon the practice of our ancestors. We

have better structures, better tools and better appliances of all kinds to facilitate our labors, and with these, wonderful results are obtained; yet we doubt whether our present gardeners, having only the scanty means at command of such gardeners as Rose in the seventeenth century, or Loudon, Wise, Speechly, McPhail, Abercrombie, Switzer, Lawrence, and others of the eighteenth century, could more than equal them in the quantity and quality of the fruit obtained. As examples of the practices recommended in those olden times, we make a few extracts from Batty Langley's *Pomona, or Fruit Gardens*, a large folio work copiously illustrated with engravings, published in 1729:

"To be certain of adapting every plant to its proper soil, we must examine the exact quantities of each principle that's contained in every plant we would propagate, as also in the soils we intend to cultivate. And then, if we plant our several soils with such vegetables whose principles are found to be equal, or nearly equal to those of the soils, we assure ourselves of success, and work with certainty.

"If your land is deep, that is, when about two feet in depth, 'tis best to trench it two spits. . . . But if your land is shallow, the best method is to dig it one single spit only. . . .

"When by trenching the aforesaid depth, a hungry, raw, or sharp bottom comes up, 'tis best to leave off, and go no deeper than the goodness of the land will allow.

"And since that fruit-trees are apt to shoot down tap-roots into the lower stratas where the moisture is crude and unprepared; and renders their fruits insipid, and growth luxurious, 'tis much the best way, when we plant our trees, for not only to prune away

every root that seems to tend downwards, but to pave the bottom with tile-shreds, brick-bats, etc., and so prevent others, which nature may afterward produce, from entering therein.

“When luxurious branches only are produced, stop them, when each branch contains four or five buds in length, by *nipping off* the leading buds with your finger nails, which will cause them to produce new branches from every bud that will become fruitful; for that nourishment which nature intended for one branch, will be distributed into three or four, which consequently can not be so luxurious as when wholly employ'd in one branch; therefore if this rule is well observed, we need never be troubled with luxurious wood.”

STANDARD PELARGONIUMS.

A correspondent of the *London Farmer* gives the following directions: To grow standard Pelargoniums, as many strong young plants of the robust kinds as are requisite should be planted out on an apportioned piece of ground, previously thoroughly well manured, at the usual time; here they must be encouraged to make one strong shoot only, which must be fastened and kept trained to a stick as it proceeds to grow upward. When this single shoot has reached the necessary length—the usual height being about three feet—then the top must be pinched in or stopped, and as frequently as young shoots continue to form at the apex so must they be pinched back, always allowing that two or three buds, with the leaves at whose axils they are attached, remain; these in their turn form fresh shoots, to be again pinched back, and so continue until a bushy head is formed. After the first season some kind of trellised support must be formed for the heads.

The readiest formed ones I have had experience of consisted of a round hoop of a smaller wire to the necessary diameter, say from two to two and a half feet in diameter, having cross-wires for support, and the whole to be supported by a strong stake firmly fixed into the pot in such a manner as not to admit of more oscillation than can possibly be avoided. Upon these trellised crinolines the young shoots must be kept constantly tied down as they grow.

In those instances where by process of grafting, etc., rarer kinds, such as Tricolors, etc., are induced to grow upon the previously formed strong upright shoots, it will be well to take the plants up somewhat earlier in the autumn than the others; so soon, in fact, as they have attained to the necessary height, because by taking them up and potting them some of the extra sap will be exhausted, and it will be possible to graft at once. The grafts will then take hold, stand through the winter in their preliminary established stage, and be ready to make a good, strong start in the early spring. Keep all when taken up and housed for winter rather dry at the root.

LILIUM AURATUM.—At the Chillingham Gardens, in England, a plant of this Lily has this season produced one hundred and twenty-one blooms, all fully expanded at the same time. The main stem was eight and a half feet high and produced fifty-three blooms. Previous to this season it had been grown for three years in a twelve-inch pot, but this spring was put into a tub twenty-one inches by fourteen inches. The soil in which it was grown was a rather strong loam.

THE GOVERNOR of St. Domingo gave orders for cultivating Mulberry-trees in 1503.

Editorial Portfolio.

BEDDING-PLANTS AND PERENNIALS.

This is what Mr. Hogg, in his new *American Garden*, has to say on this subject: After our long and dreary winters, lovers of flowers, especially if they are residents of the country, long to greet their eyes with something bright and cheerful in the way of flowers. This they can do by making a proper selection of hardy perennial plants. Commencing with Crocuses in March, they may, at little expense, have a hundred or more species bloom in succession before their bedding-out plants are fit to be seen, which can not be before the first of July. How much more pleasure and interest is to be derived from a plat a quarter of an acre in extent, planted with a hundred species of such plants, lasting season after season, and sufficient to stock the whole ground, than from a single bed costing just as much, and containing fifty *Alternantheras* for an outside row, twenty-five *Centaureas* for an inner row, and twenty-five *General Grant Zonales* for the centre?—the plants to renew which the next season have, nine times out of ten, to be again purchased.

With our almost tropical summers, we can do that which gardeners abroad can not equal in sub-tropical gardening. What with the various species of *Ricinus*, *Cannas*, *Erythrinae*, *Caladiums*, and similar plants, we can give a variety and uniqueness to our gardens, at but little expense, which the wealthiest nobleman abroad would envy. Such plants are as easily kept as *Dahlias*, *Gladioli*, and *Tuberoses*; and these added to the former will, with good taste, give us all necessary means to divest gardens of any appearance of sameness or lack of distinctive features. If

we add a judicious mixture of plants of colored or striking foliage among our perennials, our gardens will never be wanting in that individuality which should distinguish one garden from another; and thus each would become a continual source of delight to its owner from March until November or December.

CATALOGUES RECEIVED.

Descriptive Catalogue of New and Rare Plants, etc.; from James Hutchison, Bay Nurseries, Telegraph Avenue, Oakland. Mr. Hutchison is one of our oldest growers, of established reputation; and if amateurs and others can not suit themselves from the lists embraced in his catalogue, they must be very hard to please.

Messrs. F. Lüdemann & Co., proprietors of the Pacific Nursery in this city, have just issued their third annual *Descriptive Catalogue of Evergreen and Deciduous Trees and Shrubs*. It is arranged in seven classes, as follows: 1, Ornamental Plants; 2, Leading Evergreens; 3, General Collection of Evergreens; 4, Coniferous Plants; 5, Deciduous Trees and Shrubs; 6, Fruit-trees and Fruit-plants; 7, Leading Flowering Plants. The depot is located at 106 California Market.

WE are under obligations to James Hutchison, Esq., of the Bay View Nurseries, Oakland, for the engraving of the superb new double white *Pelargonium*, *Aline Sisley*, that adorns our current number.

LIQUID MANURE.—Peruvian Guano, dissolved in water at the rate of one pound to thirty gallons, and two quarts of soot added, makes an excellent manure for all soft-wooded plants.

Correspondence.

BARREN PÆONIES.

Editor California Horticulturist:

DEAR SIR:—Three years ago I purchased a Pæony (*P. elegans*) which produced in the first season nothing but leaves. That season, or two years ago, I bought two other sorts (*P. edulis* and *P. nivalis*), which in due time put out a liberal stock of leaves, but not even the rudiments of a flower; nor has either of the three yet shown a blossom. The plants appear healthy, except that the tips of the foliage acquire a burnt look about the middle of June.

The soil is a well-enriched sandy loam, well drained; the exposure sunny; the sea-breeze tolerably fresh. Roses flower freely and brilliantly all around these Pæonies—even to Cloth of Gold.

Now, sir, not having been able to raise any Pæonies, I have a great desire for some—in fact I begin to think them extremely desirable flowers. Can you come to my help?

I noticed a similar complaint in an Eastern horticultural publication, which first made me think of writing to the *Horticulturist* for information. C.

WEST OAKLAND, October, 1874.

A PUBLIC BENEFACTOR.

I have just received from the public-spirited Baron Ferd. von Mueller, Curator of the Botanical Gardens of Melbourne, Australia, his interesting pamphlet *Additions to the Lists of the Principal Timber-trees and other Select Plants* readily eligible for Victorian industrial culture. Taking into consideration that the trees and plants referred to are equally suitable to this coast, a careful perusal of this publication forces upon us many valuable suggestions for the

inauguration of new industrial pursuits, and it seems very desirable that the people of this coast should make themselves acquainted with the recommendations of the learned gentleman. California in particular owes to him the introduction of very many valuable trees and shrubs, which now adorn our gardens, fields and parks, and without which at the present day they would have a barren aspect. But not only California owes gratitude to the Baron for the introduction of thousands—yes, millions—of valuable trees and shrubs; other and more distant countries are equally benefited by his toil and perseverance, in exploring new regions, collecting seeds of useful trees and plants, and in distributing the same all over the world, frequently at his own private expense. May his untiring labor meet with a proper appreciation from all those who directly or indirectly enjoy its vast benefits.

F. A. MILLER.

SAN FRANCISCO, November, 1874.

BEAUTIFUL NEW PLANTS.—The *Garden* speaks in terms of high praise of the single Japanese Rose, with large white flowers “as pure as that of any flower in existence,” and the dark green, closely pinnate, shining leaves; of an *Oncidium zebrium* now in bloom, with a spike ten feet high, profusely branched, bearing 240 flowers; of the *Pentstemon breviflorus*, a rock or border plant, with yellow flowers, and foliage resembling that of the narrow-leaved Myrtle; of a plant of the *Dendrochilum filiforme*, which sold for £25 4s., or about \$125; and of the fine *Hydrangeas* growing in the southern counties (where the winters are very mild), often forming specimens thirty to forty feet in circumference and six to eight feet in height.

NEW AND RARE PLANTS.

New Ferns.—Ferns have yielded little of importance during the past year, if we except the interminable and hard-named varieties of British species, which we owe to the enthusiasm of cultivators. The *Dicksonia Sellowiana*, however, a Tree-fern of Brazil, which has found its way to the Belgian gardens, will be a nice addition to our collections; *Davillia* (or *Humata*) *Tyermanii* is a charming basket Fern from west tropical Africa, its small deltoid tripinnate fronds and silvery-scaled rhizomes being singularly ornamental. *Elaphoglossum Herminieri*, christened the Eel-fern by Dr. Seeman, from the resemblance of its clustered glossy iridescent sterile fronds to clusters of silvery eels, is a good stove basket Fern; and *Trichomanes auriculatum* is a lovely creeping-stemmed hot-house film Fern, with transparent green, narrow, bipinnatifid fronds. *Asplenium marinum Thompsoniae* and *Polypodium vulgare cornubiense* (or *Whytei*, as it is sometimes called) may be mentioned as most distinct looking bipinnatifid varieties of the Sea Spleenwort and common Polypodia respectively, which, as is well known, are normally pinnatifid only.—*Gardener's Chronicle*.

A New Clematis.—A new Clematis, a hybrid between *C. integrifolia* and *C. lanuginosa*, has been originated in France. It has been described as growing about four and a half feet high and bearing dark violet, velvety flowers, with yellow anthers; the flowers measuring from three to four and a half inches in diameter. It blooms like one of its parents, (*C. integrifolia*) continuously, from May to October. If it really accords with its description it will be a valuable accession to our list of hardy flowering plants. It is to be sent out

under the name of *C. integrifolia de Durand*.

Lilium Tigrinum Flore Pleno.—

This is one of the most remarkable varieties yet produced of the Tiger Lily class. Its flowers are very large, double, and of a bright orange color; the segments are thickly studded with dark brown spots, except at the tips, which are recurved—introduced from Japan only within a few years, and hitherto has been quite rare and high priced. Considered by florists very novel and extremely handsome. Most American florists now have it.

NEW AND RARE FRUITS.

A New and Valuable Pear.—A

first-class seedling Pear from the Bartlett (known in Europe as the Williams' Bon Chretien) has been raised by M. Morel, of Vaise-Lyon, France, and is figured in a recent colored frontispiece of *The Revue Horticole*. 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 is an abundant bearer, and it also does well on the Quince. It is recommended by M. Carriere as being in every respect of first-rate quality. We call special attention of American nurserymen to the propriety of introducing it into America.—*N. Y. Horticulturist*.

LIVING TELEGRAPH POLES.—A correspondent of the *Scientific American* suggests that telegraph companies plant trees on which to hang their wires. "In most sections of the country, the trees first planted would cost but little more than a pole, and after two or three years in growth would be a permanent

pole which would not rot at the bottom or need resetting, and would be seldom struck by lightning. Having many times seen from three to a dozen poles in a row, shivered up by a charge of electricity running along the wires, the above question arose in my mind."

REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPEE.

At this time (middle of November) the fruit stalls are still loaded with all the varieties of both foreign and native Grapes, for where is there any country that can produce them in greater perfection than California? It is true that the last month (October) was the time when Grapes were most abundant, and in the greatest perfection. What a delicious and healthy fruit is the Grape! Many physicians, especially the French and German, have published statements of the curative effects of Grapes in various disorders of the body, and the following is about the substance of their general remarks. They act first, by introducing large quantities of fluids into the system, which, passing through the blood, carry off by perspiration and other excretions the effete and injurious materials of the body; secondly, as a vegetable nutritive agent through the albuminoid or nitrogenous substances which the juice of the Grape contains; thirdly, as a medicine, at the same time soothing, yet laxative, alterative and depurative; fourthly, by the alkalies, which diminish the plasticity of the blood and render all more fluid; fifthly, by the various mineral elements, such as sulphates, chlorides, phosphates, etc., which are an analagous and valuable substitute for many mineral waters.

Employed rationally and methodically, aided by suitable diet and regimen, the Grape produces most important changes in the system, in favoring organic transmutations, in contributing healthy materials to the repair and reconstruction of the various tissues, and determining the removal of vitiated matters which have become useless and injurious to the system. Directed by a skillful physician, this valuable agent can be made to produce the most varied effects on the constitution. It also possesses the advantage of being acceptable to most invalids. The treatment, either in town or country, where of course, the fruit can be obtained, lasts from three to six weeks. The quantity of Grapes that may be consumed varies from one to four pounds a day, commencing with small quantities, which are gradually increased. The skins and seeds must not be swallowed. In the absence of Grapes the most beneficial effects may be obtained from the best dried raisins, provided a quantity of water, sufficient to satisfy the thirst they excite, be taken at the same time; or they may be stewed in the same manner as Prunes. Dyspepsia seems to be the chief complaint most beneficially affected by the Grape.

To be on the safest cure side, and as the surest measure for temperance—at least among many persons—I would rather see Grapes used for enjoyment and health, as recommended above, than made into wine, much as it adds to the wealth of the State; although light wines are preferable as a drink to stronger and more ardent liquors, and may in some degree do good by replacing them, and ameliorating the chances of intoxication and the diseases and miseries more practically arising from them.

Fruit is evidently, in either fresh,

dried, or canned condition, destined to be the ultimate glory of California. Nowhere else, I believe, on earth, is it produced so readily or so bountifully. Such Pears, Peaches, Apricots, Nectarines, Plums, etc., as load the trees of Napa Valley, and of nearly every valley in the State which has had any chance to produce them, are likely to stagger the faith of our readers abroad. And very few insects comparatively are known in all this region. No borers, curculios, or very destructive caterpillars have yet appeared, although I hear of the Apple-worm doing some mischief lately in one orchard. But it will stand us in need to be vigilant, and if possible take every means to check their first ravages, for we are likely to be troubled in this way in course of time, and we can not tell how soon, and how greatly.

About the middle of this month (November) Green Corn and Tomatoes became exceedingly poor, and Green Peas were in no better condition. Egg Plant was abundant at 6c. per lb.; Chili Peppers, at 15c. to 25c.; Okra, 15c.; Lima Beans, 10c.; Cabbage Sprouts, 7c. to 8c.; Salsify, 10c. per bunch; Green Corn, 20c. to 30c. per dozen; Green Onions, 20c. per dozen bunches; Chicory, 25c.; Lettuce, 25c.; Water Cress and Parsley, 20c.; Kale, 50c. per doz.; Celery and Celery Root, 75c.; Savoys, 10c. per head; Garlic, 20c. per lb.; Spinach, 8c.; Winter Squash, 2c. to 3c.; Summer do, 5c. to 6c.; Mushrooms, 10c. to 35c. per lb; Cantaloupes, 10c. to 25c. each; Artichokes, 50c. to 75c. per doz.; Jerusalem do. 8c. per lb.

A cargo of Tahiti Oranges arrived the first week of November, just in time to find an appreciative market; retailing at 75c. to \$1 per doz. Lemons, Limes, Bananas and other tropical and semi-tropical fruits were then retailing at prices ruling months before. Quinces contin-

ued in fair supply and were of excellent quality. Grapes retailed as follows: Mission, 3c. to 5c. per lb; Black Hamburg, Rose of Peru, and Muscat, 8c.; Isabella, Tokay, and Catawba, 8c. to 10c.; Morocco, 8c. to 12½c. Chestnuts retailed at 25c. to 37½c. per lb.; Walnuts, 15c. to 20c.; Almonds, hardshell, 20c., soft-shell, 25c. to 35c. The market is well supplied with native nuts.

The high price of Potatoes which prevailed in the beginning of last month, gave way under heavy receipts, and the market was still weak, and likely to go lower.

Great injury was done to the Grapes remaining on the vines, by the early and recent rains. Those now coming forward are generally soft, and keep only a few days before decay sets in, and renders them unsalable. Probably more Grapes have been dumped within the two or three last weeks, than in anyone's recollection. The Flame Tokay, once one of the highest priced in the market, is now, and has been nearly the whole season, the most unsalable of all. The wine makers will have nothing to do with it, and the market becomes glutted; all that can be done is to dump it, unless the salesmen are considerate and liberal enough to give them to the poorer classes, which we think they ought to do, rather than throw them entirely away. Apples by the box retail at 75c. to \$1.75; Pears, \$1.00 to \$2.00, delivered.

Toward the latter portion of this month (November) no further advance had taken place in regard to vegetables, nor are their prices likely to rule much higher, for the reason that as the season advances the quality of most kinds deteriorates. Tomatoes, Green Peas and String Beans were plentiful about the 20th, having given way under heavy receipts, and the market is still weak

and likely to go lower. We quote Spinach at 8c., Lettuce, 20c. to 25c. per doz.; Salsify, 8c. to 10c. per bunch; Potatoes, by the sack, delivered, \$1.75 to \$2.00 per cental.

Grapes still hold out. The supply continues undiminished and prices are pretty firm. Strawberries are in fair supply, in good condition and demand, and Pears are very plentiful. A few are quoted at 25c. to 37½c. per lb. Apples and Peaches are still obtained; a straggling box or two may linger in the market for another week perhaps. Late Plums continue to find their way to market; but this and other descriptions of summer and autumn fruits can not hold out much longer against the prevailing pinching frosts. Nuts are crowding in. Following are the retail prices: Chestnuts, 25c. to 37½c. per lb.; Walnuts, 15c. to 20c.; Almonds, hard-shell, 20c.; soft-shell, 25c. to 35c.

Many of the descriptions of vegetables that have been familiar during the summer months are fast disappearing. Corn is very poor, but sells at 30c. per dozen. Ripe Tomatoes are scarcely presentable now, yet prices are unchanged. Green Tomatoes are in a better condition. Egg Plant has advanced from 2c. to 4c., being sold now at 8c. to 10c. per lb. Small quantities of Asparagus are to be had at 50c. to 60c. per lb. Cabbage Sprouts retail at 6c. to 10c.; Lima Beans, 10c.; Okra, 15c.; Chile Peppers, 15c. to 20c.; Garlic, 20c.; Spinach, 8c.; Winter Squash, 2c. to 3c.; Summer do. 5c. to 6c.; Mushrooms, 10c. to 35c.; Jerusalem Artichokes, 8c.; Salsify, 10c. per bunch; Chicory and Lettuce, 25c. per dozen bunches; Green Onions, Water Cress and Parsley, 20c.; Kale, 15c. per doz.; Celery and Celery Root, 75c.; Artichokes, 50c. to 75c.; Savoys, 10c. per head; Canteloupes, 10c. to 25c. each. Ripe Winter Nelis and Beurre Clairgeau

Pears are more plentiful and cheaper. The first Medlars are now in market, at 25c. per lb.

PÆONY SINENSIS.—These superb, hardy and showy plants undoubtedly stand without a peer in point of attractiveness, usefulness, and great beauty. The size of the blooms of some varieties are in fact stupendous, there being nothing at all to approach them in size among our cultivated garden plants. There is now a great diversity of shape and color existing in the Pæonies that are offered for sale. Some kinds are composed of an outside row of guard petals, with the inside filled up with a rosette of the most beautiful fret-work imaginable; other varieties are in shape like the Poppy (*Papaveriflora*, etc.)

All are desirable. We have in stock about eighty varieties, all of which are well worth growing.

The Pæonies are as hardy as the Oak and will succeed in any soil or location. They can be planted in the fall or spring; we, however, always prefer to plant in the fall. Unless large, whole roots are planted, but little bloom will be produced the first year. In planting, set the crown or bud of the plant about four inches beneath the surface.

After planting, on no account disturb the plants for a number of years if grand results are desired. Those who are in possession of long narrow borders following the carriage-way or foot-path, can produce grand floral banks of bloom by planting a continuous row in it; if a fence or hedge is on the back, the effect will be heightened by such companionship. We advise all to plant several varieties of these gorgeous floral ornaments in their grounds in appropriate places.—*Briggs & Brother's Illustrated Floral Work.*

Editorial Gleanings.

ORANGES, LEMONS, AND OLIVES.—A sample of the above mentioned fruits, grown on the Alhambra Ranch of Dr. Strentzel, near Martinez, reached San Francisco not long ago. There were Oranges of last year's growth, as fresh as if just taken from the trees; Oranges just picked, large, and of excellent flavor; Oranges just set, and Orange-blossoms. The Lemons were also perfect. The Olives were very large, and of the best variety. This orchard can be reached in two hours with a horse, from San Francisco, or in one hour by steamboat.

Dr. Strentzel's experiments have been very successful. He is now beyond the experimental stage, and every year produces an increasing quantity of semi-tropical fruit, not surpassed by any produced in the southern part of the State. A handsome income is now derived from this orchard. Intelligent fruit culture, as pursued by Dr. Strentzel, has been of great importance in demonstrating the fitness of a considerable area of land north of the bay for semi-tropical fruit-growing.

PREPARING PHOSPHORUS POISON.—FOR the benefit of those who may not have a satisfactory method of preparing phosphorus bait, the *Contra Costa Gazette* gives the following: "To a pint of sweetened flour paste, while boiling, add two sticks of phosphorus, and stir constantly until the phosphorus is quite melted and thoroughly mixed with the paste. When so mixed, pour the paste over four quarts of dry Wheat, and stir until it is perfectly distributed; then throw in dry flour and stir thoroughly, and the bait is ready for use. If it should, in standing, cake together,

it will fall apart on being stirred or shaken; and when put out, is protected from combustion or spontaneous ignition by the dry paste coating, and is in very toothsome form and condition to be eaten by squirrels.

HARDY ROSES.—The June displays of Roses in England, in consequence of lack of rain early in the season, have not been as profusely supplied with blooms as usual, although the flowers were fine and brilliant. It is noteworthy that the older sorts hold their own against new-comers; as is evidenced by the fact that the following are named as conspicuous for quality on the occasion referred to:—Marie Baumann, Peter Lawson, Duke of Edinburgh, La France, John Hopper, Princess Mary of Cambridge, Madame Barriott, La Rhone, Charles Lefebvre, Boule de Niede, Comte de Paris, Prince Camille, De Rohan, Dr. Andrey, Victor Verdier, Madame Victor Verdier, Mdlle. Eugenie Verdier, Baroness de Rothschild, and Ipswich Gem. The following are also noted as being specially fine this season: Elie Morel, Ferdinand de Lesseps, Comtesse de Chabrilant, Alfred Colomb, Xavier, Olibo, Francois Michelin, Camille Bernardin, Dupuy Jamin, Fisher Holme, Exposition de Brie, Madame Hector Jacquin, Madam Vidot, Louis Van Houtte, Beauty of Waltham, and Madame Bravy. These lists will prove excellent guides for such of our amateurs as wish to make a selection of a few choice hardy Roses.—*American Garden.*

In 1493 Columbus took a cargo of domestic animals, seeds, vine-cuttings, and sugar-canes on board, and carried them to Dominica.

AZALEA MOLLIS.—This species of Azalea, a native of China and Japan, was introduced into Europe several years ago, but we are not aware that it has ever been introduced in this country. The flowers are as large as those of *A. indica*, the species and varieties of which are so well known in our greenhouses; and the habit of the plant is also somewhat similar, being very compact and of a dwarf, tree-like form. In Europe it has proved quite hardy; and this with the size and beauty of the flowers has attracted the attention of florists, who are breaking them into varieties. Mr. Van Houtte, of Ghent, now offers twenty varieties, and these, as novelties, are high-priced. We hope that some of our enterprising nurserymen will obtain them, and, by propagating, place them within the reach of amateurs. The introduction of a class of hardy shrubs having the beauty of our greenhouse Azaleas will be a great addition to our gardens. The colors of the varieties so far obtained run through the various shades of red, flesh color, white, primrose, orange, yellow and nankeen—spotted with other colors in the way of a Rhododendron. The trusses of flowers in many of the varieties are very large.—*American Garden.*

SONOMA AND MARIN FAIR.—The most beautiful and valuable decoration, and which at once struck our attention, was the wonderful display of all the varieties of delicious fruit of the season, cultivated by Sonoma fruit-growers. Think of a single table, forty feet long by four in width, covered with fifty-six varieties of choice Grapes, exhibited from the vineyard of one firm—the Morris Brothers, of Sonoma—besides varieties of Figs, Pomegranates, Olives, Oranges, Lemons, Almonds, etc. A

pyramid of a dozen varieties of Grapes decked its centre, Black Hamburgs, White and Flame Tokays, etc.; while a single bunch of Barbarossa, weighing five and a half pounds, must have equaled those the Israelite spies brought out of Canaan. But few other fruit exhibitors made fair showings of superior articles. W. H. Popper, of this township, exhibited seventy varieties of Apples and other fruits. This was the only one commensurate with the pomological character of the district. The Apples, Pears, Quinces, etc., exhibited by others, considering the season, was good, however. It is not safe to compare them with similar productions in the fruit-growing States from Nebraska to Massachusetts, unless the writer making the comparison had very recently witnessed exhibitions in all these States—for progress is the order of the day in all our enlightened Union. Besides, “comparisons are odious.” But it was evident, not only from this fruit-show, but from the enormous Cabbages, Squashes, Beets, Potatoes, and other vegetables here seen, as well as the choice Wheat and other cereals, that the rich soil of this district is that of which Douglas Jerrold said, “Only tickle it with a hoe, and it will laugh with a harvest.”

AMERICAN PASSION FOR FLOWERS.—It is stated that more bouquets (not button-hole) are made up in a single month in the city of New York than in the course of a whole year in the city of London. This is, perhaps, a trifling exaggeration, but Mr. Dickens said very much the same thing in writing of his American experience several years ago, so that it is evident that our love for flowers is sufficiently conspicuous to attract the attention of foreigners

FRUIT CULTURE IN FLORIDA.—But very little capital is needed for the starting of a grove, and the rewards of a successful one are very great. Oranges sell at from \$25 to \$68 per thousand in Jacksonville, and are readily transportable to any of the Atlantic seaports. When the necessary dredging and building of canals has been accomplished, so that the Indian River may have an outlet via the St. John's, the North will be supplied with Oranges of more delicate texture than any it has yet seen, and the number of groves along the river will be legion. The fitness of Florida for the growth of tropical and semi-tropical fruit is astonishing. Not only do the Orange, the Lemon, the Lime and the Citron flourish there, but the Peach, the Grape, the Fig, the Pomegranate, the Plum, all varieties of Berries, the Olive, the Banana, and the Pineapple grow luxuriantly. Black Hamburg and white Muscat Grapes fruit finely in the open air; the Concord and the Scuppernong are grown in vast quantities. The Guava, the Tamarind, the wonderful Alligator-pear, the Plantain, the Cocoonut and the Date, the Almond and the Pecan, luxuriate in southern Florida. We have within our boundaries a tropic land, rich and strange, which will in future years be inhabited all winter long by thousands of families, and where beautiful towns, and perhaps cities, will spring up.—*Edward King, in Scribner's for September.*

CORN AND HEMP IN THE FOOT-HILLS.—The *Placer Herald* says: "J. W. Payne has a ranch here in the foot-hills, a few miles from Auburn. He has raised each year a little hay, a few hogs, a few fowls, and cut a little wood, from which, in the aggregate, we suppose he has scratched together a pretty fair living.

A brother of his, Madison Payne, came out from Missouri about a year ago, and went to live on the ranch with J. W. He read somewhere or heard somebody say that anything would grow in this locality if well cared for. Being naturally enterprising, he determined to test the matter, and planted, besides many other things, some Corn and some Hemp. The result astonishes even the oldest settlers. Through the kindness of Mr. Payne, a stalk of the Corn and a stalk of the Hemp hangs against the wall in our office. The Hemp-stalk measures over five inches in circumference at the butt, and is fourteen feet long, and bore, Mr. Payne tells us, three quarts of as fine seed as he ever saw. The Corn-stalk still has one fine large ear of Corn on it, just nine feet from the roots, and was originally fifteen feet long. Mr. Payne comes from a State where Corn and Hemp are the principal productions, but he is free to confess that he never saw hemp fourteen feet high, nor an ear on a stalk of corn nine feet from the ground, until he saw these, and he thinks that these foot-hills, properly cultivated, will beat even the rich Missouri river-bottoms in the production of anything that grows. It is fair to add that this corn and hemp were raised on the common high red land."

A BEAUTIFUL BED OF GERANIUMS.—According to *The American Rural Home*, there was this summer in Rochester a Geranium bed, approaching perfection as near as any ever seen. This bed undoubtedly owes its great success to the care exercised in propagating the plants, in assorting and transplanting them, and in the care which they receive all through the season. Cuttings of the finest plants of the Gen. Grant variety are made during the latter part of sum-

mer. These are kept in the greenhouse until the latter part of May, when they are assorted, and the most vigorous ones used. The bed is oval, or palm-leaf shaped, highest in the middle, and well manured with rotten stable manure, and decayed leaves. The bed is kept clean and mellow all through the season, and the fading flowers removed. The result is a mass of brilliant scarlet bloom from June to October.

CULTIVATION OF TROPICAL FRUIT.—*The South* says: We understand that a company has been formed for the cultivation of tropical fruit, and is in treaty for a tract of 640 acres of land at Biscayne Bay, at the south-eastern extremity of Florida. This tract was a military post during the Florida war, and has growing upon it a large number of fruit trees, viz : Banana, Plantain, Coconut, Orange, Lime, Lemon, Breadfruit, Date, Guava, Mango, and others too numerous to mention. The capital of the company will be \$10,000, \$7,000 of which is already subscribed. Frost never reaches this place; the climate is delightful, winter or summer, and perfectly healthy.

TUBEROSE BULBS.—There are rules that the novice in these matters must bear in mind. Do not undertake to dry the bulb with all the top on; do not cut it off too near the crown of the bulb. Either proves injurious. The first, because there is such a mass of green, succulent growth to wither up, and consequently to engender decay; and the latter, because there will be great danger of destroying the germ in the centre. I have seen bulbs to all outward appearances sound and healthy,

but when I examined this vital point I found it gone beyond recovery, and the bulb was necessarily worthless. My practice is to dig them as soon as the first frost injures the leaves, cut them down to say three inches of the bulb, and then spread them thinly on a shutter, or what is better, a slatted frame, and place them in the sun or near fire heat, until every vestige of moisture has departed. It is really wonderful how much vitality there is in the leaves of this beautiful flower, for not unfrequently one has to wait for several weeks before they are ready to store away. When once thoroughly dried, I simply place them in a box without any packing material whatever, and keep them in a warm and perfectly dry place. The cellar near a furnace will answer, provided there is no dampness in the air. It is a good plan to examine them carefully during the winter to see if there is any moisture present, and if it is detected take them out at once, and again spread thinly over the top of a furnace or other surface, to remain until dry once more.

OXALIS LOBATA.—*Oxalis Lobata* is now flowering in Mr. Tyerman's garden, in Cornwall, and tempts us to call attention to this very interesting genus of plants, which would do so much to make our gardens more interesting at this season of the year. They are all of the easiest possible cultivation, and in dry soils perfectly hardy, or at the utmost a slight protection from heavy rains during the dormant season would make them quite secure. The bright yellow flowers of *O. Lobata*, which are large compared with the leaves and short stature of the whole plant, which is barely a couple of inches high, make a really pretty and pleasing feature,

and are sure to arrest the attention of the most casual observer. When planted in masses the ground looks studded with golden stars. *O. elegans* is, as its name implies, beautifully elegant; the leaves, which are of great substance and smooth, grow three to four inches high, and the flowers rise six or eight inches above the leaves, of a pleasing rich purple-lake with dark centre. *O. Deppei* is well known, its full reddish flowers being produced well above the neat foliage for several months in succession, and, like the beautiful *O. Bowiei*, would make an excellent variety in the modern flower garden. *O. floribunda*, with its numerous varieties, are hardy perennials, and are almost perpetual flowering. *O. Smithii*, with finely divided foliage, will become a general favorite when better known; at present it is scarce. Where the soil and situation are at all genial, we are quite certain that all the summer-flowering kinds will prove much more satisfactory when grown in the open borders "than as they usually are, cramped in pots;" even that weedy species, *O. lactæflora*, is much more interesting in the open ground.—*Gardener's Chronicle*.

PIRATICAL PLANTS.—Dr. Mellichamp, of Bluffton, S. C., who has been studying the insect-traps of the Pitcher-plant (*Sarracenia variola*) reports that there is a sugary secretion within the rim of the leaf-cup, extending all the way around the throat, and from one-half to three-fourths of an inch in depth. But, what is most curious, this saccharine secretion continues externally in a line along the edge of the wing of the leaf-cup down to the ground—thus forming a honeyed pathway to decoy insects, especially ants, up to the throat of the cup, whence they tumble into the wa-

ter it holds, and are drowned. Could a fox be more cunning? From his experiments Dr. Mellichamp was unable to discover that there was any intoxicating quality in the sugary secretion. On cutting off the rim of the cups, or pitchers, and exposing them to the flies in his house, he found that the insects would feed upon it and fly away unharmed. The fluid in the pitchers, however, seems to possess anæsthetic properties. House-flies, after a brief immersion in it, or after walking about in a thin layer of it, were stupefied or paralyzed in from half a minute to three or five minutes, but would gradually revive in the course of an hour or so.

THE INDIA-RUBBER-TREE.—Californians are prepared to believe, from the experience they have had, that almost every kind of vegetation will flourish in this State, whether it be from the temperate zones, or tropical or semi-tropical climates. And, in truth, the success in cultivating exotics from different parts of the world has been so great that it will not do to reject any plant until trial has been made whether or not the quality of our soils and the temperature of our climate are suited to its growth. A correspondent suggests that the India-rubber-tree might possibly be grown in certain parts of this State. It is cultivated in the vicinity of Panama, where the tree flourishes and attains its growth in about four years. At maturity it is tapped like Sugar-maple, and the rubber flow caught in basins dug in the earth. The price for this crude liquid is from \$22 to \$25 per 100 pounds, and the business of cultivating rubber orchards is found to be quite profitable. We have not heard that any attempt has been made in California to raise the

India-rubber-tree, but the experiment of transplanting might be tried by some of our horticulturists and farmers—particularly in the southern counties—and the problem as to whether it could be made to flourish could be thus solved at comparatively trifling expense.

WINTER BLOOMING PELARGONIUMS.—There is much difference among Zonale Pelargoniums as to their habit of blooming, some varieties blooming much more freely in winter than others; those of dwarf habit being the best for room or greenhouse culture. The following varieties are particularly adapted for this purpose:—Glow, dwarf, bright scarlet, prolific bloomer; Vulcan, brilliant scarlet, large truss; Vesuvius, fiery orange scarlet, dwarf, a free bloomer; Payne's Perpetual, rich scarlet, very dwarf, dense growth, trusses small, but a very profuse bloomer; Pioneer, pink-shaded salmon, dwarf, compact habit, free bloomer; Mrs. Upton, pink, a fine sort; Resplendent, orange-scarlet, large truss, good habit, and very showy. The Bride and White Swan, both pure whites, are good. Among the double varieties suitable for this purpose are—E. G. Henderson, carmine, dwarf habit; Jewel, deep scarlet, very dwarf habit, free bloomer; Mons. R. Abel, dark carmine rose, very fine; Marie Lemoine, deep pink, dwarf habit.

THE EUCALYPTUS GLOBULUS.—Mr. Learned has been experimenting for three or four years upon the Eucalyptus, in order to prove whether it will flourish in the black adobe of San Joaquin County without irrigation. In December, 1871, he obtained some seed of the variety mentioned above, and for the first season he irrigated them. Since

then they have not had a particle of water other than from natural causes. His trees are nearly three years old, and some measure six inches in diameter at the base, having attained a height of thirty-five feet. He maintains that he has established the proposition that these trees will grow without irrigation in San Joaquin County, and he believes that a similar result may be attained in the San Joaquin Valley generally, notwithstanding the difference of soil.

ERYTHRINA COMPACTA.—A new species, described as being one of the finest of the genera. It has very strong, rather erect shoots, very thickly set along their whole length with handsome deep red flowers.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING OCTOBER 31st, 1874.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office.)

BAROMETER.

Mean height at 9 A. M.	30.09 in.
do 12 M.	30.08
do 3 P. M.	30.08
do 6 P. M.	30.08
Highest point on the 28th, at 12 M.	30.30
Lowest point on the 25th, at 6 P. M.	29.81

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	58°
do 12 M.	64°
do 3 P. M.	63°
do 6 P. M.	57°
Highest point on the 7th, at 3 P. M., and 8th at 12 M.	75°
Lowest point on the 25th, at 6 P. M.	48°

SELF-REGISTERING THERMOMETER.

Mean height during the night	52°
Highest point at sunrise on the 9th	60°
Lowest point at sunrise on the 26th	43°

WINDS.

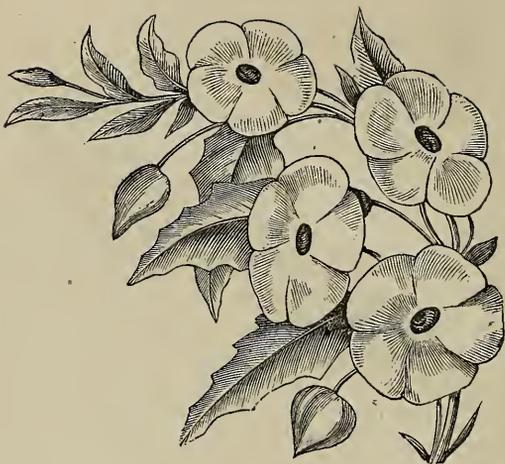
North and north-east on 4 days; south and south-east on 7 days; south-west on 5 days; north-west on 2 days; west on 13 days.

WEATHER.

Clear on 8 days; cloudy on 10 days; variable on 13 days.

RAIN GAUGE.

9th	0.17
15th	0.04
18th	0.07
19th	0.05
21st	0.27
22d	0.11
25th	1.86
27th	0.16
Total	2.73
Total Rain of the season to date	2.81



GROUP OF FLOWERS.

1. CARNATION (*Dianthus carophyllus* var).
2. DATURA.
3. CREPIS.
4. THUNBERGIA.

T H E

California Horticulturist

AND FLORAL MAGAZINE.

VOL. IV.

DECEMBER, 1874.

No. 12.

WINTER-FLOWERING PLANTS FOR THE CONSERVATORY.

BY F. A. MILLER.

Our California climate permits the cultivation of so large a variety of flowering plants in the open air, that cut-flowers are plentiful during spring, summer, and autumn; but during the months of winter, beginning with December, our gardens are destitute of choice flowers, and we are compelled to draw the supply from the greenhouses and conservatories. It is true that even in winter our Roses, Fuchsias, Heliotropes, and Pinks produce a reasonable amount of flowers in the open air, and Violets, Chrysanthemums, Diosmas, Laurustinuses, Ericas, Cestrum, Stocks, Stevias, Eupatoriums, and many others, are now coming into season, but what would all these be to a Californian without Camellias, Epiphyllums, Eucharises, Hyacinths, Begonias, Lilies of the Valley, and others, which contribute so much to the brilliancy of a bouquet or basket of flowers, and which must come from under glass.

Florists here, as well as elsewhere, experience difficulty in supplying the demand for cut-flowers in winter, and the

deficiency is greatly increased by the extravagance practiced in making up bouquets. An Eastern or European florist will make the flowers go twice as far as our florists do here. There each individual flower of the *Hoya carnosa* for instance is stemmed, while here we are in the habit of cutting the entire bunch and use it as such. The same is done with Bouvardias, Fuchsias, and others.

It is apparent that florists (and this applies equally well to amateurs and all those who cultivate flowers), should cultivate more and also a greater variety of winter-flowering plants, in order to satisfy the continually growing demand for flowers; also to adopt a better system of forcing plants out of their season. A few suggestions in this direction will not be out of place.

The *Camellia Japonica* is too well known to require any comments, and our market is pretty well supplied with it. It is our best winter-flowering plant, and no one can do without it.

The next best plant I consider to be *Eucharis Amazonica*, which with a very little heat and a good supply of moisture is a most profuse bloomer. Its pure white flowers are deliciously fragrant, and keep in good condition for a

week. This plant should be extensively cultivated.

The *Azalea indica* is an excellent winter-flowerer with us, as well as the *Rhododendron*, which, however, comes in later in the season. Their flowers are not of lasting quality, but their bright colors are very effective in a basket or large bouquet. As flowering plants for the conservatory they are indispensable. We have not been very successful in California with the Azalea, plants rarely having survived the second year, but I am convinced that the difficulty can be overcome by changing our present mode of cultivation. I believe that if Azaleas are kept out of doors during the summer months, well sheltered from the wind, and frequently syringed, the casualties would be less numerous. The pots certainly must be plunged.

The various varieties of *Hibiscus rosa sinensis* are apt to flower with us in winter as well as in summer, and their flowers are most desirable for basket-work.

Of the *Begonias*, the best and most desirable are, for winter, *B. nitida*, *B. parvifolia*, *B. Weltoniensis*, and *B. Verschaffelti*.

Crassula falcata produces very graceful flowers, useful for any purpose. The plants should be kept rather dry during the autumn months, to insure a good crop of flowers.

Abutilon vexillarium, if planted against a back wall of a conservatory, will furnish abundance of bright flowers all through the winter. They are well calculated to brighten up a bouquet.

The *Gardenias* (Cape Jasmines), if kept in a temperate bottom heat with plenty of pot-room, will furnish a good supply of flowers during winter. It is true, that these should take the place of Camellias, when the latter cease to bloom, and that they require some rest to have them come in well in their season, but

I find that they can profitably be kept in growing condition all the time, without injury. The value of flowers of the Cape Jasmine is such, that we can not afford to lose any opportunity to have them in bloom at any time.

The *Ixora*, *Lapageria*, *Bendeletia*, *Pentas carnea*, *Epiphyllum*, *Libonia*, *Aphelandra*, *Clerodendron*, *Cyclamen*, *Streptocarpus*, *Poinsettia*, *Primula chinensis*, *Rhynchospermum*, *Tabernæmontana*, *Chorizema*, *Jasmine*, *Dipladenia*, *Francisca*, and a host of others too numerous to mention, can very profitably be added to the list of winter-flowering plants, while some of them are very rarely met with.

PRIESTLEY'S GREAT DISCOVERY IN VEGETABLE PHYSIOLOGY.

The Swiss chemist, Bonnet, had remarked that bubbles of air escaped from the leaves of plants when placed in a vessel of water and exposed to the air. Priestley, remarking the same circumstance, pushed the discovery further by showing, first, that the bubbles of air were emitted from the tissues of the leaf itself, and next that this air consisted of oxygen gas. Seeing that air is as necessary to plant-life as to animals, he thought that the quality of that air must be the same in the two cases, and that the action and results would be the same in both. He was previously, of course, aware that animals deteriorated the atmosphere by their breathing, so that if an animal be shut up in a close vessel or jar without access of fresh air, it sooner or later dies, stifled by its own emanations; and more than this, Priestley had ascertained that a lighted candle introduced into a vessel in which an animal had been confined, was forthwith extinguished—the air being rendered so impure as not

to allow of combustion. But when he came to experiment on plants, he was surprised to find opposite results. He took a spray of Mint, placed it in a closed vessel, inverted that over water, and exposed the whole to the action of light. He imagined that a lighted taper introduced into this vessel would be extinguished by the exhalations from the plant, as it had been from those of the animal. But it was not so. The light introduced into the vessel which had held the plant burned freely, and a mouse was found to live perfectly well in it. Again, on August 17, 1771, he tells us he placed a spray of Mint in a vessel filled with air so impure that a candle would no longer burn in it. Ten days after the introduction of the plant, he found that a taper would burn perfectly well in it. He repeated the experiment frequently, always with the same result. When, he further tells us, he placed sprays of Mint in an atmosphere strongly tainted with putrid vapors from decaying animal matter, the shoots grew with extraordinary vigor, and this in an atmosphere prejudicial to animal life. These experiments led Priestley to the conclusion that so far from plants affecting the atmosphere in the same way as animals do, the exact reverse was the case, and that plants had the function of purifying the atmosphere corrupted and rendered impure by the breathing of animals. This was truly a splendid discovery to make, and that it was considered so even at the time is evidenced by the fact that the Royal Society awarded Priestley a Copley Medal. Ingenhouz some years later complemented Priestley's discovery by showing that in darkness plants vitiate the atmosphere by the emission of carbonic acid gas, while Senebier ascertained that the oxygen gas eliminated from the leaves and green parts of plants,

under the influence of solar light, was derived from the decomposition of the carbonic acid gas taken up by the plant by the leaves and roots.

The value of Priestley's discovery, and the accuracy of this statement, remain unaffected, though in our own times a different interpretation is put upon them. We have seen that Priestley speaks of the emission of gas from the leaves as a process of respiration, like the corresponding process in animals, save that the nature of the expired gas was exactly opposite in the two cases. Modern research, however, goes to show that the process which Priestley discovered is not the true respiratory process, but is a process of assimilation or nutrition. The true respiration of plants is, as Priestley himself originally surmised, the same as that of animals. The elimination of oxygen under the influence of sunlight is, on the other hand, a process of digestion in which the carbonic acid gas derived from the air or the soil is digested and altered in the plant; and as a result of which, the carbon is retained in the plant to build up its tissues, while the oxygen is given out. Respiration proper goes on in light or in darkness alike, carbonic acid gas being under both conditions eliminated. The deoxidizing process, as we have seen, goes on but in the green parts of plants when exposed to the full light of the sun. The discovery then of oxygen gas, and the unraveling of the history of its emission from the leaves, constitute the chief claims which Priestley has on the grateful remembrance of physiologists.—*Gardener's Chronicle*.

THE PLANTAIN-TREE was carried from the Canaries to Hispaniola, by a Dominican, in 1516.

FERNS AND THEIR POETRY.

BY E. J. HOOPER.

"Beautiful Fern!

Much have I loved, where thou art reared in
greenest strength, to stray,
And mark thy feathery stem upraised, o'er lich-
ened rocks and gray;
Or in the fairy moonlight bent, to meet thy sil-
very hue;
Or glistening yet, when noon is high, with
morn's unvanish'd dew."

These are the beautiful children of the cliff, rock, stream, bank, and flood, of chaparral, mountains, hills, glens, and cañons. Their haunts are frequently among the spray of water-falls, or cavern roofs beneath which the wild waves come and go. They sing concerning the beauty of creation, of their own wild homes, and how mysteriously they are connected, not only with rocks and soils, but with every wandering sunbeam, wind, or shower that visits the place whereon they grow.

There is the majestic crowned prince of Ferns, the Flowering Fern, bearing its rich brown seeds in spikes resembling sceptres; growing according to its mood, either erect and rigid, or else gracefully bending above the current, and forming a shelter for the timid coot.

The common Spleenwort is found in almost any locality, from rocks and caves to mossy banks and ravines. What lessons of wisdom, deep skill, and wondrous beauty of effect may be learned from the humblest Fern, and is developed by the reflection or refraction of such rays of light as visit its lone resting-place—perhaps a shrub-embowered recess among the dripping rocks at the head of some wild cañon.

"My place is not where art exults to raise the
tender flower,
By terraced walk, or deck'd parterre, or fenced
or sheltered bower,

Nor where the straightly leveled walks of tan-
gled boughs between
The sunbeam lights the velvet sward, and
streams through alleys green.

"My dwelling is the desert heath, the wood,
the haunted dell,
And where the wild deer stoops to drink beside
the mossy well,
And by the lake with trembling stars bestud
when earth is still,
And midnight's melancholy pomp is on the dis-
tant hill."

The Scaly Hart's-tongue is a Fern that has a prescribed range. Its natural habitat is the fissures of dry rocks, for its brown and scaly roots possess the property of readily penetrating through the smallest opening. Hence this tribe is seen with its reddish yellow blooms on the bold fronts of high and beetling crags, such as are to be climbed in the Napa Valley section of the Coast Range, and other mountains. The elements befriend it—dews and showers, winds and sunbeams—and its wondrous and beautiful machinery causes it to derive benefit from all these. When the sunbeams visit it, it obtains greenness for its leaves; when the rain, such moisture as it needs; when the wind, whether gale or zephyr, that degree of exercise which all plants require that the sap may freely circulate.

Other tribes of Ferns embellish the wildest solitudes of nature. The Rock-brake forms a cheerful and pleasing contrast to the dark-gray masses of weather-beaten rocks, among which it loves to nestle.

The Sea Spleenwort finds a home in the crannies of sea-cliffs, or in the gloomy recesses of marine caverns; their rough and quarried roofs being often mantled, by its aid, with a luxuriant vegetation. I found this Spleenwort, or a species of it, on the rocks near the sea, when fishing, lately, for salmon on the Butenal Creek, near the

village of Pescadero. Its flowers were in the shape of an upright small paint-brush, and of a beautiful pink color. It festooned some of the rocks in a most graceful manner.

The common Polypody hangs profusely, with its bright yellow-spotted leaves, around places shaded by high rocks or thick foliage, where its black, wiry, and often creeping roots form, not unfrequently, a dense mass resembling net-work. Poetry gathers instruction and melody even from way-side weeds. The reason of this is obvious: because in no locality, however lone, may this graceful tribe be wanting, either to ornament some sterile place, or to afford a home for birds or such small winged or creeping insects as nestle beneath their leaves. This Polypody festoons cliffs and rocks, from out which the gray owl flies suddenly, and often brushes near and over us in the twilight hours; and many a wood-pecker owes to it a pleasant screen for her young ones from the hot beams of the summer sun,

“When there is not wind enough to twirl
The one red leaf, the last of its clan,
That dances as often as dance it can,
Hanging so light, and hanging so high,
On the topmost twig that looks up to the sky.”

We have in California a species of the common Brake on every hill, mountain, wood, and waste, grouping beside our pathways, and embellishing those heathy and windy ranges which the wild deer love. It shades many a green bank where the wild Tiger Lily looks forth from its green nook on the trout-stream, and where the sober-vested and gracefully formed mocking-bird flits quietly and almost tamely with its common chirp, in such contrast with its inspired moments of sweet music and song. The timid leveret loves to hide beneath its friendly canopy; the quail often runs

to it for shelter. Linnæus gave this Fern the specific name of *Aquilina*, fancying that it resembled a spread-eagle.

The Black Maiden-hair affects the crannies of beetling rocks, or waves sometimes in the stillness of yawning chasms, where life and limb would be periled to obtain her.

The elegant and fragile Lady-fern delights to grow beside clear streams, where quivering lights and shadows dance on the green grass:

“Where the copse-wood is the greenest;
Where the fountain glistens sheenest,
Where the morning dew lies longest,
There the Lady-fern grows strongest.”

That graceful plant owns no companionship with dank sea caverns or dripping rocks; neither does she display her slight and feathery fronds where cold winds contend for mastery, or yawning chasms depress the mind with feelings of dread and loneliness. Her haunts are sunny banks, where bright waters well and ripple, and the wild bird pours forth his melody.

Beautiful and poetical as groups of Ferns are in all their numerous varieties, both waving in the summer breeze and reflecting the rays of light, and collected in exhibition-halls, conservatories, and private apartments, they are, especially in their natural state, laboratories, wherein chemical operations are being carried on night and day. Into them the deleterious gas called carbonic acid, which is breathed out by men and animals, is mysteriously impelled, and so acted upon as to be sent forth again in the form of oxygen gas, to be useful and healthful to animal life in common with every leaf that quivers in the sunbeams. Life could not be sustained without this immense vegetation; and without its wondrous chemistry both men and animals would be suffocated by that deleterious vapor, which, although

invisible, is continually ascending, or spreading like a low-creeping mist upon the earth.

One genus of plants also depends upon the other—as by way of example the Ferns and the Mosses—by the active ministry of air and light:

“There were Ferns on the mountain, and Moss
on the moor;
The Ferns were the rich, and the Mosses the
poor.
And thus and forever, where ’er the Ferns grow,
There surely the Mosses lie sparkling below.
* * * * *
And thus they both flourish where nought grew
before,
And both deck the woodland, and mountain,
and moor.”

A VALLEJO NURSERY—THE AUSTRALIAN GUM-TREE.

Mr. Shillingsberg, of the Union Nursery, reports that he is establishing an important trade with the East, and making large and continuous shipments, mainly of shade-trees and flowers, by mail. Not a day passes but more or less orders from the East are filled. The young plants are sent when quite small, packed with moss. So far the Union Nursery has been very successful with its shipments, as nearly everything sent forth has grown and flourished, and some of the Orange-trees sent to Philadelphia are now bearing fruit—in conservatories, of course. A shipment to Philadelphia has just been made of Australian Gum-trees, *Pyramidalis*, *Golden Arborvitæ*, and *Monterey Cypress*. This shipment is an experiment, to see whether they can grow under the climate prevailing there. In case they do live, and Mr. Shillingsberg is inclined to think that such will be the case, this is undoubtedly the commencement of a large exportation of this kind. From a friend who arriv-

ed on the U. S. S. *Tuscarora*, Mr. Shillingsberg has received one hundred packages of Japanese flower and shrub seeds. The different kinds of seed, which were put up in the Japanese style, are in separate packages, each marked with some unintelligible characters and having a rough picture of the flower. The latter is a new wrinkle, which our nurserymen and florists have not yet acquired, but which they might profitably copy from the Japanese. A part of the seeds received have already been planted, and rare and precious varieties are expected.

Shillingsberg states that the Australian Gum-trees are now for sale at from \$10 to \$12 per hundred, from a foot to a foot and a half high and ready for planting. The *Eucalyptus* is coming to be appreciated everywhere, and the demand for it is great. This is not surprising, as it possesses so many of the qualities calculated to render it popular both as a shade and ornamental and forest tree. In the first place it is not a delicate and fragile plant requiring constant care and attention when first set out, but will do without water if put in the ground during a favorable season. Another recommendation it possesses is its extremely rapid growth. It attains a great size before other trees planted at the same time are more than a few feet above the ground. Farmers having vacant or untillable land would do well to plant it with *Eucalyptus*, as they would with any other crop. The trees will be available as timber in the comparatively short space of ten years, and as the wood is tough and strong it can be used for many purposes where those qualities are required, as for instance in wagon-poles, oars, etc. Several parties in this State have entered upon the planting of the Gum as a speculation upon a large scale, with the

expectation that the timber will be especially valuable for railroad ties. These capitalists would not move in the matter without first carefully investigating it, and they have come to the conclusion that a forest of Eucalyptus is one of the best-paying pieces of property that could be owned. It is acknowledged that California's timber is being swept off at a rapid, indeed a fearful, rate. If the denuding of our wooded lands continues as fast as at present, in forty years all available forests will be exhausted. Not only a lack of timber is anticipated, but it is feared that our climate may be injuriously affected by such changes. The Legislature of the State has recognized these dangers, and offered a premium on trees planted on public highways. Winter is now near at hand, and farmers ought to give the proposition to go into the culture of Eucalyptus a thought. There is no doubt that this is the tree, as matters stand at present. It is hardy (in this climate), rapid in growth, and when it has once taken root in the soil, it needs no second planting, for, on being cut, the trees immediately shoot up again from the stumps. On account of the rapid destruction of our natural wood supply, the timber of forests which shall be started now will ten years hence be worth more than it would bring at present. Besides the reasonable expectation which may be entertained of a remunerative return a few years hence, there are other advantages to be gained that are worth attending to. A forest renders the cultivated land in its neighborhood more valuable than it would otherwise be, both from the convenience of having a near supply of wood for all purposes, and because the forest attracts moisture and lessens the danger of drought, which in our climate is the scourge and terror of agriculture. Fur-

thermore, all testimony goes to prove that the Gum-tree possesses sanitary properties of a high order, being a very effectual guard against malaria. To illustrate: The editor of the *Kern County Courier* owns a farm in a malarial region, and every summer the people living upon it have been attacked by fevers; until last spring some Eucalyptus seed was planted in one locality, and throughout the heated term persons dwelling in the immediate vicinity have enjoyed perfect health, while other people in a different part of the rancho have suffered as usual. But it is not here alone this tree is being planted. In Algeria and Italy it has been introduced, and is to be tried as a disinfectant in the Roman Campagna, which still sweeps around the Eternal City as it did when Julius Cæsar tried to drain it, and poisons the air with its noxious exhalations. If the Eucalyptus can rob the Pontine marshes of their terrors, it will have done what the hand of unlimited imperial power had never been able to accomplish. In the forests of its native Australia the Gum-tree grows in a thick dense grove, closely matted together with interlacing branches, and thus the slender stems support one another. It would have to be grown in the same way if planted in California on a large scale as a forest-tree. A San Francisco paper speaks as follows of the proposal to introduce the tree in the San Joaquin Valley: "The San Joaquin Valley is not only treeless, but malaria prevails over a large extent of it, and is especially bad in the Kern River country. If irrigation is generally adopted in that valley, the tendency will probably be to a greater development of this scourge. What if this great, treeless, arid valley were dotted all over with the Eucalyptus? Here is an evergreen which takes kindly to a wet

or a dry soil, and, like the Alfalfa-grass, sends its roots down to moisture, absorbing a great deal, if it can find it, but growing slower and surely with less. In the East the Palm-tree of the desert is a sign of water. On the arid plains of the interior the Eucalyptus will yet be a sign of water, health, and fertility. If its sanitary qualities are hardly so great as some have represented, it will always have the qualities of one of the cleanest and most ornamental shade-trees ever introduced into the State. If it really can absorb the malaria, and flourish on that kind of nutriment—and the authorities are not lacking on that point—how much better will this plan be than that of taking up malaria into the human system, and then be compelled to swallow the village drug-store to drive it out!"

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ABOUT SUNFLOWERS.—Sunflowers are rich in honey, and are consequently good neighbors for bees. Oil, hardly to be distinguished from Olive-oil by any one but an expert, may be extracted from the seeds, in the proportion of one gallon to one bushel. One acre will produce something like fifty bushels of seeds. The seeds, too, make food not unpalatable for human beings, and very good for animals and poultry. The Portuguese and American Indians make a kind of bread from them, and roasted they may be ground and used as a substitute for Coffee. The stalks may be used as Bean-poles while growing. Dry, they make passable roofs for sheds and the like, and burn rapidly on the hearth. The ashes are very rich in potash. Altogether it is a very useful plant; and, to crown all, it has a reputation which the scientists have never disproved, for absorbing malaria, and acting as an effectual screen against that scourge of low-lying districts—fever and ague.

BEE-CULTURE IN CALIFORNIA.

BY DR. HENRY DEGROOT.

For nearly ten years after the American occupation of the country, it was the general impression that the honey-bee could not thrive or even exist in California. What led to this opinion was the fact that our people, on their arrival, found no domestic or wild bees here, the insect not being indigenous, and the Spanish settlers, who preceded us, never having introduced any. It was also inferred, that even if the insect were able to subsist here, bee-culture could hardly prove profitable, as they would not be likely, owing to the peculiarities of the seasons, to lay up much honey. To recall the many reasons assigned for this opinion, is now matter for amusement. It was argued, for instance, that there being no time during the year when the bee could not gather enough food for its daily subsistence, it would have no inducement to collect and hoard as in countries where long winters made this necessary. That though it might, acting under the impulse of instinct, continue for a time to provide the usual store, the bee would, seeing there was no necessity for it, ultimately discontinue this provident habit, and the entire hive degenerate into a species of drone, doing just enough and no more work each day than would suffice to appease the cravings of hunger.

And the argument seemed plausible at least. Had not this been the effect of the climate upon the aboriginal tribes, and afterward on their successors, the Spanish race? Encouraged by the mild winters, and the ease wherewith they could supply their daily wants, had not these peoples fallen into an improvident sort of hand-to-mouth style of living?—and would it not be reasonable to sup-

pose that the animal creation, relieved from the pressure of necessity, would in like manner relapse into habits of idleness and unthrift—even “the little busy bee,” the type of frugality and plenty, becoming, after the fashion of the human family, careless of hoarding and industrially demoralized? Of course there was no gainsaying the above facts, and why should not like conditions produce like results?

Or if the bee should not so degenerate into a mere “bummer,” so to speak, it was supposed that these insects would be obliged to reverse the seasons of their greatest activity, gathering the most of their supplies in the winter and spring months, when their natural pasturage was most abundant, and remaining idle during the rest of the year, when the vegetable world was dry and lifeless, and all their sources of aliment were cut off. Indeed, it was feared that the poor creatures, confounded by these unusual conditions, would neglect, when food was plentiful, to lay in a store for this season of want, and so starve to death during the long dry summers incidental to California.

Deterred by what seemed these very good reasons, no one ventured on the experiment of bringing out to this coast the honey-making bee, until, if we recollect aright, the year 1858, when Mr. J. B. Harbison, starting from the East with a number of hives, and coming by the Isthmus, succeeded in reaching San Francisco with a single one, all the others having perished on the passage. From this hive and others, afterward imported with more success, all the bees now in California have sprung. Mr. Harbison, then a nurseryman at Sacramento, commenced his bee-culture at that place, where his stock increased to more than a thousand swarms within the next ten years, exclusive of a large

number sold meantime to other parties. This gentleman, who thus became the pioneer apiarian of the State, afterward removed to San Diego, where he has since been extensively engaged in the same line of business, being now the owner of more hives than any other man on the coast.

It is a singular fact that the bee appears to make more honey, and do better generally, in San Diego, one of the most dry and barren counties in California, than in any other part of the State. Flowers, except for a few months in the spring, are scarce in San Diego; nor is there at any time much verdure there. In short, all those substances that, according to our preconceived notions, are adapted to furnish suitable bee-pasturage, have in that county been reduced to a minimum. The annual rain-fall there is comparatively small, in consequence of which vegetation, never luxuriant, dries up early in the season; what then the bees can there find to so thrive upon, passes our comprehension.

But these tiny creatures are endowed with wonderful instincts, through the aid of which they are enabled to detect the presence of suitable food, where man, with his grosser senses, can find none. Then they are expert gatherers and skillful chemists, extracting and transforming, in a marvelous manner, the crude material from plants and other sources where we would never think of looking for it, and sometimes from such as to us would seem distasteful and even repulsive. Thus, one of their most prolific sources of food-supply is the wild Mustard and the Sage-brush—the latter, the characteristic vegetation of dry and sterile regions; both of these plants being regarded as nuisances wherever they are found growing. From the first of July to the end of September the

bee feeds much on what is popularly called honey-dew, a saccharine and slightly glutinous substance, found at this season adhering to the leaves of certain trees and grasses, and also on a species of cane that grows in marshy places. This stuff is by some supposed to be an exudation from the body of the aphid, an insect styled by zoologists the *pucceron*, and by people less learned the plant-louse. Others are of the opinion that it is deposited by the atmosphere, being a substance analogous to the manna upon which the Israelites are said to have been fed during their passage through Arabia, as related in Holy Writ. The honey made from this substance has an unpleasant flavor, and not being fit for the market, is used by the apiarian for bee-bread.

Of course the bee experiences, here, no lack for food during the spring and early summer, when the wild flowers everywhere abound, when the meadows and grain-fields are in bloom, and the fruit-trees covered with blossoms. Even later, when these have disappeared, and all the vegetation has passed into "the sere and yellow leaf," the flowers and the clover, unbleached by rain, still retain their sweet juices long after they have become dead and odorless. Then we have certain flowering shrubs and trees, some of them affording almost perpetual forage; while the Buckwheat, among grains, comes in a little later than the other cereals, delighting the bee with its rich and luscious nectar.

In view, however, of the large store of honey these insects manage to gather here, and the seeming dearth of suitable food that prevails during a good part of the year, we are compelled, in candor, to admit that it is to us a mystery whence they derive the raw material for making it; it being a fact that the bee, while it finds in San Diego and

other of the more southerly counties a favorite field of labor, thrives almost equally well in the more northern sections of the State; and even here in San Francisco, where it is shut out from easy access to the region of wild flowers, and from the great grain-fields and grass lands of the farming and grazing districts, as well as from the mountain forests and the flowering trees of the interior, this creature of inexplicable habits hoards and colonizes, and in all respects appears to get along moderately well.

While recently in Weaverville, Trinity County, several hundred miles north of San Francisco, we were led to notice the very thrifty appearance of the bees in the large apiary of Dr. Ware, at that place; and on inquiry, learned from him that he had been in the business for a great many years, and that his bees had prospered amazingly, swarming often, and laying up a great deal of honey, with no other care on his part than simply furnishing them hives when wanted. The price of honey in Weaverville is scarcely more than in San Francisco, while the cost of hives was the same, Dr. Ware having 100 for sale at \$5 apiece. As the winters are tolerably cold in that section, the bees go into a state of partial hibernation during that season, feeding then on their accumulated store to a greater extent than during the summer; the reverse of this being true in most other parts of California.

With us the bee makes more honey, and generally of a better quality, than in most other countries, the annual quantity made here to the hive ranging from 50 to 100 pounds, and averaging fully 75 pounds, which is at least one-third more than is produced in the Atlantic States. As yet, our apiarians have experienced but little trouble from moths or those other pests so common

elsewhere; nor do they apprehend much annoyance from this source hereafter, now that there will be no more importation of broods from the East.

To illustrate the great quantity of honey being made in California, it may be stated that we usually speak of the production by the ton, and of shipments abroad by the car-load. For instance, Mr. Harbison reports his product for the present year at about 100 tons, one half of which, consisting of six car-loads, he has already sent East, the balance soon to follow. He has now 2,000 hives in his apiary, some of his neighbors owning nearly an equal number. It is estimated that the bee-raisers of San Diego County will export, this season, 500,000 pounds—250 tons of honey: of this, 350,000 pounds have already been sent away in the comb. San Bernardino, Los Angeles, and Santa Barbara counties, are also large exporters of honey, while nearly every other county in the State makes enough for home consumption, and some of them a good deal more.

As but little capital is needed to embark in bee-culture, and but little skill or labor required to carry it on, while the product is almost a clear gain, it seems strange that more of our people have not engaged in it than have done so up to this time. Every family owning a homestead, or that expect to abide long in one place, should, where they have the proper facilities, provide themselves with a few hives of bees, both as a means of pleasant recreation, and of profit. The idea that these insects are vindictive, and apt to attack those coming about them, is not well founded. With proper management they can be so domesticated as to be perfectly harmless, and even be trained to habits of great familiarity with those who are daily about them.

GARDENING FOR WOMEN.

There is nothing better for wives and daughters, physically, than to have the care of a garden—a flower-pot if nothing more. What is pleasanter than to spend a portion of every passing day in working among plants, and watching the growth of shrubs, and trees, and vines, and to observe the opening of flowers, from week to week, as the season advances? Then how much it adds to the enjoyment to know that your own hands have pruned and trained them—this is a pleasure that requires neither great riches nor profound knowledge. The humble cottage of the laboring poor, not less than the grounds of the rich, may be adorned with plants, which in due time will become redolent of perfume, not less than radiant with beauty; thus ministering to the love of the beautiful in nature.

The wife or daughter that loves home and would seek ever to make it the best place for husband and brother, is willing to forego some gossiping morning calls, for the sake of having leisure for the cultivation of plants, shrubs, and flowers. The good housewife is early among her plants and flowers, as is the husband at his place of business. They are both utilitarians—the one it may be in the abstract, and the other in the concrete; each as essential to the enjoyment of the other as are the real and the ideal in human life. The lowest utilitarianism would labor only for the meat that perisheth. Those of higher and more noble views would labor with no less assiduity for the substantial things of life, but would in addition seek also those things which elevate and refine the mind and exalt the soul.

The advantages which women personally derive from stirring the soil and snuffing the morning air, are freshness

and beauty of the cheek and brightness of eye, cheerfulness of temper, vigor of mind, and purity of heart. Consequently she is more cheerful and lovely as a daughter, more dignified and womanly as a sister, and more attractive and confiding as a wife.

Hence the fruits and products of garden culture, as they relate to woman, when viewed objectively, are but small relatively, as compared with the benefits secured in regard to herself as the centre of social refinement and enjoyment, amid such a world as ours. A husband who revolves round such a centre can not but be a good neighbor, a useful citizen, a kind father, a loving and confiding companion. Do not, then, mothers and sisters—the latter wives in prospect—neglect the garden.

LOVE OF FLOWERS.

BY AN AMATEUR.

The flowers in all ages have been made the representatives of purity and innocence. We decorate the bride, her path we strew with flowers, and make a beautiful floral arch or arbor under which takes place the marriage ceremony, and beneath whose decorations she receives the bridal ring; we present the undefiled blossoms as a similitude of her beauty and untainted mind, trusting that her destiny through life will be like theirs, grateful and pleasing to all. We scatter flowers over the shell, the bier, and the earth, when we consign our mortal blossoms to the dust, as emblems of transient joy, fading pleasures, withered hopes; yet rest in sure and certain trust that each in due season will be renewed again. All the writers of antiquity make mention of the uses of flowers in heathen and pagan ceremonies, whether of the temple, the banquet or

the tomb—the rites, the pleasures, or the sorrows of man.

The love of flowers seems a naturally implanted passion, without having any alloy or debasing object as a motive: the cottage has its Pink, its Rose, its Polyanthus; the villa its Geranium, its Dahlia, and its Clematis. We cherish them in youth, we admire them in our declining days. But, perhaps, it is the early and peculiar flowers of spring that always bring with them the greatest degree of pleasure, and our affections seem immediately to expand at the sight of the first opening blossom (for in this paradise of flowers, California even, in the winter season, we have a brief period of rest in vegetation) of a purely spring flower underneath the sunny fence, or sheltered bank, however humble its genus. During the months of our rainy season our love of nature, like the buds of much of our vegetation, seems in some degree in suspension and torpidity; but, like these reposing buds, it unfolds and reanimates with the opening year, and we welcome our temporarily lost associates with a cordiality that no other season can so much excite, and as friends returned again. The Violet of autumn is not greeted exactly with the same love with which we hail that of spring; it is unseasonable according to our associations and ideas. Perhaps it brings with it rather a thought of melancholy than of joy. We view it with the curiosity attached to our marvelous climate which continues our flowers and fruits so long, rather than with affection. And thus, too, the late is not like the early Rose. It is not altogether intrinsic beauty or splendor that so much charms us, for most of these fair maids of spring can not compete with the grander matrons of the advanced year. They would be unheeded, perhaps lost, in the rosy

bowers of summer, and of autumn. No; it is our first meeting with the floral gems expressly belonging to or associating with spring, perhaps in other climes from which we have come, that so warms us at that season. At maturity they give pleasure, as harbingers of the renewal of life, a signal of awakening nature, or of a higher promise; to youth, they are expanding being, opening years of hilarity and joy; and the child, let loose from the house, riots in the flowery mead, and is "monarch of all he surveys."

There is not a prettier emblem of spring than an infant sporting in the sunny fields, with its Osier basket wreathed with Poppies, Buttercups, Orchises, and Lady's-slippers. With summer flowers we seem to live as with our neighbors, in harmony and good-will; but spring flowers are cherished as private friendships.

The amusements and fancies of children, when connected with flowers, are always pleasing, being generally the conceptions of innocent minds unbiased by artifice or pretense. Children's love of flowers seems to spring from a genuine feeling and admiration—a kind of sympathy with objects as fair as their own untarnished minds; and I think it is early flowers which constitute their first natural playthings. Though summer presents a greater number and variety, they are not so fondly selected.

The cultivation of flowers is of all the amusements the one to be selected and approved as the most innocent in itself and most perfectly devoid of injury to others. The employment is not only conducive to health and peace of mind, but probably more good-will has arisen and friendships been founded by the intercourse and communication connected with this pursuit, than from any other whatsoever. The pleasures, the

ecstasies of the horticulturist are harmless and pure. A streak, a tint, a shade, becomes his triumph, which, though often obtained by chance, is secured alone by morning care, by evening caution, and the vigi ance of day. Flower culture is an employment which, in its various grades, excludes neither the opulent nor the indigent, and teems with boundless variety, affording an unceasing incitement to emulation without contempt or ill-will.

What can be more popular now than the bouquet? What fashion can be more commendable than its charming display? In our clubs and associations, dinners and parties, it is an essential and indispensable appointment. The button-hole flowers of our men of business, coming either from Oakland or our other suburbs, or from their own private gardens in this city, seem to speak well of their characters and taste to all beholders. A superb Carnation or Rose-bud, cherished in some favorable location, and probably presented by the hands of a wife, sister, or lover, forms a sweet and beautiful appendage near the heart of the wearer, gives him a sprightly and refined hilarity, and is a pleasant letter of recommendation to strangers as well as to his friends and acquaintances.

"She died," said Polly, "and was buried in the ground where the trees grow." "The cold ground?" said the child, shuddering again. "No; the warm ground," returned Polly, "where the ugly little seeds are turned into beautiful flowers, and where good people turn into angels and fly away to heaven."—*Dickens.*

For Roses it is found that the Briar is best stock on a clay soil, and the Marietta stock on a sandy or light soil.

ANALOGIES.

BY EDGAR FAWCETT.

I lounge against my garden-gate;
 On one side heaven the sun hangs low;
 Down one side crawls the exhausted storm
 That flashed and crashed an hour ago.
 I lounge and see, with musing eye,
 Two Roses and a butterfly.

One is a sumptuous languid Rose,
 That bows its heavy, lovely head,
 While each fresh petal's velvet curve
 Burns with the same deep drowsy red;
 Circe her subtle self (who knows?)
 Plotting new sorceries in a Rose!

One is a pale pure bloom, with leaves
 Like satin in their lustres mild,
 Half-closed, and faintlier flushed than looks
 The chaste palm of a little child;
 Or pink as some late sunsets are,
 That yearn to feel the evening star!

The butterfly's quick, quivering wings
 Wear each the blending of such hues
 As lurk in some old tapestry's
 Dim maze of crimsons, golds, and blues;
 Wings where dull smoldering color lies,
 Lit richly with two peacock eyes.

He can not leave the great red Rose;
 He flutters near it loath to part
 From all the fragrant charm which girds
 That blood-drop warm from summer's heart!
 And on the pale Rose, glimmering near,
 One rain-drop sparkles, like a tear!

JAPAN FRUITS.

BY HON. HOBACE CAPRON.

These are grown in all parts of the empire. The soil and climate are especially adapted to the growth of semi-tropical fruits. The former exclusiveness of Japan prevented the introduction of the better varieties. Isolated as they were, they contented themselves with half a dozen inferior varieties. Oranges, Limes, Lemons, Grapes, Persimmons, Pears, and some Blackberries, all very inferior, (except 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 four to six feet high. These trees were set out in rows, about the same distance intervening. At the height they want the trees to grow, say four or six 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 can not shake the trees to disturb either the blossoms 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 perfection of the fruit.

When the new fruits now being introduced into Japan by the Kaitakushi Department are disseminated everywhere, Japan will become one of the finest fruit countries in the world. All that is wanting will then be supplied. They have soils, climate, and skill in dwarfing and training far superior to that of any other country. The same may be said of the cultivation of vegetables, and those very inferior. (*Report of the Commissioner of Agriculture, 1873.*)

[NOTE.—This sketch of Japanese training of fruit-trees is very similar to the practice in England, and elsewhere in Europe, of what is there called *espaliering*, which is most successful in gardens where space is valuable. This is, of course, a kind of dwarfing, though not carried to the same extent as that of

Japan and China; but the pruning and training is performed to great perfection, and is suited to the cool climate of the north of Europe, particularly as relates to wall-fruit training. Dwarfing and espaliering might be carried on successfully in California where the gardens are confined for ground.]

Editorial Portfolio.

DOUBLE-FLOWERING GERANIUM.

The following description of the plate accompanying the November number of the *Horticulturist* was unintentionally omitted.

It is not long since the first double-flowering Geraniums have made their appearance in California, and we recollect how eagerly the first specimens were purchased at a high price. They soon became plentiful with our florists, and can now be had as low as any of the old single varieties, with the exception of some new kinds, lately introduced.

The double varieties are a decided improvement on the old single sorts, the flowers lasting much longer and being therefore much better adapted for bouquets or vases. A great number of varieties have been introduced from year to year, differing from each other in habit and shade of color, such as Andrew Henderson, Madame Lemoine, Gloire de Nancy, Victor Lemoine, Wilhelm Pfitzer, Triomphe. Of late, however, some decided acquisitions have been added in the way of new colors, such as Aline Sisley, a long-looked-for double white; Asa Gray, of a light orange-salmon color, a free flowering variety of compact growth; Deuil de Strasbourg, of a bright claret, large and very double; Rose Pur, of a deep rose with violet, compact habit.

We are informed by some of our flo-

rists that but few double Geraniums are cultivated here in the gardens, which fact creates some surprise necessarily, when we consider their many good qualities. Geraniums are particularly adapted to our warm and dry climate, and their brilliant flowers help much to brighten up the borders of our gardens.

CATALOGUES RECEIVED.

We have been favored with *Miller & Siever's Catalogue*, for 1875. It is made up with much care, and must prove of great advantage to the lovers of flowers. It has a handsome colored frontispiece. The depot is at 27 Post Street.

Vick's Floral Guide for 1875.—The first number of the quarterly is at hand. It is gotten up in the usual handsome style, with innumerable illustrations throughout the 132 pages comprising the present issue. It can be had for the insignificant price of 25 cents a year. Address James Vick, Rochester, N. Y.

Report of the Commissioner of Agriculture for 1872.—This is an exceedingly valuable Government publication, which should be in the hands of every farmer in the land. This issue is especially good, covering a wide and practical range of subjects. The "Microscopic Investigations" of fruit blight, contributed by Thomas Taylor, with numerous illustrations, interested us very much.

Annual Register of Rural Affairs for 1875. Messrs. Luther Tucker & Lorn, Albany, N. Y. have favored us with their usually instructive annual register. It contains over 170 engravings.

That sterling publication, *The Gardener's Chronicle*, published in London, England, comes to us regularly, each

number showing an improvement over the former. It is a periodical we always study with a great deal of interest.

WE are again indebted to James Vick, of Rochester, N. Y., for the illustrated frontispiece in the present number of the HORTICULTURIST.

NEW AND RARE PLANTS.

Juniperus Excelsa Stricta.—This new evergreen shrub is recommended by the English journals for planting on terraces and in similar situations. Its form is pyramidal and elegant, the color of its leaves silvery; the young plants are very striking.

Double Blue Pæonies.—There are supposed to be genuine plants of Blue Pæonies in existence in China; for Chinese drawings have made their way to England, and are in the possession of an English horticulturist.

NEW AND RARE FRUITS.

A New Seedling Peach.—A new seedling Peach has been grown in the orchard of Mr. Wm. Cantilbu, of Pleasant Valley; a Peach possessing so many excellent qualities, that it merits an introduction to the notice of fruit-growers. The need of a white Peach which will ripen about the same time as the Early Crawford has long been felt. This new Peach appears to possess qualities which will supply this need. Fruit almost globous, a trifle longer in the direction of the seam. The largest specimens are eight and one half inches in circumference in the longest direction. Seam well marked, running half way round; color of the skin, a light golden yellow,

with a cheek in which are blended roseate, scarlet, and purple hues. Altogether it is very beautiful in appearance, as well as delightful to the taste, for it has a delicate, fine flavor. The pit is a freestone, small for so large a Peach. The flesh next to the stone is tinted with roseate rays or stripes. Except this stain, the color is nearly white. The skin cleaves but slightly to the flesh, and is easily removed without the necessity of peeling.

The leaves are lanceolate, and generally smooth; occasionally one is ruffled, like other Peach-leaves; the color, a bright golden green. The larger leaves measure six inches in length, and are an inch and three-quarters in width at the widest. Near the centre of the tree, where less exposed to the sun, the leaves seem glandless, but on the utmost twigs the leaves have glands, which seem to be ovate. The young shoots are crimson red on the side exposed to the sun, yellow green on the other side. Petiole stained with crimson until it becomes the medirin of the leaf, when it is greenish white like other medirins. Altogether this is an excellent Peach, worthy to be a favorite in the market, which it no doubt soon will be.

Stoneless Plum.—A late number of the *Garden* gives an engraving of a Stoneless Plum, the *Prunus tenerrima*. This species of Plum is at present of little value except for ornament or for preserving. But probably its quality could be improved by skillful management.

DUTCH BULBS.—Growers and dealers in what are known as Dutch Bulbs note that they are of unusually excellent quality this season, being heavier and more solid than they have been for many years past.

REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPER.

Among the nut-bearing trees that succeed so well in many situations on this Coast, although most of them are yet young, is the Spanish Chestnut. When of good size it is considered in Europe one of the most stately of their trees, exceeding the Oak in height, and equaling it in bulk. The foliage exhibits a more decided character: it is glossy and formed into clusters, which are peculiarly elegant when surrounded with florescent catkins. It is a favorite tree in the landscapes of the Italian painters. It can be disposed of in a hundred different shapes, as the exigency of pictorial compositions may require. No other tree, perhaps, affords such continual variety: at one time rising in all its leafy majesty, in some shady recess or rock-encircled nook, safe from the war of winds; at another, broken and distorted on some high rock, or half-way down a steep and rugged declivity, beneath which might roll an impetuous torrent; for its wood is naturally brittle, and liable to be shattered by fierce winds. Chestnuts are well suited, in more sheltered valleys, to form parks or avenues leading to country mansions. No doubt they are aboriginal and exotic in their character. In time, if planted plentifully in California whose climate is no doubt well suited to them, their nuts will be found roasted on small stoves in our streets by fruit-men, and sold to passengers as our American native kinds are, and they will, of course, on account of their larger size, if not superior flavor, be much preferred to our wild sorts. In Italy they are used in making fritters, which are wetted with rose-water, and which, when sprinkled with grated Parmesan cheese, are fried in fresh but-

ter. They are also ground into flour, and loaves of bread made from them. At one hundred years old, the girth of these noble trees, at the height of six feet from the ground, has been seen fifty feet. The beauty of their foliage, both in spring and autumn, is very striking; in the first, grandly umbrageous, and presenting a fine clear green in their spear-shaped leaves; in the second, and when falling into "the sere, the yellow leaf," gorgeously contributing to the rich and varying tints of woodland scenery. Our climate and soil, so promotive of gigantic vegetable growth of all kinds, would, in time, make their size nearly or quite equal to those noble and enormous specimens found at Mount *Ætna*, of which the roots are warmed by that volcanic mountain's immense furnace, and hence the Chestnuts there are the largest in the known world. Both Italy and California in their favored climes and productions carry back one's imagination to those fabled regions celebrated by the poet Virgil—

"Where loaded trees their various fruits produce,

And clustering Grapes afford a grateful juice,
Where rains and kindly dews refresh the field;
And rising springs the needed verdure yield.
Nor want nor famine the glad natives know,
Nor sink by sickness to the shades below."

After our late plentiful early rains, the edible Mushroom is now found in large quantities in our markets. It is considered by some, one of the most delicious, as well as one of the most dangerous, delicacies of our table; it therefore requires some knowledge to select the right or edible kind. The young button, as it is sometimes called, has the top or cap quite white; the gills or under part are loose, of a light red or flesh color, and as it increases in size and age, the top changes to a chocolate

brown color, and looks scurvy, when the gills also change to a darker red. The stem is also white and round, and changes dark with age. The button is sometimes found almost of a globular form, and, when smooth and white, it is best and most savory. Every eatable Mushroom has a decidedly pleasant odor, and is never slimy, while those which are dangerous are of a bad odor or are devoid of or have very little smell.

The following test on some occasions may be found useful. "Sprinkle salt on the spongy part or gills of the Mushroom to be tried. If they turn yellow, they are poisonous; but if they turn black, they are good. Allow the salt to act a little time before you decide the color." They are in season during October and November, and throughout the winter here, but by artificial culture may be had throughout the whole year. I found in one of the London papers an account of the rapid growth of a Mushroom. It was found growing in the middle of a blacksmith's fire-place, and measured ten inches long in the stalk, and five and one-half inches in diameter; it was proved by the root of the plant that it had grown there since 8 o'clock the preceding evening, at which time the blacksmith left off work.

At the end of last month (November) fruit was becoming scarce, the crops of all summer-bearing fruit-trees and vines having been gathered and marketed. But few lots of Strawberries were received; these were, however, in prime condition; retailing at 20c. to 37½c. Grapes were giving out. We quote the various descriptions then in season as follows: Tokay, 15c.; Muscat, 15c.; Black Morocco at that time, 15c. to 25c.; Black Hamburg, 10c. to 16c.; Mission, 6c. to 8c.; Rose of Peru, 10c. to 15c. Plums, a few of which continued to be received,

retailed at 10c. per lb. The *Macgregor* brought a fresh supply of Bananas and other tropical fruit.

Garden truck was exceedingly poor. Tomatoes were in a miserable condition—dirty and half rotten. Turnips were small, and the tops bore evidence of frost. Corn and Egg Plant disappeared for the season. Asparagus evinced extraordinary vitality, appearing uninterruptedly in its place on the market stalls. The price advanced during the last week of November to 50c. @ 75c. per lb. There was no more green Okra to be had. Chile Peppers were declining in condition, but prices continued firm at 15c. to 25c. The last Cantaloupes of the season were disposed of. Mushrooms were in abundant supply and much improved in condition; no change in price. The sale of Summer Squash closed. Artichokes appreciated 25c. per doz. during the week, selling at last at 75c. to \$1.00.

During the first part of this month (December) the supply of Mushrooms was unusually large and early. Last year we had but a moderate supply of this delicious vegetable as late as Christmas, and even then it was dear. The abundance is owing to the early rains with which the soil has been saturated, causing every description of vegetation to spring forth vigorously. In view of the foregoing, it is very singular that new Potatoes are so backward this year. Two years ago we had new Potatoes in the market at Thanksgiving. Last winter we would have had them quite as early, had it not been for the outbreak of the Potato blight in the Presidio fields, from whence the early lots have always been obtained, which resulted in the total destruction of the growing crop. This unfortunate occurrence so discouraged the grower that he then and there abandoned the business, and we have

now to look for early Potatoes in some new quarter. It is not at all likely that we shall have any in the market earlier than next month. There were some excellent Early Rose Potatoes, old crop, offering at $4\frac{1}{2}$ c. per lb.; and Kidneys at 3c. to 4c.; other descriptions range from 2c. to 3c. Cabbage Sprouts are quoted at 8c. per lb.; Jerusalem Artichokes at 8c.; Parsley, 20c. per dozen bunches; Salsify, 10c. per bunch; Garlic, 25c. per lb. Green Peas are very poor and retail at 8c. to 10c. per lb. Small lots came in occasionally, but prices were nominal. Winter Squash was the only description in season. String Beans advanced. Bell Peppers were very poor, and losing flavor.

There were two descriptions of Oranges in the market—Australians and Tahitians. Although there was no difference in price between the two kinds, there was considerable difference in flavor, Tahitian Oranges being sweet and palatable, and Australians as sour as vinegar. Malaga and Australian Lemons, with a few natives, were in season. Australians had the preference. Grapes were getting very poor. They sold as follows: Malaga, Tokay, Muscat, $12\frac{1}{2}$ c. per lb.; Rose of Peru, 8c. to 10c.; Morocco, 20c.; Mission, 5c. to 6c. Dates are quoted at 25c. per lb.; Winter Nells Pears, 6c.; Plums from San Jose, 15c.; Strawberries from the same locality, 25c. to 35c.; Cocoanuts, 15c. each; Walnuts, 25c. to 35c.; Almonds, 25c. to 35c.; imported Smyrna Figs, 25c. to 35c.

Near the middle of this month (December) fruit was becoming expensive, Grapes, which had been for some time in demand, being then almost out. Apples were nearly the only fruit left, and they must continue the leading feature on the fruit stalls until the crop of native Oranges begin to come in. The first

picking of this season's Orange crop commences about the 20th of this month; and they arrive in time for the holidays. Lady Apples were received from Oregon and sold for $12\frac{1}{2}$ c. per lb. Plums were still quoted at 15c.; Strawberries, at 25c. to 35c.; Walnuts, 20c. to 25c.; Almonds, 25c. to 35c.; Dates, 15c. to 25c.; Cocoanuts, 15c. each.

There was no change to note in the vegetable market. Cabbage Sprouts were quoted at 8c. per lb.; Asparagus, 50c. to 60c.; Green Peas, 8c. to 10c.; Jerusalem Artichokes, 8c.; Early Rose Potatoes, $4\frac{1}{2}$ c.; Kidneys, 3c. to 4c.

Mushrooms continue plentiful. The supply of tropical fruits in market was—middle of this month (December) limited to sour Oranges from Mexico, Lemons from the Mediterranean, Australia, and the southern part of our own State, Limes from Mexico, and a small stock of Bananas and Pineapples from the Hawaiian Islands. The first Californian Oranges ought to arrive about Christmas, as the first consignments were received last year on the 3d of December. Grapes and Plums were still sufficiently abundant for all requirements. Regular supplies came forward and met with ready sale. A few Peaches were still to be seen at some of the stalls, but looked out of place the second week of December. Medlars were retailing at 25c.; Eastern Chestnuts, 35c.; Pomegranates, 20c. to 25c. per lb. Apples, Pears, and Quinces showed no diminution. Apples, by the box, retailed at \$1.00 to \$2.00; Pears, \$1.00 to \$2.25, delivered.

A LADY'S HANDS.—The Danville, Va., *Register* records the fact, that a single lady, of Caswell, N. C., made a crop of tobacco with her own hands, which brought her in that market nearly three hundred dollars.

HONEY IN SAN DIEGO COUNTY.

The honey crop of this season is coming in quite freely. It is very pure and white—exceedingly handsome. As our readers are aware, the production of honey has grown to be a very important industry in this county within the past two or three years. Some facts concerning it will not be without interest.

The first effort in the direction of bee-keeping in San Diego County was made by Messrs. Clark & Harbison, the pioneer apiarists of the State, who brought hither from their large establishment in the Sacramento Valley 110 hives of bees in the month of November, 1869. Mr. Clark undertook the management of the San Diego branch, and so successful was the enterprise that in February last the entire establishment was moved from the Sacramento Valley to this county. The partnership between Messrs. Clark & Harbison expired by limitation recently, and these gentlemen are now carrying on separate establishments. Mr. J. S. Harbison has five apiaries, comprising over two thousand hives of bees. One of these is located in the Sweetwater Valley; one in the Valle de las Viejas; two near Lyon's Peak, and one near Engineer Springs, close to the boundary line. Mr. R. G. Clark has two apiaries, comprising over eight hundred hives. One is situated in the Cajon Mountains, and the other about eight miles beyond Smith Campbell's. These are the largest establishments in the county; but there are a large number of smaller apiaries, the aggregate yield from which will be not far from seventy-five tons this season. Nearly every farmer keeps more or less bees, and the industry is still increasing. Quite a number of hives are kept within the city limits.

The yield of honey in San Diego

county in 1873 was 119,000 pounds. As nearly as can be estimated, it will reach 200,000 pounds this year. This crop will, however, be much less than was anticipated early in the year, owing to the fact that at the present time the bees have unexpectedly entered upon a second period of swarming, which will reduce materially the yield of box honey. The cause of the swarming is attributed by Mr. Harbison to the unusually large extent of pasturage this season. There will be a very large increase in the number of bees, but the resulting reduction of the season's crop is detrimental to the interests of bee-keepers.

The bees begin working in this county about the 1st of February, and the season for storing honey lasts from June to September.

The finest honey is made from the flowers of the sage-plant which grows here in such abundance. This is the true sage, and must not be confounded with the "sage-brush" of Nevada and the northern counties. The flat-top, or "buckwheat" grease-wood also affords excellent honey. The bloom of this plant closely resembles that of buckwheat, hence the name. The flower of the Sumac is another source, and the Ice-plant, which covers so much of the country, is likewise sought by the bees. This latter plant makes a very white honey, but it is liable to the objection that it turns very quickly to sugar, or "candies," as the honey-men say. The bee-keepers, therefore, try to avoid it.

In order that honey may command the best price in the market, it is important that it be properly put up for transportation. This is a matter to which careful attention should be given. There is also a great deal to be learned by honey producers in the matter of selecting qualities of honey for shipment.

Mr. Harbison informs us that the bulk

of the crop will find its market in the East. His establishment shipped several car-loads last year, and more will be shipped that way this year than last.

A very large crop of honey will also be made in Los Angeles County this year, but we are informed that the bulk of it will be strained for shipment.—*San Diego Union.*

Editorial gleanings.

INTERESTING NOTES ON THE ISLAND OF YEZO.—Several new plants have been discovered. A large dark-purple Lily, growing to the height of six inches, is found on dry hill-sides; it has very little perfume. A large white flower, of the Lily species, the blossom and stem of which stand ten feet high, also has very little perfume. A very nice fruit, called by the Japanese *Kokwa*, grows on a large vine, and looks something like an apple. It is not good to eat until it has been touched by frost, when it has a very agreeable taste, being something between that of a Grape and a Fig. Both black and red Raspberries are plentiful, and near Akish (on the east coast) the latter have a very fine flavor. Mulberries are also plentiful.

From a wood called *Oshio*, the Ainos make a coarse cloth, which is brought into Hakodate and used for making clothes for coolies. Sugar-maple is found all over the Island, but no Birch or Hickory—so I am informed. Elm, Oak, Chestnut, and Walnut grow everywhere.

A very beautiful tree (*Aralia quinquefolia*), or *Senoki* as the Japanese call it, is used by the Ainos for making canoes. There is only one kind of Pine, and that has a very fine needle; plenty of Fir, but no Hemlock.

In the shade of the Fir is sometimes

found the beautiful Shrub Rose of the Alps (Rhododendron), which grows in clusters of a light rose color. In the interior are thousands of wild Apple, Pear, and Plum trees. Within a mile of Hakodate are acres of land covered with the beautiful "Lily of the Valley," growing wild, and in the utmost profusion.—*The Japan Gazette.*

CURIOUS HABITS OF PLANTS.—Some Orchids, whether wild ones, such as Ladies' Tresses, or those various and more gorgeous ones, mostly air-plants of tropical regions, which adorn rich conservatories, curiously resemble butterflies, even a swarm of them, as some of the smaller ones in a cluster on a long, light stalk, fluttering with every breath of air; some are like a large single gorgeous orange and spotted butterfly; another takes its name from the resemblance of its flowers to a moth. Can the likeness be a sort of decoy to allure the very kind of insects that are wanted for fertilizing these flowers? When a fresh and active tendril in climbing comes in contact with a neighboring stalk, or any similar support, it hooks or coils its end round it, then having secured a hold, it shortens by coiling up its whole length, or a good part of it. This commonly draws up the climbing stem nearer to its support, and makes it easier for the younger tendrils above to gain their hold. A tendril which has taken hold and coiled up, usually becomes stouter, rigid, and much stronger than it was before. One which would break with an ounce weight, becomes capable of supporting two or three pounds.—*Prof. Gray.*

TABLE DECORATIONS.—Table decorations are receiving more and more attention in London society. Lord Porterhouse, in an article to one of the papers, speaks

of a novelty worthy of notice by our lady readers.

He says he dined one evening at the house of a distinguished gentleman who had recently married a Russian lady. The table was entirely covered with Moss—the fern-like Moss which is plentiful in Covent Garden. There was the usual white cloth, but the only evidence of it was seen in that portion which hangs at the sides of the table. Flowers were profusely introduced, and the effect was together unique. He stated that this was one of the most ordinary kinds of table decoration in the aristocratic houses of Russia.

FUCHSIAS IN IRELAND.—An English paper speaks of the astounding luxuriance of the old red Fuchsia in Ireland, near Carlingford Bay. It assumes the proportion of trees, mounts above the eaves and chimneys, and shades the windows with big clustering sprays of tiny dark-green leaves, and deep scarlet waxen bells. Many of these shrubs must be of patriarchal age, for their trunks are gnarled and tough as Oak; but the older they are, the more determined is their perseverance in showering around an exhaustless wealth of hardy grace and color. In one or two instances the dwellings were completely hidden, and turned into bowers, by this quaintly beautiful plant or tree.

THE Grass Valley Foot-hill Tidings has the following about growing nut-trees in the foot-hills: “Nut-bearing trees do finely here in the foot-hills, and we wonder that more attention has not been devoted in this direction. Papers down the coast and in Southern California have for years made a great point of boasting of the adaptability of

their country for Almond and Walnut growing. We can not see wherein any part of California has advantages over this, either in quantity or quality of Almonds produced. About the English Walnut we are not posted, but in our own yard here we have two Almond-trees which have borne this year about fifty pounds each. They are the first trees to bloom in the spring, and will grow and do well in any situation adapted to the Peach. At fifty pounds to the tree and two hundred trees to the acre, we have 10,000 pounds—at 25 cents a pound, \$2,500—for the product of an acre in one year. And this product is not perishable, but may be shipped at leisure to any part of the world.”

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING NOVEMBER 30TH, 1874.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office).

BAROMETER.

Mean height at 9 A. M.....	30.13 in.
do 12 M.....	30.12
do 3 P. M.....	30.11
do 6 P. M.....	30.11
Highest point on the 28th, at 12 M.....	30.37
Lowest point on the 18th, at 6 P. M.....	29.85

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.....	52°
do 12 M.....	57°
do 3 P. M.....	57°
do 6 P. M.....	52°
Highest point on the 1st, at 3 P. M.....	66°
Lowest point on the 19th, at 9 A. M.....	42°

SELF-REGISTERING THERMOMETER.

Mean height during the night.....	47°
Highest point at sunrise on the 24th.....	54°
Lowest point at sunrise on the 19th.....	35°

WINDS.

North and north-west on 10 days; south and south-west on 5 days; east and north-east on 4 days; west on 6 days.

WEATHER.

Clear on 8 days; cloudy on 12 days; variable on 10 days; rain on 7 days.

RAIN GAUGE.

4th.....	0.03
5th.....	1.34
7th.....	0.07
21st.....	0.03
22d.....	0.57
23d.....	3.78
24th.....	0.10
Total.....	5.92
Total Rain of the season to date.....	8.73

