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• FLOWERS •

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THE

CALIFORNIA HORTICULTURIST

AND FLORAL MAGAZINE.

VOL. I.

NOVEMBER, 1870.

No. 1.

INTRODUCTORY.

It is but right that the projectors of any new undertaking in the field of journalism, should, in making their appearance before the public, give as far as possible an insight into their ultimate end and aim, state what they propose to accomplish, and also the means at hand for its successful issue. In endeavoring to place a horticultural journal before the public of California, we may be accused of a rash act, and, no doubt, if we thought as the majority do, such might be the case. It shall be our province to show the aforesaid majority that they are wrong and we are right. Encouraged by this belief, and also in the belief of an actual need for a publication such as we propose to issue, we, with all due deference, lay before the public the first number of the "CALIFORNIA HORTICULTURIST."

An extended and practical intercourse with all classes of cultivators of the soil, from the landed proprietor of two or three flower-pots to the possessor of hundreds of acres, has long since convinced us of the pressing necessity for a medium, through which all might set forth their experiences, observations and ideas on the horticulture and agriculture of the Pacific coast. The circumstances under which every cultivator finds himself placed, whether the experienced agriculturist from distant parts of the world, or the amateur, just initiating a flower-bed, render not only desirable, but ab-

solutely necessary, that all the local information possible to be attained should be laid before him; and that it should be so arranged as to be of practical use and value to him in his occupation. It is this idea which has led us to the publication of this journal, as the long needed medium.

The climate, seasons and soil of California differ so materially from those of other regions, in almost every particular, and are so diverse, even in different parts of the State, that in many operations we are compelled to deviate from old established rules, and frame a system of our own. This variation and diversity, while presenting formidable difficulties to the agriculturist and horticulturist, yet affords an extended field for the successful cultivation of plants from the most widely separated localities. Our horticultural and agricultural products astonish the world as much now, as our gold fields have done in years gone by; and if we take into consideration the short space of time given to the cultivation of our fields and gardens, we must claim a marvelous progress already attained. The success of our labors has been so great that local peculiarities of soil and climate have been hardly taken into consideration; and the apple and orange, the grape and the watermelon, the walnut and the almond, the tea plant and the hop vine, the cabbage and the peanut have been cultivated in one and the same locality, and with some success

These experiments have, however, proved to the more intelligent observer that certain plants will do better in one locality than in another, and that almost every plant and tree requires some peculiarity in soil and climate to bring it to perfection. We will instance the vine, which our readers are well aware yields such widely different results in different situations; and we find that the same can be said in regard to every plant cultivated for use or ornament. These facts being duly considered, it becomes necessary that the experience of our cultivators should be collected, condensed, and presented to the public; and thus serve as a very important guide in the future development of our agricultural and horticultural resources. Unless we profit by the experiences of others, we will always be subjected to unnecessary expense, and serious loss of time must ensue to the general progress and prosperity of the country. The exchange of opinions on horticultural subjects must be limited, so long as we are without a proper vehicle through which we can express ourselves without trespassing on the department of others.

In bringing before the public the "CALIFORNIA HORTICULTURIST," we propose to correct this long existing evil, and offer a journal that shall be open to every one interested in the cultivation of our soil, and to horticulturists in particular. In our journal we desire to treat on every subject comprised in horticulture, and while we shall endeavor to be highly interesting to our neighbor who cultivates a few parlor plants, and trains her ivy branches—nourished by a glass of water—around the parlor mirror, we shall seek to supply indispensable information to the owner of the conservatory with its oranges and its camellias; or of the hot-house with its tropical collection. We shall strive to be instructive alike to the admirers of the canary and the goldfinch, whose sweet voices make glad melody in the sitting-room; and to the occupant of the rural residence, with its picturesque landscape, its lakelets and streams teeming with trout, and its woods enlivened with the deer and the

quail. We shall distribute information in regard to the management of the kitchen-garden, as well as details for the guidance of the professional grower of extensive fields of asparagus, tomatoes, etc., and make a strong effort to further the interests of our extensive vineyards in all parts of the State, as well as our numerous orchards. The production of silk, the propagation of the ramie, the tea plant, and other important features of horticulture will alike receive our watchful attention. We shall use the greatest care, in giving our readers from time to time, a selection of the best varieties of plants for useful and ornamental culture, with the most approved mode of treatment.

In fact, we will do our best to make the "CALIFORNIA HORTICULTURIST" what it should be; and we trust that those occupied in cultivating our soil, and in ornamenting our homes, will favor us with communications on any subject bearing on horticulture, either in support of, or at variance with our own expressed opinion; as in keeping up a constant interchange of thought, and in comparison of experiences, the real merits of many controverted subjects will be brought to light. The knowledge of a single individual, published to a community, may produce a large amount of good to the general public. As a new journal, we will be subject to the same difficulties which every similar enterprise meets with; but we trust that the encouragement which we received on approaching our friends, and those interested in horticulture, on the subject of publishing this monthly journal, may prove an indication of its final success.

CAMELLIA JAPONICA.

The *Camellia Japonica* is a native of Japan and China, where it grows to the height of from forty to fifty feet. This exquisite evergreen, was named by Linnaeus, the great botanist, after Camelli, a Jesuit, who is said to have first brought it to Europe, in the year 1739. It was first cultivated in England, from whence it gradually spread into Italy, France

and Germany, in the order which I have named. It is now cultivated all over the civilized world, and America, though the last to take up its cultivation, can show as a result, some of its most valued varieties.

The camellia as first known, produced a single white flower, with from six to seven petals; but care and skill in its culture, has so much improved it, that it is now considered the finest production of floral beauty. The form and color of its most exquisite flowers, cannot be surpassed by any plant which we have at present under cultivation. It produces its rich blooms at a season of the year when the scarcity of flowers is so much felt, that it makes it all the more desirable as a green-house and parlor plant. But it is not only the flowers which are so highly esteemed, the foliage in itself, makes the plant the most elegant and choicest of our evergreen flowering shrubs.

The camellia is easily cultivated, and will do well in almost any kind of soil, which is not too poor or sandy. The soil should be rather coarse, and *not* prepared (as is sometimes done) by running it through a fine sieve. If the plant requires repotting, it should be done when the flowering season is over, which will be in the latter part of April or the beginning of May. The transplanting should not be repeated often, as it has an injurious effect upon the flowering. Plants that have remained in the same pot for five or six years, often produce the greatest abundance of flowers.

During the summer months when the plant is out of bloom, it should occupy a shady place; well protected from our strong winds, but at the same time, in such a position as shall give it plenty of fresh, pure air, and keeping the earth moderately moist. It is now, during the summer months, that the flower buds of the camellia are forming; as they advance in size a little more water may be given. The first flowers may be expected in November, and then the plant should be kept closer; plenty of water, a moderately warm temperature, and an occasional sprink-

ling of the floor, if in a green house, or the plant, if in the parlor, is required. Care should, however, be taken, not to wet the flowers, as every drop of water is apt to produce a yellow spot on the delicate petals of this floral treasure. The worst enemies of the camellia are gasses of any kinds, and a dry hot atmosphere. At times, the professional grower of the camellia, keeps his plants very close, and subjects them to a high temperature; this he does for the purpose of forcing the plants into bloom more rapidly. Such treatment, it is easy to see, must be anything but beneficial to the plants.

To cultivate this choice plant in the parlor or sitting-room, with the most satisfactory results, I would advise the construction of a double-window, somewhat in the style of a show window, which will enable the grower to maintain an equal temperature and exclude gasses, etc. Light frosts will do the camellia no harm, but on the other hand, the hot rays of the sun are sure death to its flowers. The climate of San Francisco is favorable for the outdoor cultivation of the camellia, were it not for the prevalence of our strong winds, which more than counterbalances the good effects of our moderate sun heat. When plants are confined in a room, or the green house; the sun acts more powerfully by reason of the glass, and consequently a great deal of air must be given, especially during a warm day: but care must be taken in admitting air, not to create drafts. The camellia requires that its foliage and buds shall be kept free from dust and insects, which can be done by means of a soft sponge slightly moistened.

If we were asked to lay down short and simple rules, for the successful cultivation of this plant by the amateur; we would advise a shady, temperate position; protection from winds; regular watering; (rather too much than too little, at least during the flowering season,) cleanliness, with plenty of air, and a moist atmosphere created by occasional sprinkling. The propagation of this valuable plant is mostly done by cuttings from the single varieties; they are also raised from seed, and

many new varieties have been produced in this way. The camellia plants cultivated on the Pacific Coast, are all imported from the Eastern States and Europe; generally arriving here in good order.

Professional gardeners cultivate them for the flowers, which are sold here, (in San Francisco) at 50 cents per flower. The white flowers are always in great demand for bouquets, wreaths and the hair. During the camellia season a fine bouquet is incomplete without containing one of these floral gems. The flowers are plucked before they open, and when used for the bouquet, are opened by hand, in this way they keep much longer. The flower is mounted on wire, and always occupies the most conspicuous place in the bouquet or basket.

We can recommend the more extensive cultivation of the camellia, feeling certain that from the simple mode of treatment which it requires, success must follow.

THE PANSY. (*Viola tricolor.*)

C. D. Copeland, says:—"Nothing in the world of flowers is painted with such exquisite beauty or endless variety of coloring, as the fancy or German pansy. They talk, and smile, and look you in the face, with intelligent countenances and cheerful eyes, as though they were creatures of life."

This little pet of the garden is familiar to all our readers. It is indigenous both in Europe and America, and in its wild state in some parts of this country, is quaintly called the "Johnny jump up." Since it has been taken to the fostering care of our nurserymen and professional gardeners it has so rapidly and continuously improved as to have become one of the most interesting of small bedding plants, and should find a place in every garden.

In all Horticulturist's flowers certain features are considered necessary to constitute a perfect plant, so with the Pansy we expect from a well-grown specimen the following characteristics. The flower-stem should be of just sufficient height to permit the expansion of the

blossom above the foliage of the plant, the form of the flower should be round and regular, and the petals should be firm and flat and present a lively contrast of color. The soil for its cultivation should consist of a rich sandy loam mixed with well rotted manure. It thrives best where shade can be given during the hotter portion of the day, and requires copious moisture. While in the Eastern States, the winters are too cold, and the summers too hot, and the cultivators of this little favorite are compelled to be content with its gay beauties during the spring season, the San Franciscan, by providing sufficient shelter from the burning rays of the sun, and abundant moisture, can indulge in the pleasure of a continuous succession of blooming plants during the whole year.

The Amateur Horticulturist must not however be too exacting, the few plants first purchased, which have embellished her parterre for a period of 3 or 4 months with a profusion of elegant blossoms have done good service, and must be replaced by a succession of younger ones which can be procured at a moderate outlay. But should the expense of replanting the Pansy bed be objected to, the plants may be raised from seed in some box which should be placed in a warm and sheltered situation, and covered during cold nights until the seeds are up. This is especially advisable in San Francisco where for weeks during the year the warmth of the sun is insufficient to stimulate the seeds, in which case they decay. Seedsmen are often blamed for furnishing bad seed, when they are entirely innocent, the best of seed will fail by laying too long in the ground. When the young plants are large enough for transplanting, prepare the bed by working it over thoroughly and enriching with well rotted manure, an abundant supply of which should always be at hand. The young plants when planted out will soon make good headway without farther trouble. Seed sown in September will flower in spring; that sown in February, during the summer; and that in May, during the fall of the year. Any very choice or pleasing variety of Pansy may be

preserved by sub-dividing the old roots after flowering 3 or 4 months, these sub-divisions will root freely, and form vigorous young plants, retaining the original tints of the parent plant. The Pansy freely propagates of itself when once introduced into the garden, but the flowers of plants so acquired will be inferior to those raised as recommended. There is no flower more easily cultivated and yet so many gardens are without the Pansy.

A TALK ABOUT FLOWERS.

"In all places, then, and in all seasons,
Flowers expand their soul-like wings;
Teaching us, by most persuasive reasons,
How akin they are to human things."

I was riding once, along the side of a mountain, over a rough, rocky trail. Dwellings of any sort were scarce, and the few miserable shanties we saw were as rude and uncouth as the neighborhood. At one time, however, we passed a cabin, mounted on stilts, looking as if a strong wind would blow it over, or a severe storm wash it into the deep gulch over which it leaned.

My companion, gazing around, exclaimed: "What a place for a woman to live in!" As I saw no sign of human being upon the premises, I was at a loss to account for his astuteness, and ventured to inquire whence came this divining power.

"Why," said he, "no one but a woman would have gathered those flowers, or tried to coax that solitary geranium to live;" and, looking toward the window, I saw, resting on the sill, a broken mug, filled with wild flowers, and near an old box, which served the purpose of a step, was a single geranium, thrifty and evidently well cared for.

I paid a mental tribute to my friend's perceptive faculties, and treasured the incident, slight as it was, in memory of the pent up spirit which sought for an outlet in the mug of flowers, and the fragrant shrub. Depend upon it, there *was* a woman in that rough, board "shanty," a woman whose soul grew weary, sick and disgusted with the barren routine of her life; a woman troubled with an unquiet spirit; whose more refined nature struggled

to round itself into completeness, through the medium of her treasured plants.

We Californians boast of our magnificent land; we are proud of our boundless acres, our gigantic groves, our stupendous cataracts, our wonderful *flora*, so unlike that of any other land that we have to make a botany on purpose to suit it; and strangers, passing through our country, say: "Yes, true; all is grand, magnificent; fields of billowy grain stretch away for hundreds and hundreds of acres, but where is the mansion and grounds belonging to this immense estate?" You point to a rickety structure, set upon sticks, containing two, possibly three, rooms; the chickens are cooling themselves under the floor, and the summer sun beats down upon the unsheltered roof. No flower, no tree, no shrub relieves the desolate glare; and, at night, the farmer comes from his toil, smokes his pipe in his shirt-sleeves, and goes to bed before the stars are fairly blinking in the sky, with no thought above or beyond the state of the wheat market, and the prospect of rust in the approaching crop! His wife, if he has such an appendage, is probably as earthy as himself; or, perchance she feels—

"A wish that she hardly dared to own,
For something better than she had known."

And perhaps, if she ever finds time to gaze upon the loveliness of sky and landscape, which the Divine Artist paints for His people, she wonders that *her* life should be so compressed into mere working, eating and sleeping.

Thank Heaven! our farmers are not *all* like this one, although he has many counterparts.

Now, let this man train a morning glory over the door-way, build a porch, and set a honeysuckle beside it, plant wall and gilly flowers in the yard, with here and there a geranium or rose—hardy plants, all of them, that will grow without very much culture. No French gardener will be needed to keep them in order, but the wife and the children will learn new lessons every day from the bright, fragrant blossoms.

Some may call it sentimental, but mark, in a year's time, if our farmer does not seem more cheery. See if he does not sit on the door-

step, under the blossoming vine, during the summer evening, watching the moon rising red upon the horizon, talking with his wife of the plans for the future, and listening to an account of the children's gardens, their little games and pleasures—breathing the sweet perfume, and loth to leave the fragrant night.

Truly, we perceive a change here, and a change that is not one whit an exaggeration. And who shall say this is not the work of the flowers? Who shall say this is not God's way of refining, ennobling, elevating? Where will you find a better teacher than our mother, Nature? Who more fitted to impart divine truth than she? Where can we better study lessons of patience, perseverance and meekness than in her sweet companionship? Truly,

"Flowers ARE wondrously akin to human things."

I believe it is impossible to estimate the influence which flowers and plants possess over us. Frequent association with them teaches us to find, in their varied blossoms, as many friends—nay, far *more* and *truer* friends than any drawing room can afford.

The pansy, large-eyed, cool and unconcerned; the heliotrope, yielding its heart's sweetness, at the sacrifice of its own life; the fuchsia, gorgeous as some Southern houri; the dainty minionette; the bewildering, intoxicating tuber-rose; the thrice friendly, doubly welcome chrysanthemum and aster, coming when sweeter flowers have fled, and dull, autumn clouds darken the landscape. Have we not here companions who delight our senses with their beauty, and refresh our hearts with the sympathy of their presence.

He who studies Nature learns from the books of God's Providence, and the child who toddles to its mother's knee, with the "pitty posies," the maiden who fills the parlor vases with fresh blossoms, the man who sets a vine by his door-step, have each marked a text in that precious volume.

Another great source of pleasure is to be found in house-plants. Claiming, as they do, more attention than the out-door plants, they endear themselves to us, as we feel their dependence upon our care. Of these there is, of

course, a great variety; for in our equable climate, outdoor and indoor, summer and winter plants are nearly the same. The narcissus, growing upon stones in water, with its golden cup and silver saucer blossom; the hyacinth; the ivy, German, English or rock ivy, trailing its graceful leaves over window and picture; the delicate smilax vine; the musk plant, with its airy, plummy green, asking only water and light, in return for which it makes itself as beautiful as possible; these are but the beginning of a list that can be lengthened indefinitely, to suit the taste of each cultivator; and for all his pains, all his watchful care, he will as surely be a hundred fold repaid when his treasures have reached maturity.

If people will but cultivate flowers in their gardens and houses, let them grow with their children, let them nod at the little ones as they bend over their books, let them smile at them as they play at their games, let them teach their quaint lore to their youthful minds, and, I doubt not, such a perennial fount will be opened, such a well-spring of faith and trust, reverence and love, as shall never know drouth, even on the most arid plains of human experience. And as winter winds howl, as the rain patters on the roof, and the hail beats upon the pane, we may still have spring and summer with us, in the gentle odors and delightful presence of these "starry friends."

ABSENCE OF THE GREEN COLOR IN THE LEAVES OF PLANTS.

A short time ago my attention was called to a specimen of the redwood *Sequoia Sempervirens* of this State. The specimen was peculiar in having one part of its foliage perfectly white, while the balance was of the usual vivid green. This is a condition which we often see in other plants, especially of the geranium family, etc., plants much sought after by horticulturists, on account of this peculiarity. In the plants last named it seems to be due to a system of cultivation practiced by gardeners, without any definite knowledge as to the relation of cause and effect.

We all know if a plant is deprived of its proper supply of light it will grow up pale and sickly, passing through all grades of color, from its normal green to a perfect white. Yet here is a plant which has not been subjected to this deprivation, growing out in the common light and air of heaven, exposed to all the usual conditions of plants, with one part of its foliage green, while the other is white. What is the cause of this? In no work have I seen an explanation offered, yet there must be some cause for it; nothing in this world of ours is left to chance.

In this paper, I do not propose to give a theory, but rather to call attention to this phenomena, and offer a few points for the consideration of those who study natural history as displayed in the botanical kingdom. The sap of a plant is—so to speak—its blood, and in the same way might we call the blood of animals the sap of their organization. The two fluids play the same economy in the law of nature. The blood of man, we know, has in it two kinds of cells, or corpuscles, the red and white. It is upon the proper adjustment of these cells that health in a great measure depends. By adjustment, I mean the proper and normal passage of the white cells, from that condition into those of red. If we have an over-abundance of the red cells, the condition of plethora or hyperæmia is produced, and this gives us a standard, as it were, above health. If, on the other hand, the white cells predominate—that is to say, so conditioned as to be arrested in their onward development into red cells, we have a state of anæmia, or paleness, being below the standard of health. In one case there is an over-development of the circulating fluid; in the other, an arrest of development.

Now, may not the same law influence the sap of plants? We know that the green color of the leaves of plants depends on a principle called *chlorophyl*, as the blood depends on hæmatin for its color, that the leaves act as the lungs of the plant, that unless the sap has been exposed to the influence of the light and air, it is not suitable for the nourishment

of the plant, just as the blood is not capable of sustaining life until it has been ærated in the lungs. Now, taking up the example of the blood, and following it still farther, may not the sap have two kinds or conditions of cells, and that in a healthy condition of the plant the one proper to it predominates, and so the green color is produced. If now we have an unhealthy condition of a plant, or part of it, may not the other cells (being of a lower grade) be arrested in their development, and, taking the ascendancy, produce in the plant (as the undevelopment does in the blood cells) an anæmic state—hence the white color.

My opinion, then, is that this phenomena (whether found in nature, or produced by the manipulations of the horticulturist) is caused by an arrested development in the sap cells of the plants. Whether that arrestment is due to external or internal influences, we at present cannot determine. This is but a crude idea of what is in my mind in regard to this subject, and my only intention, in this paper, is to direct thought to a thing we see every day, and yet for which we have no satisfactory explanation.

WHAT IS WANTED IN CALIFORNIA.

BY CHARLES F. REED.

I feel called upon, briefly to refer to a subject which at the present time is of greater interest to California, and all her producing and industrial classes, than any other. It is an evil which, more than any other, discourages and defeats California energy and enterprise, and disheartens and opposes California industry and labor. I refer to the exorbitant and unwarranted demands of capitalists for the use of money.

In earlier days, when mining was the leading industry of the State, and its only product and export—all the necessaries of life being imported—when men with pick, shovel and rocker could take from the earth from ten to fifteen dollars a day each—when the merchant could realize from fifty to two hundred per cent. profit every time he turned his capital

over, and money was worth from sixty to one hundred per cent. per annum, all seemed to go harmoniously on, for then we had no formidable competitor in our great and only staple export, and the favors of fortune were so fickle and uncertain that none of the rules that generally regulate the regulations of capital, enterprise and labor, seemed applicable to us.

Since that time changes have been gradually taking place in our whole industrial system, and in our relations to and with the outer world. The product of the mines has been gradually falling off, and enterprise and labor have been seeking other channels of occupation. The facilities of travel and commerce and general inter-communication between our State and other countries have been gradually increasing, until with the completion of the overland railroad the revolution is thorough and complete. To-day our great staple products are those of agriculture and manufactures, and wherever, in whatever country, whether at home or abroad, on the Eastern or Western Continent, these products seek a market, then they meet face to face and come in sharp competition with similar products from other portions of the world.

Our wheat has to compete with wheat from South America, the Atlantic States, Russia, the Mediterranean and all other wheat-growing countries. Our wines find competitors in the wines of Germany, France, Italy, Spain and Portugal. Our wool comes in contact principally with the wools of the Eastern States, Europe and Australia, while our silks have to make their way against the old silk-growing countries of Southern Europe and Asia; and our manufactures have to combat the manufacturing capital, facilities and skill of the Eastern States and England.

Thus, nothing we now produce, nothing we now manufacture, can find a market except against the ever present and ever pressing competition of the world.

What then, I ask, must be the necessary conditions of prosperity and success to our agriculture, our manufactures and our commerce?

Our natural advantages for these great industries are not excelled by any other country in the world. We have a soil and climate unsurpassed—our manufacturing facilities are equal to those of any other country, and our location is in the direct path of the commerce of the world. The skill and energy of our people is proverbial. Then what more do we want to prosper, to excel? My answer is, cheap capital and cheap labor.

Give us the former and the latter will follow, for whenever there is energy and enterprise in a country, and plenty of money at low rates of interest, then all the necessary expenses of living, will be cheap, and labor will find constant employment and will be readily and cheaply obtained. Capital in all ages and in all countries is proverbially timid and slow to move, and in this State it seems wilfully and stupidly blind to the changes and improvement that a few years have brought about. What reason and sense is there that enterprise and industry in California should be taxed for the use of capital from twelve to eighteen per cent., while the same capital in Europe and the Atlantic States, or any other portion of the world, cannot command but from three to six per cent., with the same class of security? None whatever. And yet such is the stubborn fact. And in this fact, above all others, lies the greatest impediment to California's rapid settlement—to the development of her boundless resources, and to her upward and onward march to permanent and substantial success and universal prosperity.

PRESERVATION OF WOODEN STAKES AND LABELS.

It is often a source of complaint with gardeners, that stakes and labels made of wood, decay in a very short time; thus leading to confusion in the proper cataloguing of their plants. We propose to give in this article the means by which this annoyance can be avoided. Take in the proportion of one pound of sulphate of copper (blue vitriol), dissolved in two gallons of soft water; in this solution put

that portion of the stakes which is intended to be placed in the ground, letting them remain immersed for twenty-four hours. After removing them from the solution, it is only necessary to let the stakes become thoroughly dry, and they are at once fit for use. Wooden labels may be thrown into the solution for the same length of time, when they will be found so saturated with the metallic salt, as to withstand any amount of moisture to which they may be subjected. This is a very simple method, attended with little expense, and but a slight addition of labor. It has also been advised to cover the lower end of stakes and labels with tar, which is kept for that purpose, in a liquid state. The stakes must be thoroughly dry, as tar has no power of penetrating wood, should it contain even a small amount of moisture. It will also be necessary to warm the stakes in the sun, or before a gentle fire, previous to immersing them in the tar; otherwise the tar forms a thin coating on the outside of the wood, and does not penetrate the wood cells, thus defeating the object sought to be attained. The first method is, however, to be preferred, as it is cheap, clean and thoroughly effective.

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WOODWARD'S GARDENS, SAN FRANCISCO,
CAL.

An attractive feature of San Francisco, is the famous Woodward Gardens, located about a mile and a half from the centre of the city, and styled by some *the Central Park of the Pacific*. The grounds comprise only five acres, but so arranged by the disposition of galleries and buildings, and the planting of trees and shrubs, as to appear fully twice the size. In comparison with the surrounding country, its barren hill-tops and sandy fields, these pleasant gardens really (more than customary) appear a little "beauty spot" of ornamental character.

Mr. R. B. Woodward, formerly of Rhode Island, having removed to San Francisco, and there accumulated a fortune in active business, purchased the land in 1860, just in the suburbs of the city, as an investment. He gradually added trees, shrubs and ornamental buildings within, in order to form pleasant home grounds, for a future residence.

Their beauty attracted the public attention, and requests to visit them became so frequent, that a special

day was set apart each week for visitors; a small charge was made for admission, and the proceeds handed over to the Sanitary Fund during the time of our recent rebellion.

The public attendance became so great, and the reputation of the place having so widely extended, the grounds were at last given up for private purposes, and thrown open to the public for daily visits and pleasant enjoyment, and they have thus become, within five years, the great resort of the people of the city, combining in one entertainment the pleasures of the park, the garden and the museum.

Directly in front of the entrance is the large Conservatory, with all the smaller ones connecting. There are five in all, supplied with an abundance of plants, gathered from all parts of the world. Here, in one beautiful view from the art gallery, we behold one house devoted exclusively to tropical fruits and palms, the Banana, Plantain, Coffee tree, Tamarind, Pine apple, Rose apple, Alligator pear, Chirimoya tree, eight varieties of Palms, three of Pandanus, while here and there, in the other greenhouses, are scattered Dracenas (eight varieties), Caladums, Begonias, Coleus, Marantas, Crotons, Ferns, Agaves and Aloes, while a few Cinnamon and Camphor trees complete the representatives of the tropics.

In the same series of houses are found trees from a more temperate climate. The *Magnolia grandiflora*. *Camellia japonicas*, in many varieties; India-rubber tree in many varieties, the Orange, Lime, Lemon, and Citron trees, six varieties of the *Araucaria* and the *Azalea*.

Our American greenhouse plants did not all appear as thrifty as with us on the Atlantic slope; the ornamental leaved plants seeming to suffer greatly. The *Coleus* was hardly as finely colored as we have here, but the *Begonias* were overflowing with bloom. It was certainly intensely interesting to behold, grouped into one place, trees from all parts of the world. Here is the India-rubber tree from Central America, fifteen feet high; there the Camphor tree from India; again, the Orange tree from Mexico or the West Indies, and in a corner the Banana or the Sago Palm. The Coffee tree from Arabia and from Australia and *Acacias*, beyond number, also are gathered there.

Connected with the conservatories is a museum, devoted to curious specimens of stuffed animals and birds. In one of the rooms was a specimen of the bark of one of the big trees of California, *thirty-two inches thick*.

In the centre of the large conservatory is a Fine Art Gallery, containing many acceptable paintings, the vestibule to which is lined with tiles painted after the fashion of the olden days of Pompeii and Herculaneum.

In the rear of the greenhouses is a pond devoted to aquatic animals, fish, etc., and for pleasure sailing in

a circular boat. Back of these are the dens and cages, where are gathered living animals peculiar to the mountains and coast, as also some imported from the tropics.

In an adjoining yard, approached by a tunnel under the street, is a large amphitheatre, where stalks the camel and its young, and on stages are chained the panther, black and cinnamon bears, with other living curiosities dispersed at convenient distances.

The gardens have a natural ascent of fifty or more feet, rising first behind the museum and conservatories, on the summit of which is placed a fine Turkish Observatory. From this can be caught a charming glimpse of the entire extent of the gardens and of the crowds beneath intent on solid pleasure. The sides of the hill are planted thickly in trees, and the observatory is hidden from sight save its very top.

In various parts of the garden, along the walks or on the lawns, and particularly in front of the conservatories, are grouped specimens of native and foreign trees, flourishing with the slightest care, and affording a delightful sight to the botanist or tree lover. We saw the Norfolk Island Pine, 10 ft.; *Acacia verticillata*, 20 ft., from Australia; *Acacia lineariis*, 25 ft., from Australia; *Callistema lanceolata*, from New Holland; *Pittosporum Tobera*, from Japan; *Cupressus alwsoniana*, 20 ft.; Japanese loquat, 12 ft.; *Leptospermum lanigerum*, 15 ft.; *Pinus insignis*, 20 to 30 ft.; *Veronica macrocarpa*, from New Zealand; European laurantine; *Metaluca decurrata*, 25 ft., from New Holland; *Melrosio*, from New South Wales; *Fabiana imbricata*, 5 ft.; Japan Spindle tree; Dwarf pomegranate, from New South Indies; Chinese Cypress; Vinca Major, 6 ft. by 8 ft.; Deodar Cedar, 15 ft. high by 10 ft. broad—this tree is remarkable for its beautiful, graceful, drooping habit. Peruvian Mastic tree, remarkable for its large head, 20 ft. high and as broad; Norway Spruce, 30 ft. high.

The short time limited to our stay prevented fuller notes as to the trees and shrubs. It is sufficient to say that beyond a few specimens of native cedars, spruce and cypress, the entire collection of ornamental trees, plants, etc., has been gathered from *foreign countries*, and here thrive with perfect luxuriance in the open air. As yet no gardens in the world can present contrasts of so vivid a nature, nor grow trees from sections so widely remote, as has been done here.

In ministering pleasure to the tastes of the visitors who have constantly visited the grounds, Mr. Woodward has unconsciously given a lesson of great importance. He has pointed out the absolute possibility of the introduction of trees from foreign countries, and demonstrated their successful culture.

Ornamental gardening, hereafter on the Pacific coast, will receive an impetus from the influence of these facts, and already we find many streets and pub-

lic and private grounds adorned with choice shade or ornamental trees from Australia or the islands of the Pacific Ocean.

Was ever a country so gifted as California, where, in one garden, can be grown trees from the snowy summits of the Sierra Nevada, by the side of the tropical palm, coffee and orange; where, too, the apple and pear, from our Atlantic States, thrive; where the cacti blooms with the geranium, where Australian, Chinese and Japan trees twine and droop and mingle their branches together, and still the bear and panther tumble over the lawn, or the beaver works his silent way among the waters of the meandering streams; or the fountain bubbles out its lucent music at the same time with the richer melodies of the Mocking bird.

The grounds have cost, exclusive of land, over \$100,000, and still the proprietor is adding every available curiosity suitable to California climate and soil. Future visitors will find the collection of plants and trees deserving of an extended and interesting study. —*New York Horticulturist*.



ORNAMENTAL AND LANDSCAPE GARDENING

SECTION I.

This subject is of great importance in a new and prosperous country, where rapidly growing wealth has placed at the disposal of men of taste, the means of indulging a long existing desire for the refined embellishments of the garden and pleasure ground, where well selected and contrasted flowering shrubs and plants like the rich setting of a jewel surround the home of his family, blending with their graces, conducing to their health, soothing in their cool freshness, their gentle commingling of color, their rich and varied, yet healthful and exhilarating perfumes, and yielding calm rest and refreshment from the stern business of the day. So much can be said on this subject that we propose devoting from time to time, a considerable amount of attention to it in our columns, and by suggesting various tasty and natural adaptations from the rich treasury of nature, strive to guide and direct the taste of our readers in selecting from thence the ornamental surroundings of their homes in place of the gaudy trapping of meretricious ornament.

Ornamental gardening differs widely from landscape gardening, although it may be con-

sidered a branch of it. By ornamental gardening we understand more particularly the beautifying and ornamenting those small plots which surround our city homes, or certain select and favorite spots in the more extensive grounds of country residences. It is entirely a work of art, limited by space left voluntarily or accidentally, and controlled by various circumstances, while landscape gardening assumes a much wider field, takes hold on a more expanded tract of land, and by availing itself of the natural undulations of surface, and the already existing accessions of wood, water and rock, or by supplying all these where deficient; by dint of experience, cultivated taste, and sundry rules of art, defines and particularizes the beauties, adds new features, softens ruggedness, prunes away redundancies, and by supplying detail when necessary, grouping and arranging trees and shrubs, laying out walks and drives, constructing lakelets and rockeries where such will harmonize and give brilliancy to the scene; it elaborates those gems of landscape beauty attached to rural homes, which we so much admire in older and more settled countries.

To revert to Ornamental Gardening, nothing adds so much to the appearance and comfort of a home as its surroundings when adapted to its style and keeping. Whenever our attention is attracted to a residence, we have an uncontrollable propensity to judge of the taste and refinement of its occupants by the trees, shrubs and flowers surrounding it, and by the manner in which the garden plot is kept. Who does not love flowers? Children love them; quiet, tender and contented people love them; luxurious people admire them when gathered; and whenever we see them in the window of the humbler cottage we argue thence the flourishing of the home affections which require the protection of the same fostering hand.

Our outward life requires them not,
Then wherefore have they birth?
To minister delight to man,
To beautify the earth!
To comfort man—to whisper hope,
Whene'er his faith is dim,
For whose careth for the flowers
Will much more care for Him.

How often is it the ill fate of the garden plot, in the arrangements made by the prosper-

ous man for relocating his family, to come off worse than second best. We will instance a case. Some one after years of successful toil is about building a home. Like a careful business man he obtains plans and estimates for the dwelling, etc., calculates the cost of fittings and furniture, and allowing a liberal margin for incidentals, sets aside what he considers an ample provision for the enterprise, but what is his experience in nine cases out of ten? Before the accomplishment of his purpose, the expense account foots up from ten to twenty per cent. more than his estimate. He says that he cannot afford it, and immediately curtails expenses where not already incurred. Alas for the Garden! from the very nature of things this is the last of the operations; in the original plan doubtless he had made arrangements for something very good and tasty, most probably a selection had been determined on of the choice trees, shrubs and plants which were to adorn it, but here, doubtless, prudent economy falls most heavily. Instead of preparing the very best soil in sufficient quantity, only just enough is provided to give the surface some appearance, and a few coarse pines, cypress and gum trees supply the place of flowering shrubs and plants, making up in size what is wanting in good taste. Such are the difficulties under which many of the garden plots around San Francisco have struggled into existence. House and lot may have cost say \$15,000, fittings and furniture, \$5,000, garden expenses probably from \$75 to \$100. Is there a reasonable proportion in this?

Much has been said of the difficulty of obtaining a good ornamental gardener; we think there is some misunderstanding here. There are many good practical gardeners in California, who thoroughly understand their business; but how often does it occur that a man in every way qualified, has to stand aside for one who undertakes wood-chopping, gardening, horse-cleaning, waiting at table, etc., etc., yet is not competent to dig a potato decently. When we need the services of a carpenter, bricklayer or painter we do not expect any thing of them outside of their professional labor, nor should we of a gardener. A professional gardener

will not beg from house to house for a job.

In the laying out a garden the services of a good gardener are requisite, and it is necessary to take into consideration the nature of the soil. If you have nothing but sand, something stronger and firmer must be added. Good loam and old rotten manure can be readily obtained at a small expense. We should advise first a substratum of clay then a mixture of one-fifth sand, three-fifths loam and one-fifth of old manure to the depth of from twelve to fifteen inches for a small garden. The clay will give more firmness to your trees, and retain the moisture much longer.

If the natural soil is loam, it will require a good manuring to render it lighter and more accessible to air and water. This is the least expensive basis to work on, and many varieties of plants will thrive moderately in it, without the aid of other ingredients; it must however be understood that old manure well incorporated with the soil, is of vast importance for the better development of plants of all kinds in general cultivation.

It is when the surface is of clay that the most extensive improvements have to be made to render the soil even comparatively productive, although it is desirable for several reasons as undersoil for most of the ornamental trees growing in this climate, yet it is objectionable, as a surface till; for very many more, which we will give at some future time. In order therefore to convert a clayey surface into a prolific garden plot it is in the first place necessary to drain, secondly, to trench, and thirdly, by a mixture in equal proportions of sand, manure, and loam to improve the surface soil to the depth of at least six inches.

There are many other ingredients used to improve the condition of the surface till, but they are not often employed: although a certain class of plants will thrive better in one kind of soil; and another class in another kind, yet in ornamental gardening one essential operation is to prepare the ground in such a manner, as will be suitable to the general average of plants cultivated, and if the gardener makes any distinction in the culture of a small gar-

den, he will not do so by giving different soils, but rather by assigning to one plant a different aspect from another, affording, according to the nature of the plant, more or less shade or sun, dryness or moisture, exposure or protection.

When planting trees in a deep sandy soil, more will be required than merely a top dressing of made ground; holes should be dug of from three to four feet in depth, and three feet square; these should be sub-soiled with about six inches of clay or strong loam, and filled up with a compost of clay loam and old manure. For evergreen trees in particular, we would advise strong soil, but less manure, which in no case should be new, as it is very injurious, and should never be used except as a top-dressing, when it serves more as a retainer of moisture than as a fertilizer. The laying out of walks, the bordering of beds, the distribution and arrangement of plants, etc., and the embellishment of the grounds, with other suitable accessories, should be carried out as much as possible in keeping with the style of the residence, having due regard of course to pecuniary considerations; very expensive material can be used for walks, although a cheaper article may be substituted, and this may also be said in reference to the Borders, Plants, etc., but as we intend to be very minute in reference to all these features of ornamental gardening in our future, we will at present leave these matters to the good judgment of the gardener having charge of the work. The most favorable season for laying out grounds is undoubtedly in the fall of the year, and during the rainy season; planting should be done as early as possible, so as to give the newly set out plants the benefit of the early rains, and to allow the made ground time to settle. It is true that where water is at hand all through the year, gardens may be laid out and planted at any time, but it is a well-known fact that a good rain has a much more beneficial effect on plants than any artificial irrigation. Gardening, however, like other matters has to submit to circumstances. Plants should always be provided with proper stakes and labels; the stakes are a protection and we consider them an

ornament when proper use is made of them; the labels are instructive and give a certain finish to the garden.

Having thus lightly sketched through the operation of making a garden; we shall intimate the necessity of keeping it in decent shape and condition. The paths and the borders, the trees, shrubs, etc., and the other embellishments, require to have proper care taken of them. The plants will doubtless put forth new shoots and flowers, and increase in beauty, but the garden should never lose its first finish. This attention can be easily given by the amateur himself, if he has time and inclination, but if otherwise a gardener may readily be found who will do the work well for a reasonable consideration per annum.

At some future time we shall give a selection of plants for the flower garden, comprising such as are generally esteemed for beauty of flower, fragrance, ornament and habit; in this we may be influenced to some extent by our own fancy, particularly in regard to varieties; but we shall endeavor to be impartial and just.

BAY DISTRICT HORTICULTURAL SOCIETY OF CALIFORNIA.

During the week of the late Horticultural Fair in this city, circumstances occurred demonstrating the paramount necessity for combined action on the part of all interested in horticulture on this coast, and, a meeting having been suggested, about fifteen gentlemen responded to the call. The result of their deliberations was a resolution to form a Horticultural Society, and they elected a committee of five to draft a Constitution and By-Laws.

At a subsequent meeting held for the purpose of receiving the report of the committee, the Constitution and By-Laws which they had prepared, were, after some slight amendment, adopted; and those present proceeded to elect the following officers for the ensuing year:

President, H. N. Bolander; *Vice-President*, E. L. Reimer; *Secretary*, F. A. Miller; *Trustees*,

R. Turnbull, C. Schuman, F. A. Herring.

The Constitution and By-Laws, which are published in another column of this magazine, will give our readers an idea of the objects and *modus operandi* of this Institution. For the present, the meetings of this Society will be held at the rooms of the Academy of Natural Sciences, on Clay street, but it is intended, at as early a date as possible, to establish a reading-room, where its regular meetings will be held. The purposes of this association are to collect and compare practical experience on all horticultural matters on this coast; to promote discussion on all subjects of importance relating thereto; to ascertain and promulgate the best method of treatment of our various trees, shrubs, plants and flowers, and to seek, by correspondence and experiment, the introduction of new plants, etc.; thus facilitating the more extensive distribution of the knowledge so much needed in a new country. The utility of a Society of this kind can scarcely be over-estimated, and whoever takes an interest in the cultivation of the soil generally, or in the propagation of any horticultural specialty, must be interested in its prosperity and should seek, by becoming a member of this Institution, to materially aid its progress by his influence, experience, and pecuniary assistance; he will thus doubtless benefit himself, and conduce to the public good.

The Horticultural Society of Massachusetts at present consists of 498 life and 1,002 annual subscribers, making a total of 1,500 paying members. Amongst them we find citizens of every class, from the wealthiest to those of comparatively restricted means; all are able to contribute the small amount required by the rules of the Society.

We anticipate rapid progress for this new Association, and are sanguine that it will number 500 members ere it enters on its second year of existence.

CLUB ROOT IN CABBAGES.—It is stated that bone dust applied at the rate of 2000 pounds to the acre, has been found a complete preventive of this disease.

THE LATE HORTICULTURAL EXHIBITION AT
THE PAVILION IN SAN FRANCISCO.

The Horticultural Exhibition of August last, under the auspices of the Mechanics' Institute, was the second of its kind on the Pacific coast, and when the want of experience, and the short space of time which had intervened for preparation, between the invitation to exhibit and the opening day, are taken into consideration, we are justified in pronouncing it a success. The display of shrubs, and plants, flowers, fruits and wines, was very effective, and many of the specialties were highly interesting. We think, however, that the selection of Monday as the opening day was a serious mistake. The material for exhibition being rapidly perishable, the florists and fruitmen found it impossible to make those preparations simultaneously which could have been made, had Wednesday been the day appointed.

On Monday, August 29th, at 3 p. m. Mr. Hallidie, the President of the Mechanics' Institute, commenced the exercises of the day by stating that the time permitted to preparation for the exhibition had been very limited, but he hoped nevertheless that the display would be admitted to be highly creditable to our California productions. The First Exhibition took place in 1857 at the Old Pavilion on the Lick House Block, unfortunately, like the century plant, the Horticultural Society of that date expired after its one great effort. He hoped that the present Exhibition would give birth to a Society that would take firm root in the prolific soil of San Francisco, flourish as the primest of the plants around them, and bear fruit as satisfactory as the choicest specimens on exhibition.

After a prayer from Dr. Stone, and the inaugural address of Professor Carr, the President declared the Exhibition opened, and while the Band enlivened the gay scene by discoursing many *recherche* passages of sweet music, the visitors dispersed around the building to inspect and admire the choice productions displayed before them. The attendance during the evening was numerous. During

Tuesday and Wednesday articles for exhibition continued to flow in from the country, the concourse of visitors daily increasing until Thursday, when the display was complete, and the highest attendance attained.

The principal professional exhibitors in the floral department were: E. L. Reimer; J. Hutchinson; Ed. E. Moore; T. Appleby; Wm. Meyer; Chas. Schuman; J. O'Hara; M. Allen, and G. Gustavson of Kelsey's nursery.

Of amateurs Mrs. Curtis, and Mr. Upton deserve especial mention.

An interesting feature of the exhibition was the century plant (*Agave Americana*) presented by General Kirkham, occupying a very conspicuous position in the centre of the fountain. In connection with this department we must also mention the exhibition of a design illustrating the principles of landscape gardening, by F. A. Miller, landscape gardener.

The Fruit Department was well represented by the following gentlemen:

Lewelling & Son, San Lorenzo; Hutchinson, Marysville; Fox & Varney, Santa Clara; B. F. Headen, Santa Clara; R. B. Woodward; Gould, Santa Clara; S. Wing, Napa; R. S. Thompson, Napa; West Bros, Stockton; J. W. Paterson, San José; M. Keller, Los Angeles, and P. D. Code, exhibitor of canned fruits.

Fine vegetables were on exhibition from D. L. Perkins, of Sherman Island, and W. H. Marsh, of Napa.

The display of Wines and Brandies was extensive, the principal exhibitors were, I. Landsberger & Co.; Eberhardt & Lachman; A. Finke; P. N. Bugbey; The Lake Vineyard of Los Angeles; The United Anaheim Winegrower's Association; F. Schleifer & Co; The Orleans Hill Vinicultural Association; Bowen Bros; and M. Keller, of Los Angeles.

The miscellaneous department also comprised many articles of great interest, including California silk and cocoons, flax, ramie plant, tea trees, sorghum, hops, rice, goma and paper plant.

Saturday, the 1st of October, was the closing

day, when the following awards were announced.

AWARDS.

CLASS ONE—WINES.

The Committee appointed to inspect the exhibits of California wines at the late exhibition, held under the auspices of the Mechanics' Institute, have submitted their report as follows:

WHITE WINE.

United Anaheim Wine Growers' Association—Best white wine of 1870.

Orleans Hill Vinicultural Association Best white wine of 1869 (equally as good as the above, but foreign grape).

Lake Vineyard of Los Angeles—Best white wine of 1868.

O. W. Craig (H. D. Dunn, Agent)—Best white wine of 1867.

Jacob R. Snyder (Bowen Bros., Agents)—Best white wine of 1866.

CLARET.

Migharacca—Best red wine of 1863.

M. Keller—Best red wine of 1868; also of 1867; also of 1866.

PORT.

Orleans Hill Vinicultural Association—Best port wine of 1869.

Lake Vineyard of Los Angeles—Best port wine of 1868; also of 1867.

SHERRY.

George West—Best Sherry Wine of 1868; also of 1866.

CHAMBERTIN.

P. N. Bugbey—Best Chambertin (foreign grape) of 1868.

ANGELICA.

M. Keller—Best Angelica.

BEST SPARKLING WINE.

First Premium—I. Landsberger & Co., Muscatel.

Second Premium—I. Landsberger & Co., Private Cuvee.

Third Premium—I. Landsberger & Co., Dry Champagne.

Fourth Premium—J. Finke, sparkling wine.

BRANDY.

F. Schleifer & Co.—Best brandy of 1869.

M. Keller—Best brandy of 1868; also of 1867; also of 1866.

MISCELLANEOUS WINES.

Eberhardt & Lachman—Cucumrongo wine.

S. W. Shaw—Muscatel.

Eberhardt & Lachman—Muscat.

O. W. Craig—Malaga.

Lake Vineyard of Los Angeles—Sultana.

Orleans Hill Vinicultural Association—Riesling of 1866 and 1869.

B. D. Wilson—Bottle of fine old port (twelve years old).

P. N. Bugbey—For a variety of fancy brands of sweet wines.

BITTERS.

M. Keller—Best Wine Bitters.

Eberhardt & Lachman—Best cocktail bitters.

I. H. Wormser—Best root bitters.

The Committee recommended that diplomas be awarded to all of the above, for the reason that they have entered the best wines and liquors for competition.

Samples of sparkling wines only are selected from stock in store for exhibition.

The committee, not being able to argue upon the subject of awarding the grand prize, asked further time. They will submit a supplementary report, when they arrive at a definite conclusion.

CLASS TWO—FRUITS.

Lewelling & Son, San Lorenzo; best general display of fruits, diploma.

Hutchinson, Marysville, best specimens of peaches, \$40.

Fox & Varney, Santa Clara, best exhibit of apples, \$40.

B. F. Headen, Santa Clara, second best exhibit of apples, \$20.

R. B. Woodward, best specimens of apples, ten varieties, \$10.

Smith, of Sacramento, best exhibit of pears, \$40.

Fox & Varney, Santa Clara, second best exhibit of pears, \$20.

Hutchinson, Marysville, best specimen of ten varieties of pears, \$10.

Fox & Varney, Santa Clara, best exhibit of plums, fifteen varieties, \$25.

Gould, Santa Clara, second best exhibit of plums, \$20.

Hutchinson, Marysville, best exhibit of foreign grapes, \$50.

S. Wing, Napa, second best exhibit of foreign grapes, \$20.

R. S. Thompson, Napa, third best exhibit of foreign grapes, \$10.

R. S. Thompson, best exhibit of Mission grapes, \$10.

West Bros., Stockton, exhibit of foreign grapes, special premium, \$30.

Gould, Santa Clara, best exhibit of quinces, \$10.

Hutchinson, Marysville, best exhibit of figs, \$10.

J. W. Paterson, San Jose, best exhibit of California oranges, \$15.

M. Keller, Los Angeles, best exhibit of lemons, \$10.

Fox & Varney, best exhibit of strawberries, \$7 50.

Fox & Varney, best exhibit of blackberries, \$5.

Hutchinson, Marysville, best exhibit of dried fruits, silver medal.

J. W. Patterson, San Jose, best exhibit of cured prunes, diploma.

Hutchinson, Marysville, best exhibit of figs, cured, diploma.

P. D. Code, San Francisco, best exhibit of canned fruits, diploma.

Signed by Messrs. Nichols, Perkins, Anderson and Feeley, Judges.

CLASS THREE—VEGETABLES.

D. L. Perkins, Sherman Island, best single varieties of early potatoes (Early Rose), \$3 00.

D. L. Perkins, best exhibit sweet corn, \$3.

D. L. Perkins, best exhibit water melons, \$3.

D. L. Perkins, best exhibit beets, \$3.

W. H. Marsh, Napa, best exhibit of squash (two varieties), \$3.

W. H. Marsh, for fine specimens of growing corn, \$3.

CLASS FOUR—FLOWERS.

E. L. Reimer, San Francisco, best and largest collection of plants for lawns, gardens and conservatories, \$100.

T. Appleby, San Francisco, best collection of evergreen trees and shrubs, \$50.

Edward E. Moore, San Francisco, best collection of decorative plants of newest varieties, \$50.

J. Hutchinson, Oakland, best collection of climbing plants, \$25.

T. Appleby, San Francisco, best collection and variety of bedding plants of verbenas, dranthias, petunias and pansies (twelve of each), \$25.

Charles Schuman, gardener of R. B. Woodward, Esq., best collection of twelve colored leaf plants, \$25.

J. Hutchinson, Oakland, best exhibit of cut flowers, \$25.

W. Meyer & Co., San Francisco, best exhibit of round or flat bouquets, \$25.

Mr. Miller, San Francisco, best design illustrating principles of landscape gardening, \$30.

Awards to non-professional growers:

E. A. Upton, best display of dahlias, fuchias, Petunias and dranthies, elegant flower stand.

E. E. Moore, San Francisco, best collection of gladiolus, a diploma.

General Kirkham, donation of century plant, award book—"Wonders of the Sea."

E. L. Reimer, San Francisco, beautiful arrangement and display of plants, a diploma.

T. Appleby, San Francisco, collection of hollyhock roses, and dried and ornamental grasses tastefully displayed, a diploma.

W. Meyer & Co., baskets of flowers, a diploma.

Kelsey's Nursery, cultivated by G. Gustavson, Oakland, collection of deciduous forest trees and miscellaneous plants, a diploma.

J. O'Hara, San Francisco, general collection of ornamental trees and shrubs a diploma.

Charles Schuman, gardener to R. B. Woodward, grandest display of tropical plants, trees, etc., a diploma.

Mr. Allen, San Francisco, meritorious display of flowering plants, a diploma.

J. Hutchinson, Oakland, splendid collection of greenhouse plants, a diploma.

Mrs. Tyler Curtis, rare Japanese and hothouse plants—award Robinson's Alpine flowers.

CLASS FIRST CEREALS

W. Hunt, Oakland, best collection of oats, \$5.

D. L. Perkins, best specimen of corn in the ear, \$5.

D. L. Perkins, honorable mention for very superior wheat.

MISCELLANEOUS.

Class Six—California Silk Culture Company, best specimen of silk (raw), a diploma.

W. H. Baxter, best specimen of unperforated cocoons, \$20.

D. L. Perkins, Sherman Island, best specimen of flax, \$10.

J. S. Finch, best specimen of ramie plant and fibre, \$15.

J. H. Schnell, El Dorado, best specimen of tea plants, \$30.

J. H. Pardy, best specimen of sorghum sugar \$5.

Isaac Bird, San José, best specimen of hops, \$5.

J. H. Schnell, mountain rice, goma plant, and paper plant, a diploma.

D. L. Perkins, 138 varieties of seeds, silver medal.

W. F. Swacy, San Francisco, California bonzest, a diploma.

W. J. Laveny & Co., very fine sample of starch, a diploma.

Bowen Bros., San Francisco, mountain honey and pop corn, a diploma.

This display of Horticultural, Pomological and other like produce, has been highly satisfactory; it was well attended throughout, and was highly creditable, alike to the officers of the Mechanics' Institute and to the exhibitors.

One immediate result of the exhibition has been the organizing a Horticultural Society—the subject was taken into serious consideration, the necessity for such an Institution demonstrated, and the Bay District Horticultural Society of California, of which mention is made in another column, was inaugurated.

We hope that our late exhibition is the initiation of a new era in horticulture on this coast.

POPULAR BOTANY.

CHAPTER I.

It is our purpose in a series of papers, of which this constitutes the first, to give as far as may be possible, an insight into the nature and character of the science of Botany. We shall endeavor to so simplify it, as to make it intelligible and interesting to all. At the same time we shall hardly claim originality, as it is our intention to give but an epitome of the text-books, clothed somewhat in our own language. From all time, the beauties and usefulness of the botanical kingdom, has impelled mankind to its study; a study that involves the fairest part of nature. Truly has it been said that the flowers are the alphabet of the angels, speaking as they do, to the hearts of all, in language of innocence and love. In the far east, where Flora seems to have had her treasured home, the people wove fairy legends around each leaf and opening bud, using them as emblems, and messengers of love and friendship, sorrow and joy, victory and war. Nature is divided into two grand divisions, namely organic and inorganic. The inorganic repre-

sented by metals, soils and the different rocks, have characteristics that at once claim our recognition at all times and in all places. It was Everett, who, in one of his speeches, drew a vivid comparison between the two divisions, worthy of being recorded in letters of gold. "In one hand I hold a grain of gold, and in the other a grain of corn. I place the first in the ground, and it remains for unnumbered years, the same grain of gold. I now place the corn in the earth and lo, a marvel! the little seed softens and swells, sends up a bright green shoot, which, by a wonderful process of nature's laboratory, evolves the perfect plant, to be at last crowned with millions of the same golden grain." The organic is again divided into two kingdoms, vegetable and animal. Plants are the connecting link between the inorganic world and animals. By their rootlets they slowly and surely take to themselves the different mineral salts necessary for their growth, and they are in turn consumed by the animal kingdom, so producing bones, muscles and nerves.

Thus we can readily trace out, the chain of nature, that reaches from the senseless clod of earth, to God's highest creation, *Man*. Botany is divided into *Physiological* which treats of the structure of plants, and their mode of growth; and *systematic*, which is the study of plants in their relation to one another. The physiology of plants claims our first attention, as it is the ground work, so to speak, of their study. All plants are made up of certain parts, such as the roots, stems, leaves, flowers and fruits. These, on closer inspection, are found to be made up of smaller parts, and these parts of still smaller portions. We find on examining these latter with the microscope, that they are formed of cells, and so have received the name of cell tissue. The plant is then, as Gray expresses it, "built up much as a wall is built of bricks." These cells are very rapid in their growth, being formed in some plants, at the rate of several millions daily. How cells are formed in the first place, is still involved somewhat in doubt: When once formed, however, they have the power of producing others to an almost unlimited extent. This reproduction

or duplication, of themselves, takes place in a number of ways. Often it is by a kind of budding, in which the new cell shoots out from the side or end of the old cell, somewhat as the branches in plants, again it is done by the walls of the parent cell contracting in one part to such an extent, as to cause a division, and so producing two cells out of the original one. This process, called spontaneous fission, will continue in the new cells, and so a vast number may, in a very short time, be really formed from *one* original cell.

The lowest forms of vegetable life consist of a number of these cells placed end to end; and some, as the "*Diatoma*," are made up of but a single cell.

Plants that elevate themselves above the ground, such as shrubs, trees, etc., require a higher organization, and so we find another kind of tissue is introduced, and blended with the cellular. This is called *Woody Tissue*, or *Fibre*. When we come however, to examine this woody fibre, we find it but a modified form of the cell tissue, and that it is formed of closed cells, drawn out into tubes or cords. The walls of this woody fibre are thicker and stronger than cell tissue, and its toughness is still further increased by age. It is this difference between young and old woody tissue, which has given rise to the terms *Sap-wood* and *Heart-wood*; the first standing in the relation of younger brother to the latter.

There are yet other forms of tissues in plants, that become more complex in their developments, as they advance in the upward scale of vegetable life. These are comprised under the general head or term *Vascular Tissue*, and consist of spiral vessels and ducts. The cells and vessels of a plant contain the sap and juices necessary for its growth; upon them devolves the duty of elaborating and distributing the sap to all parts of the plant.

That portion of a plant that is exposed to the air, is covered with a skin or Epidermis; this skin is but the outer layers of cell tissue, with their cells in a state of firm cohesion, that is, pressed close to one another, and so forming a complete and uniform covering to the plant.

PROPAGATION OF AZALEAS.

Azaleas are easily propagated by cuttings, which should be put in when the young shoots attain their full length and have the base rather firm, or what is known as half ripe. They should be from three to four inches in length, cut transversely below a leaf, and have the leaves removed half way up the cuttings. Insert them round the sides of a pot, placed in one of larger size, and so that the rims of both are on the same level. The cutting pot should be well drained and filled to within half an inch of the rim with a light and moderately rich loam, and about half an inch of clean sand on the surface. The space between the pots is to be filled with crocks to within an inch of the rims, and then filled in with sand. Insert the cuttings up to where the leaves are left, give a gentle watering, and when dry, cover over with a bell-glass, which will rest on the sand between the pots; plunge the pot into a hot bed of from 70° to 75°, keeping close and shaded. The cuttings will be well rooted in six weeks, then remove the bell-glass, taking care to do it by degrees, so as not to lower the temperature too rapidly before the plants can accustom themselves to the change. When the young plants are well hardened, pot them singly in small pots, and keep them in a gentle heat until they are well established; then remove them to a cool house or green-house.

When growing and flowering, Azaleas require to be plentifully supplied with water, and at other times the soil must be kept moist, but only apply water when the soil is becoming dry and before the foliage flags, then give enough to show itself at the drainage.

FLOWERING SHRUBS.

That section of Ornamental plants which are familiarly known as shrubs, is usually divided into two classes; one of which comprises such as are cultivated for the elegance of their foliage, their grace of form and habit, or their robust and picturesque growth when under training as specimens, or as undergrowth; the

other, which contains those fostered for their showy and fragrant flowers. It is of this latter class we intend to treat particularly in this number of the Horticulturist.

Those of our readers who have gardens large enough to admit a number of flowering shrubs, will find it one of the most desirable points, to have as far as practicable, a succession of flowers throughout the year. We shall therefore call their attention to the importance of selecting those shrubs which will give an abundance of blossoms during the different seasons; and in order to make the selection the easier, we shall sub-divide flowering shrubs in three sections, based on their time of flowering, which may be influenced by the mode of treatment they receive with the pruning knife. Section 1, comprises shrubs which produce their flowers from wood of last year's growth, and bloom during the early part of spring and summer. Section 2, includes those which develop their flowers from the present year's growth, and bloom during the latter part of summer and fall. Section 3, consists of those which continue in flower nearly the whole year, and are mostly evergreen shrubs.

In section 1 we include the *Calicanthus*, *Deutzia*, *Ligustrum*, *Philadelphus*, (Mock-orange) *Spiræa*, *Syringa* (lilac), *Viburnum* (Snowball), *Weigelia*, *Rosea*, *Althea* (Rose of Sharon), *Pyrus Japonica* (Japan quince), *Flowering Almond*, *Ceanothus*, *Tamarix*, *Berberis*, *Cornus*, and many others, all of which are deciduous, that is, they shed their leaves in the fall of the year, and remain dormant during the winter. Great care should be taken in the pruning of this class of plants; nothing should be removed by the knife from these shrubs, except superfluous wood, and if any more extensive pruning has to be resorted to, it should be done immediately after the flowering season is over. We often hear the complaint that the Snowball or the Lilac produces no flowers, or at least so few of them, that the plant is not considered worth a place in the garden. We are certain that the fault lies not in our soil or climate, but in the improper

pruning of those shrubs by incompetent gardeners, their nature and habits not being known by them, and the very branches which should furnish the flowers are ruthlessly cut away. We advise those of our readers who have any of these flowering shrubs in cultivation, to imperatively forbid such ruinous treatment, if they wish to enjoy a fair harvest of flowers. All shrubs mentioned in the above list, bloom in the earlier part of the season, from February to June, and the varieties enumerated are the most popular; all of these will do well with ordinary care.

Some may differ from us when we say that these shrubs develop their flowers during the early part of spring and summer, and may endeavor to establish a contrary opinion by instancing a *Philadelphus* (Mock orange), which was in bloom at Mr. Robertson's, on Folsom street, during the month of October, or by referring to a *Snowball* which is now in bloom on Sutter street, in this city; but we consider these instances as exceptions caused by peculiar circumstances. Almost any plant can be forced into bloom by omitting to water it for some time; and then subjecting it to plentiful irrigation. Again, a plant may have been pruned at the wrong season, by which treatment the wood which should produce the flowers, may not have developed itself sufficiently to bring forth healthy and abundant flowers at the proper season; this latter was undoubtedly the case with the *Snowball*, and the result is very scanty flowers.

Section 2 includes the *Cytissus* *Potentilla*, *Spiræa* *Douglasii*, (*Bridal wreath*) *Lagerstræmia*, (*grape-myrtle*) *Cratægus*, *Cestrum*, *Eupatorium* and others. This class is not as numerous as the former, and the varieties do not give as much satisfaction, yet an extensive garden should not be without some of them, so as to secure a continuous flowering. The time for pruning and trimming this class of shrubs, is early in Spring before the sap rises.

The third section includes a large number of species and varieties which on account of their evergreen foliage have grown in favor with us. The flowers of this class are neither

as beautiful nor as fragrant as of those mentioned under section 1, with the exception of those which are grown under glass, but as we are treating only of outdoor plants in this article, the denizens of the greenhouse must be referred to a future time. The most popular varieties of section 3 are *Polygala*, *Laurustinus*, *Abutilon*, *Brugmansia*, *Diosma*, *Erica*, *Fabiana*, *Hydrangea*, *Lantana*, *Myrtus*, *Metrosideros*, *Nereum* (*Oleander*), *Plumbago*, *Pittosporum*, *Swainsonia*, *Veronica*, *Bouvardia*, *Daphne*, and many others; some of those above enumerated bloom during the greater part of the year, summer and winter, although they flower more profusely in one season than another. Most of them can be cultivated into any desirable shape or form, some of them are well adapted for hedges, while others can be trained over frames or walls.

In California we observe that shrubs of the 3d section are almost exclusively cultivated; but although the varieties enumerated in that subdivision are entitled to extensive consideration, yet those comprised in section 1, are equally valuable, and in some respects far preferable; and when, and wherever our readers have succeeded in bringing them to perfection in the development of their flowers, they will coincide with us in opinion.

Editorial Portfolio.

In assuming the editorship of the "CALIFORNIA HORTICULTURIST," we do so with a full knowledge of the difficulties and perplexities we shall have to encounter. It is an easy matter to inaugurate a new enterprise, but quite another thing to carry it out successfully, or even with satisfaction to its projectors. Time tries all things, and measures out, with its inexorable march, success or failure. Right here, let us state that it is not our intention to fail; that we intend to make this journal a success, such as California may be proud of. We have before us a wide and uncultivated field, and it is our purpose to so work it as that it shall—like all Californian fields—yield glorious fruits.

It is with pride that we point to our first number, rich and replete as it is with golden promise of the future.

In publishing this journal, it is not our intention to make a fortune, but simply to further the interests of horticulture, and foster a taste for the true and beautiful in nature. True, we shall expect, and hope to at least meet our current expenses, and for that purpose we appeal to all true lovers of horticulture for their support. We ask not only subscriptions, but also communications from all interested in the horticultural and agricultural interests of the Pacific Coast. Articles of all kinds bearing on the subjects which we propose to treat of, will be thankfully received, and given a place in our journal. To all of our horticultural and agricultural brethren, we give hearty greetings.

THE BAY DISTRICT HORTICULTURAL ASSOCIATION.

—Second regular meeting held on Saturday, October 29th, 1870, at the rooms of the Academy of Natural Sciences, No. 622 Clay street. After the transaction of some important business, nineteen new regular members were admitted. On motion it was resolved that the Secretary be authorized to have the Constitution and By-Laws printed for the use of members, and new candidates.

A lengthy discussion took place on Rules and Regulations of exhibitions to be held by the Society, but the matter was finally laid over for one month, as it was considered desirable to have the opinion of gentlemen from various parts of the country expressed.

Professor H. N. Bolander, stated that he would inaugurate discussions on Horticultural subjects, by a lecture on the Coniferae of the Pacific coast, at the next regular meeting, to take place on the last Saturday of November next.

ACKNOWLEDGEMENTS.—We have to return our acknowledgements to R. B. Woodward, Esq., for his many acts of kindness, and in placing at our disposal the use of his very valuable collection of books and periodicals. Also, to W. Meyer & Co., No. 27 Geary street, for material assistance in the furtherance of our pro-

ject. E. L. Reimer, nurseryman, has also placed us under great obligations for much valuable assistance and information; while last, though by no means least, we are indebted to W. F. Norcross, of the *New Age*, for the practical advice and aid which he has given us.

HORTICULTURAL AND AGRICULTURAL EXHIBITIONS.—Fairs and Exhibitions seem to grow in favor with our Eastern friends, as well as with the people of this coast. While the character of these numerous fairs, as a general thing, do not come up to the expectations of the professional grower and producer, still a great deal of good is nevertheless accomplished. From year to year, our efforts in this direction will meet with better success, and we hope that the general interest in the promotion of our agricultural and horticultural developments will steadily increase.

SMALL GARDENING.—It is often remarked by lovers of horticulture, that want of space and the expense, prevents them from indulging in this pleasant pastime. To show what can be done when there is a true will, we have only to instance a case in this town: A gentleman ("a city clerk, but gently born and bred") living in the southern part of this city, has, at a cost of about twenty-two dollars, erected for himself a green-house. In size, it is five by eight and one-half feet. He has in it one hundred and twenty varieties of plants, grown by himself, and all in an excellent state of cultivation.

CANARY BIRDS.—The asthma, *alias* the "pant" of these birds is said to be cured by feeding them entirely upon hemp seed. Cannot some bird fancier give his or her experience in the treatment of this troublesome and common disease? The editor of this journal once had a bird (we say once, as it is now no more) afflicted with "asthma," and, in course of time, it died. We, being of an inquiring turn of mind, made an "autopsy" upon it, and found in the upper part of its wind-pipe, two small, white, *parasitical worms*. They were about two lines long, but capable of lengthening them-

selves to the extent of half an inch. Can any of our readers tell how they came there, and whether they had anything to do with the "asthma," under which that editorial bird suffered, and at last died?

TIME OF REPOTTING AZALEAS.—The best time for repotting azaleas is after flowering, or when they are commencing to make fresh growth. They may also be potted after the growth is complete.

VINES INFESTED WITH COCCIDIE (*Mealy Bug*).—A great many inquiries have been made as to an effectual method for removing the "Mealy Bug," which seems to infest the grape vines, (especially those grown under glass) to a great extent in this country. Many remedies have been recommended, but nearly, if not all, have contained certain ingredients, which, while they destroyed the "Mealy Bug," also injured the vines. We can recommend a preparation which will answer the purpose in all respects as to the "Bugs," and at the same time, have no bad effects upon the leaves or buds of the vine. First remove all the loose bark and rubbish of the vine; then wash them with a solution of 3 ounces of Clark's insect destroying compound, to a gallon of water, and about a dozen drops of spirits of turpentine. Apply this solution with a stiff brush, so as to have it penetrate every hole and crevice, taking care not to destroy or rub off the buds.

The wood-work should be well cleaned, and the walls whitened, using the solution above mentioned, with the lime. This operation ought to be performed twice; once before the buds commence to swell, and again when they are showing signs of development, this being the time when the "Bugs" emerge from their hiding places, on account of the increasing temperature. If the method we have mentioned is adopted, the "Mealy Bug" will surely disappear.

EARTHQUAKES.—Earthquakes have been rather scarce this fall; in fact entirely absent, with perhaps the exception of one or two slight vibratory thrills. Their place seems to

have been filled (acceptably to us) by the "aurora borealis." Is not here a clue to the electrical theory of earthquakes? Who can tell? and furthermore, who will follow it up?

Correspondence.

All communications intended for this column must be addressed to the editor of "The California Horticulturist," 418 Kearny street, San Francisco. Correspondents are required to be brief and concise as possible, stating their questions in such a manner, as shall allow of their being answered with satisfaction to the editor, as well as to themselves.

Editorial Cleanings.

TEA PLANTATION.—It will be remembered that, two months ago, we reported, from inspection, that success had not attended the tea plants at Calistoga. A party interested gave a different narrative. The variance grew out of difference in judgment as to the degree of prostration from which such plants may or may not recover. Now we have corroborative testimony confirming our judgment. The editor of the Vallejo newspaper has just examined the plantation, and pronounces it a complete failure. He says only a few tea plants are alive, and they are sickly and unpromising. The editor pronounces against the locality. But that is not in fault. The plants reached there in sinking condition, having lain a long time in our Custom House after the trying voyage from Japan: several weeks, we are told. Had they been destined for Calistoga, and planted there without unreasonable delay, it would have been a fair test. But they were sent here for sale, and finding no market, they were sent to Calistoga in hopes of saving them. In this there is disappointment. But the land and the climate may be all right for tea plants, properly delivered.—"*Alta California*."

CABBAGES—AMERICAN AND FOREIGN VARIETIES.—Recently we visited a farm upon Long

Island, to examine a crop of cabbages which had been raised for Mr. Dreer, of Philadelphia, for the purpose of testing the most popular European varieties by the side of our own. There were some 30 varieties grown in field culture, and in sufficient quantities to show what they would do as a crop. They presented a wide range of quality, from perfectly worthless to very good. There were only two or three that seemed to be worthy of further trial. The result of the experiment is, that we have little to gain by going abroad for our varieties of cabbage. Several of the European varieties have been so modified by culture in this country that seed of the same kind grown here is vastly preferable to the imported. Some of the Long Island farmers have local varieties, or strains, which they have obtained by selection, in which earliness and solidity are combined in great perfection.—*"American Agriculturist."*

POMOLOGISTS IN CALIFORNIA.—Our pomological friends in California are enjoying a visit from some of their distinguished eastern brethren. We doubt not that the visitors on their part are highly enjoying themselves; and we know none better able to appreciate the horticultural wonders of California than such gentlemen as Wilder, Downing, Barry, and Ellwanger, who, with others, compose the party. Perhaps this visit may lead to a meeting of the American Pomological Society upon the Pacific coast in 1873.—*"American Agriculturist."*

CURIOSITIES OF VEGETABLE LIFE.—We have often urged our farmers to raise native seedling trees, with a view to getting stock that will better suit our climate, than trees coming from countries so different as the Atlantic slope of our Continent.

A hint in this direction comes from Los Angeles county. This year all trees of imported stock belonging to the plum, peach, apricot, pear, and cherry varieties, showed no disposition to leaf or to flower at the usual time in April. It was not till August that they began their vernal evolutions. They will bear no fruit this year. Cherry trees never fruit in the

lower counties, though they flower abundantly.

Mustang trees of the varieties named were not so affected. Fruit trees that come by chance from stray seed, are called Mustang. It is noteworthy that, among the Mustang peaches particularly, the sweetest and most juicy fruit is found: and it is a fact that the greater portion of our grafted apples and pears are showing defects pointing to extinction. This subject should be earnestly considered by our horticulturists.—*"Alta California."*

SUCCESS OF CALIFORNIA AGRICULTURE.—The California fruit trade has become quite an important traffic. But already the markets are objects of a little uncertainty. The Eastern exportation has resulted so indifferently, whether to Chicago, or to the far East, that San Francisco and Sacramento are considered more profitable. Plums are plentiful and very cheap. Apples give but an indifferent promise. Grapes are suffering from the heat. This rapid success of the land of gold in farm produce is a social phenomenon worthy of more than casual remark. High wages and scarcity of labor have been no bar in this case to production, while elsewhere these conditions are deemed indispensable.—*"New York World."*

THE HORTICULTURAL AND POMOLOGICAL EXHIBITION.—The report states that the Concert preceding the Exhibition, and the Sanitary Fair following it so closely, had a modifying effect upon its receipts. The report of the Committee is flattering to the exhibitors. The receipts were: Admission tickets, \$5,767-80; privileges, \$115; State appropriation, \$1,500. The bills for expenses have not yet all been audited, but the disbursements will probably reach \$6,000, leaving a balance of \$1,500 to the credit of the Exhibition.—*"Alta California."*

CHARACTERISTICS OF AMERICAN HORTICULTURE.—A pleasant, gossipy article, with the above title, was written some four months since by the editor of this journal for the *London Gardener's Magazine*. It has awakened the atten-

tion of some of our neighbor editors, who fear we may have assigned too mercenary and *profit-loving* a character to the nature of our American horticulture. As we never indulge in contra-criticism with our exchanges, we forbear any such remarks. The best comment upon the truthfulness of our statements is the evidence that they are noticed, and have "drawn fire." We have found, from observation and experience, that the rapid development of American horticultural interests, within ten or twenty years, has been due, *not to the love of horticulture, itself*, but to the desire for profit to be gained by extensive planting of fruit trees or vines.

Horticultural literature would be far more interesting and better patronized to-day, if we could blot out the great fruit fevers and manias that have so sadly disappointed our people. The grape fever, the strawberry fever, have come and gone, and strewn the field with mementoes of amateur horticulturists, who started with high hopes, eager for horticultural knowledge, but failed at last.

The blackberry fever, the pear fever, are still upon us, and soon they must pass, and then some new branch will arise, and so it will continue down through the distant future.

The nursery interests of America have been developed to their astonishing extent simply from the extensive planting of orchards and fruit grounds for *profit*.

Our fruit interests have absorbed our entire energies, and proved, at best, only partially satisfactory; and now, when crops so often fail and bring disappointment, the cultivator finds he has followed a treacherous beacon, and, alas! discovers little else that is beautiful and attractive in horticulture.

Our remedy for all this is, place less dependence upon *fruit*, and more on ornamental planting; think more of home, its beautiful trees and flowering plants, its garden, and the pleasures of the flower-bed, the culture of green-house and conservatory plants.

We never knew the joy of any owner of a flower-garden to fail, even if he lived to eighty years of age; neither have we ever known the

admiration of the genuine *tree-lover* to grow less. Yet we find the *orchardist* continually disappointed, and where the heart is gloomy there is naturally little love.

Friends! if you would have horticulture "*grow in grace*" with the American people, year by year, encourage more freely the development of a love for the embellishment of home grounds, flowers, and home gardening. The more we learn of *fruit culture*, as an occupation, the less we esteem it in comparison with the still higher satisfaction that comes from a love of rural ornament, and the tasteful grounds and beautiful homes an elevated horticulture will be sure to give us. We would not discourage the culture of fruits for profit, but we esteem the other departments of horticulture far more desirable, and able to satisfy the most worthy enthusiasm.—*New York Horticulturist*.

THE WALKING LEAVES OF AUSTRALIA.—Almost everybody has heard of the wonderful walking leaves of Anstralia. For a long time after the discovery of that island, many people really believed that the leaves of a certain tree which flourished there could walk about the ground.

The story arose in this way: Some English sailors landed upon the coast one day; after roaming about until they were tired, they sat sat down under a tree to rest themselves. A puff of wind came along and blew off a shower of leaves, which, after turning over and over and over in the air, as leaves generally do, they finally rested upon the ground. As it was mid-summer, and everything appeared quite green, the circumstances puzzled the sailors considerably. But their surprise was much greater, as you may well suppose, when, after a short time, they saw the leaves crawling along upon the ground toward the trunk of the tree.

They ran at once for their vessel, without stopping to examine the matter at all, and set sail away from the land where everything seemed to be bewitched. One of the men said that he expected every moment to see the trees set to and dance a jig.

Subsequent explorations of Australia have taught us that these walking leaves are insects. They live upon the trees. Their bodies are very thin and flat, their wings forming large leaf-like organs. When they are disturbed, their legs are folded away under their bodies, leaving the shape exactly like a leaf, with the stem and all complete. They are of a bright green color in the summer, but they gradually change in the fall, with the leaves, to the brown of frost-bitten vegetation.

When shaken from the tree, they lie for a few minutes upon the ground as though they were dead, but presently they begin to crawl along towards the tree, which they ascend again. They rarely use their wings, although they are pretty well supplied in this respect.—

Horticulturist.

THE FRUIT, WINE, SILK AND WOOL OF CALIFORNIA.

The following extract is from the opening Address of Charles F. Reed, President of the State Agricultural Society, which was delivered at the State Fair at Sacramento, Tuesday, September 13th, 1870:

Our State, as well as our people, is, in many respects, without a parallel. She sprang at one bound from infancy to maturity. With out permission of the General Government, with no enabling Act, or Territorial or other organizations known to our laws, publishing to the world a Constitution expressive of the sentiments and will of her people, she knocked at the door of Congress for admission among the sisterhood of States. After a short but desperate struggle, in which usage, precedents and sectionalism were arrayed against necessity and our determined will, we triumphed, and but twenty short years ago, the 9th of the present month, we date the commencement of our existence as a State. Well may California Pioneers who took part in the events of those times, delight to keep green the memory of that day! Well may they celebrate the anniversary of that day with bonfires and illuminations, with patriotic poems and orations! for to them the 9th of September stands next in importance to the 4th of July. Well may they be proud to number among their members some of the first men and most distinguished officers in the nation, and well may

they feel complimented when some of these officers travel over three thousand miles to join them in their celebration.

But we have remarked that a few short years ago agriculture was unknown in California. At the time of her admission as a State, no one was found so wild as to imagine that she had any other value than for her mines. To-day, how different her position as an industrial State! Our mines though still valuable, are among the least of our industrial resources, and agriculture is the great all-sustaining, all-enriching, and all-important industry. From the least, we have, in the short space of twenty years, grown to be one of the most important agricultural States of the nation. In the production of fruits, wines, wool and silk, we undoubtedly stand the first in the Union. Our fruit list already embraces almost every variety known to the world. The hardier kinds grow to perfection in all portions of the State, from the northern and more mountainous regions, to the warm tropical climes of the southern valleys. In those valleys, and in almost all the valleys of the State protected from the direct ocean winds and the sweep of the winds of the broad plains, all the tropical and semi-tropical varieties flourish, and come to a degree of perfection not excelled in any of the fruit-producing islands of the tropical oceans. The eagerness with which our neighbors of the Atlantic slope seek the California fruits shipped across the continent, shows the superiority of those fruits over those of their own growth. When we shall have greater facilities and more perfect arrangements for shipping those fruits, with cheaper freights, as we will have in a few years, here is an opening for a trade that is destined to bring back to California no small portion of the gold that in former days was shipped out of the Golden Gate in payment for these very articles imported.

In this connection allow me to remark, that there is no longer any excuse for permitting fruits of any kind to go to waste for want of a profitable market. If they cannot be marketed green, let them be dried, and there is a demand in the Eastern States for all that can thus be preserved at highly remunerative prices. The variableness of our climate in different localities, if we choose to avail ourselves of the advantages thus offered by nature, will enable us to enjoy the luxury of green fruits the year around. Thus the same varieties of apples that ripen in the early Fall, in the valleys, when grown at an elevation of fifteen hundred feet up the Sierra Nevadas, do not

ripen until midwinter, and if grown at six hundred to one thousand feet greater altitude, will keep well until our markets are bountifully supplied with the early varieties of the following Spring. This is no wild statement founded upon mere theory or conjecture, but its truth has been thoroughly demonstrated by actual fact.

It is also ascertained that the fruit produced at a high altitude on the mountains is much finer grained and better flavored than that grown in the valleys, and if possible, the orchards are more prolific. These facts must prove of great value to California as a fruit-growing State, and those orchardists who first take advantage of them in a practical way will be doubly rewarded for their enterprise.

Though our Fair comes at a time when all the earlier varieties of fruit are gone, and though the display is but meagre compared to what our fruit-growers might and ought to have made it, yet we may without fear challenge any other country in the world to excel or equal it. A careful examination of the exhibition of fruit before us will prove the strict correctness of the statement we have made in regard to the climate and other advantages possessed by California as a fruit-growing country. Our wine product this year will probably exceed 20,000,000 gallons. Our vineyards are steadily growing in numbers and capacity, and with the age of the vine the wines are steadily improving in quality. Those varieties of table grapes that will bear transportation are selling for home consumption and shipment East at highly remunerative prices, and California, as a wine-growing country, is steadily making a good reputation for herself.

The greatest drawback to her complete success in this industry, is the want of uniformity and system in the selection and assortment of the grapes, and in the treatment of the wines. Thus, instead of producing a few choice and standard varieties of wines—such as would always be in demand at the highest rates the world over, we have been, and are still, pursuing the suicidal course of placing upon the markets wines of as many different shades of taste as there are different vineyards in the State.

Again, our wine dealers, in order to produce some degree of uniformity out of this great variety of wines, have taken up the practice of watering and "doctoring" them so as to give the mixture some of the characteristics of the better brands, for which they pass them off. This is all wrong, and a great de-

triment to the character of California generally, and especially so to the wines of the best makers. It is of the highest importance to our State and to the wine-makers themselves, that these evils should be corrected.

This object should be accomplished if capitalists and enterprising men would establish wine cellars in the different wine growing districts, and buying up the grapes from the producer, and assorting them in reference to their peculiar wine qualities, would submit them to such uniform treatment as science and good judgment might dictate. Capital could not find a better investment, nor enterprise a more certain reward than is here offered.

In the absence of such facilities the producers themselves would find it greatly to their advantage to associate together and manufacture all the wines of large districts at one common cellar and under one common management. We commend this subject to the serious consideration of our wine makers and to men of capital and enterprise.

This magnificent exhibition of fruits, grapes and wines from our mountain counties, the old mining districts, is worthy of more than a passing remark, and it warrants a more particular notice of some of the advantages of those districts.

Some of the best and most extensive and productive vineyards and orchards in the State are to be found in those localities. Without desiring to make any unpleasant distinctions, but only with a view of illustration, we would mention those of Nickerson of Placer, Mashall of Nevada, Bugbey of Sacramento, and Chalmers, Dickson, Brooks, Carpenter, Weatherwax and others, of El Dorado. The establishments of each of these gentlemen, comprising as they do extensive and highly cultivated and productive vineyards and orchards, together with commodious and well appointed wine cellars and other buildings, and all the paraphernalia of prosperous mountain farms, may well be pointed out as worthy of the pride of any State. They are really a credit to California, and each is to its enterprising proprietors a valuable fortune. Here and there, scattered through the foot-hills, are many other smaller but prosperous vineyards and orchards, but these are named as examples. And in this connection allow me to state a fact which is not generally realized even by those supposed to be well informed. There is, on the western slope of the Sierra Nevadas, a strip of country about twenty miles wide by over one hundred long, in which there may be selected hundreds of thousands of farms, equally favorable as to

location, soil, climate and all the other natural requisites as are the farms above named. All that is wanted to make these new locations as prolific, as beautiful and valuable as those referred to, is the same amount of money, skill and labor bestowed upon them that these men have bestowed upon their valuable homes. I will say further, that a very large portion of all this land has been surveyed, and can be bought of the Government and the Railroad Company, for from one dollar and a quarter to two dollars and a half per acre. Here are homes for the million, and those who, under such circumstances remain long without homesteads have no excuse.

Our wool clip last year was a little over 15,000,000 lbs. while this year it will be 20,000,000. Never before did our wool bear so good a reputation or bring so high a price in the markets as at present. By the cultivation of alfalfa or Chile clover upon our sheep ranges, the number of sheep may be greatly increased on the same area of ground, quality and quantity enhanced and improved. Silk culture is being entered into in all parts of the State, and bids fair at no distant day to become one of our most important industries. It is estimated that there are now in this State 2,500,000 mulberry trees, and the number will be greatly augmented during the next Winter. During the past year a silk manufacturing company, with abundant capital, has been organized in San Francisco, and buildings for the factory are nearly completed. This will stimulate the industry by furnishing constant home market for the product—the want of which has been a serious drawback to it heretofore.

THE INDUSTRIAL CONDITION OF THE STATE.

The Agricultural and Horticultural Fair which has just closed, although necessarily incomplete, possessed many points of interest to those who see in California an unlimited field for the culture of almost every known fruit, vegetable, grain, or fibre. It is totally unnecessary to allude to the innumerable specimens of splendid fruit there exhibited; to us, who look upon the vinicultural interests as among the most important in the State, the display of grapes and wines was specially interesting. Less than thirty years ago, Wilkes, when on his exploring expedition round the world, found the wine of California to be "miserable

stuff, which would not be taken for the juice of the grape." Now our wines are becoming known and appreciated everywhere in the Eastern States; they have recently risen somewhat in price, and every day we hear of immense shipments. Not long ago, we recorded the sale of a lot of 100,000 gallons to one New York firm; last week, Bugbey, of the Natoma Vineyard, sent ten car-loads, 20,000 gallons of his best wines and brandies East by the Overland Railroad. We trust that the awards for the best wines exhibited at the late Fair, will be made with special care, and for the following reasons: Hitherto our wines have brought much too nearly the same prices; comparatively speaking, there has been little discrimination between the various qualities. How different in Europe! One kind may be worth a few sous or kreutzers per bottle; another will be sold at prices only within the means of the wealthiest. The writer was in Bordeaux when some specially fine *Lafitte* was sold at auction for 125 francs, (\$25,) per bottle. The wine-grower has therefore, something worth trying after. It may be long ere any such differences exist here, but we venture to prophesy that the time is not far distant that while some of our wines will be worth less than they are now, others will be valued at triple and quadruple their present price. The specimens of the ramie plant exhibited at the Fair attracted much attention, as did also the tea from Schnell's plantation in El Dorado. The fact is now certainly demonstrated that our foothills will produce tea of superior quality, and should Schnell need it, we should be far from averse to an appropriation from the State in aid of his important experiments. He has now five million young tea plants, raised from the nuts, growing on his estate, besides a large number of older plants imported from Japan.

* * * * *

The culture of hops is one among fifty miscellaneous sources of profit which will be largely pursued ere long. The business is a somewhat speculative one. Hops have varied in price in the last few years from twelve to sixty cents per pound, and are worth at this

moment in London—a market which consumes some 20,000 tons per annum—about thirty cents. The crop in the East has been a comparative failure this year, which will be good news for our growers. The complaint has been made, and to a certain extent allowed, that our hops have a peculiar bitter flavor, other than that natural to them. A great deal has not been done in this culture, but we have no doubt, that when it gets the attention which has been given, for example, to grapes and other products, our hops will compare with any. Among the interests hitherto little pursued, is the culture of the castor bean, and the expression of its valuable oil.—“*Alta*” of *September 5th*.

Our reasons for republishing this letter,—taken from the *Morning Call* of Oct. 13th, is to give it the widest possible circulation, and so endeavor to bring it before every cultivator of the soil.

We consider it one of the most important letters on an agricultural interest of our State, ever written, and every paper and journal would be acting a wise part in republishing it.

EDITOR.

COTTON CULTURE.

ITS ADAPTABILITY TO CALIFORNIA.

DICKSON, (Ala.,) Oct. 3d, 1870.

EDITOR MORNING CALL:—Through the kindness of my friend, J. M. Strong, Esq., of Snelling, Merced County, I have received a late issue of your paper, containing an article on “Cotton Raising,” in which there are some allusions to the contents of a private letter addressed to Colonel Strong by me, but not designed for publication. When apprised by Col. Strong of the publication of the letter, I addressed a communication to the *Scientific Press*, published in your city, discussing the question of the adaptability of your soil and climate to cotton production, designed to supply an omission of that journal in presenting to the public the claims of California as a home for emigrants. I trust that article, imperfect as it is in many respects, will be published. I feel much interest in this matter, and have studied carefully all the details furnished by my friend, which bear upon past efforts to produce the staple. Since writing the

article referred to for the *Press*, I have received the Report of the transactions of the State Agricultural Society, embracing the results of efforts made in different localities to produce cotton. I have also received a statement containing the bounties offered by the State for the production of given quantities.

I venture to offer for the benefit of those interested in this matter a few practical observations.

1. You will observe that no effort has been made, excepting that of Col. Strong, to grow cotton in the San Joaquin and Merced valleys. Hence all that vast region is to be added to that portion of California referred to in the Report of the State Agricultural Society. The two are as combined equal that of the entire State of Mississippi, which produced in 1860, 1,202,507 bales of cotton, and in addition a food crop amply sufficient for the sustenance of her whole agricultural population. Col. Strong's several experiments in this region, would indicate one bale of 500 lbs. weight, as an average yield per acre while the average yield of Mississippi does not reach one bale of 400 lbs. weight, to *three acres*.

2. No effort to produce cotton in your State will be attended with success, unless under the direction of a farmer possessed of practical experience in cotton culture. Every variety of soil requires specific treatment, and what that treatment must be is determined by experience. The successful management of the crop in a given locality, will furnish the mode of treatment for that locality. The failure to produce cotton in your State, hitherto, is due, beyond doubt, to want of practical experience in the management of the crop. For like reasons, though in other respects better farmers than we, every Northern man who attempted to grow cotton in the South since the war, returned home bankrupt.

3. If it is questioned whether cotton can be successfully produced, under the conditions specified, in California; let those who feel interested in the matter visit Col. Strong at Snelling, see the two crops produced under his direction, and be fully satisfied. They will see crops that will yield at the rate of *one and a half bales per acre*—cultivated at an expense so small that I dare not hazard my veracity by stating it. Col. Strong is a thoroughly practical California farmer. He came to the South at the close of the disastrous year of 1867, to familiarize himself with cotton culture. For two years he directed the cultivation of an Arkansas plantation owned by me, near Memphis. His second crop was 125 bales of 500 pounds

each, on two hundred acres of land—a yield largely in excess of any previous yield on the same land—as also of the production of neighboring plantations. It was due to the introduction of improved implements and a more thorough system of culture than had been previously adopted. Its continuation depended upon the ability of the farmer to hire labor for wages, which could not be done. Our labor system is that of “shares,” the laborers directing cultivation—the most pernicious of systems—effectually barring all progress. The advantages offered by his own State induced Col. Smith to return to California much to my regret.

4. If it is doubted whether the production of cotton in California will prove remunerative—test it by the following figures.

HOW COTTON CULTURE WILL PAY.

Assuming as an average yield, one half of the amount indicated by the experiments of Col. Strong, ten strong hands will produce 160,000 lbs. seed cotton, or 100 bales of 500 lbs. each lint, worth, at 20 cents per pound, \$10,000.

The cultivation of a cotton crop is here our only preparation for sowing grain; hence, the same labor required to produce this cotton will put in 200 acres of wheat, say, yielding 20 bushels per acre, or 4,000 bushels, worth, at 50 cents per bushel, \$2,000.

Volunteered the third year, yielding ten bushels per acre, say 2,000 bushels, worth 50 cents per bushel, \$1,000.

Thus the labor of ten hands, one year, produces crops, not including the expense of harvesting, valued at \$13,000.

You will perceive the estimate of cotton yield is *one-half* that made by Col. Strong. So also of the wheat crop, sowed with preparation. His statement is, that with thorough preparation, your wheat lands will yield from thirty to forty bushels per acre. My estimate of the volunteer crop is the same as that of Col. Strong, because it is something wholly unknown to me, and I am not prepared to alter it. The expense of culture each farmer can make better than I, it varying with the locality. The basis of the estimate would be: wages, cost of harvesting cotton (\$1 per 100 pounds), rent of land, interest on capital invested in team, tools, etc., feed of hands, feed of team, wear and use of team, and damage.

If your State, or individuals, will furnish the capital to make a crop of 100 bales, I will forward the requisite quantity of Dickson seed to Col. Smith to complete the planting.

AN ECONOMIC VIEW.

The importance to your State to the development of this grand industry cannot be over-estimated. Certainly your people will not allow the small sum necessary for its successful inauguration to bar the way. The systems of labor and culture at the South, if adhered to, will render the condition of the planter one of periodic ruin. Nearly the whole food supply of our population, agriculturists included, is annually drawn from the Western States. We annually export our very best soil to these States in the form of cotton, to pay for the food which we should produce at home. Thus we are always at the *end* of our resources, and when crises like those of 1867 or 1870 arrive our crops are forced upon a fluctuating or declining market, to meet the debts we have contracted to produce them. We are so situated that you can produce grasses and grains—food of every description much cheaper than you could possibly buy it. Hence, the obviously proper course would be to put all the *surplus* products of the farm in the form of grain and meat, into cotton, and to your distant markets transport the less bulky article. The average per hand cultivated in cotton and corn before the war was represented by ten of the former and five of the latter. The average area in cultivation per hand, in 1870, cotton and corn inclusive, will not exceed seven and a half. It costs, in the Mississippi River bottom, 12½ cents per pound to deliver cotton in Memphis or other markets where the transportation does not exceed one dollar per bale. I mean to say, that every pound produced and sent to market, costs 12½ cents delivered, under the conditions specified. On the uplands, where the yield does not exceed a bale to three or four acres, it costs 15 cents per pound. To-day, the cotton it costs 12½ to 15 cents per pound to produce, is worth from 9 to 14½ cents per pound in the Memphis market. It *must* be sold to pay the cost of producing it, and thus it is demonstrated that the condition of the planter here, is one of periodic ruin. All the profit to result from the rapid increase of price consequent upon the cessation of hostilities is lost to him, because of his failure to produce his own food, retaining his cotton as *profit*. Production at the South reaches its culminating point in 1870. The two years of 1867 and 1870 mark the periodic ruin of the Southern planter. From this date forward there will be steady decrease in quantity and increase in price, until the planting community will again be tempted to over-production at the expense

of food, and a crisis will as certainly bring ruin.

CHINESE LABOR.

A single objection is presented to the infallibility of this view, in the prospect of an unrestricted importation of Chinese laborers, at such a low rate of wages as to reduce the cost of production to such a limit as will revive the quantity. How little consideration is due to this objection, will be seen in the fact that it costs \$130 in gold each, to import these laborers at an expense in wages of \$10 per month. Now, if ever, is the season to inaugurate the culture of cotton in your State. Everything that enters into production is cheaper there than here. Whatever is expended in production is expended *at home*, and thus builds up the wealth of the State. Every pound produced will be manufactured profitably at home. The two interests will grow up side by side, keeping pace with each other. The production and manufacture of cotton is a necessity to your control of the trade of that vast region which lies west of the Missouri River, and where San Francisco must fight a battle of prices with her Eastern competitors. I apologize for the length of this communication, but much yet remains to be said. Call my friend, Col. Strong, before your Chamber of Commerce, and hear his views. He has long and earnestly devoted himself to the investigation of the subject, and he deserves the encouragement of his people. I trust you will pardon me, in view of the necessity, for calling attention to his labors. We can all attest the truth that a prophet is not without honor, save in his own country! I am, Sir,

Very respectfully, your obedient servant.

WM. DICKSON.



The following article must commend itself to all who are interested in "Arboriculture," as well as to the people at large.

During the past summer, there has been great destruction done to our forest trees, by fire. This destruction is irreparable; but there ought to be some means adopted, to remedy the evil, or at least to lessen it as much as possible in the future. The state has already suffered severely in the destruction, (by fire, and the ever busy woodman's axe,) of our redwood forests, one of the most useful and valuable of our trees.—(EDITOR.)

HOW OUR FORESTS ARE GOING.

We find in the St. Louis *Republican* a lengthy and interesting contribution showing the rapid consumption of the pine forests in our Northern States. The Maine forests have already been so thoroughly stripped that not a tree of the old growth is left. Twelve years ago, New York exported immense quantities of lumber, but her forests are now totally exhausted, and she now relies for her own supply upon importations from the West, and from Canada. In the year 1869 the amount of lumber cut in the three great lumber-producing States of the Northwest was 2,029,372,255 feet from Michigan; 317,400,000 feet from Minnesota, and 964,600,600 from Wisconsin. To obtain this quantity, 883,032 acres, or 1,380 square miles of pine forests were stripped of trees. It is estimated that four millions of acres still remain unstripped in Michigan, which will yield fifteen thousand millions of feet of lumber. About three millions of acres remain in Wisconsin, and 8,630,000 acres in Minnesota, which are estimated to yield 32,362,500,000 in feet of lumber—a quantity too immense to intelligently estimate, but whose consumption is merely a question of time, for no more than twenty years, at most, will be required to cut and send to market all the trees now standing. The demand for pine lumber is fast increasing, and spreading over a wider area of territory. The problem for solution, and one which cannot receive attention too early, is, what means can be devised to replace this enormous consumption? This question has been carefully considered in Europe for a century or more and it forces itself upon our notice in several aspects. As the writer in the *Republican* remarks, the destruction of our forests, and the denudation of our prairies of their primitive vegetation, have made fearful inroads upon our climate. The rains have less frequency, and when they do come are more deluging than formerly. We are more frequently suffering from the opposite extremes of excessive drouths and destructive inundations. Our springs, brooks and rivers are drying up. Our old folks all tell us that brooks now more than half the time dry, in their childhood afforded constant water-power to mills; and as a proof of what they say, point the mill site long since abandoned. And this is because our forests have long since succumbed, or are rapidly disappearing before the axe of the woodman and the fires of the incendiary, and our flocks have denuded the prairies of their primitive grasses. The writer suggests first, as a remedy for the anticipated

scarcity of timber, that more economy should be exercised in building houses, in which much extravagance and waste of material are now noticeable. And whenever possible, other timber than pine should be employed on buildings when it will answer as well as pine, and the State authorities should encourage planting and rearing such trees on the great plains of the West as are best adapted to flourish there. We on the Pacific Coast are only remotely interested in the rapid consumption of the pine forests of the East, but we can nevertheless, observe with profit the experience of the older States as regards the unnecessary destruction of timber."—*Daily Morning Call*.

THE CASHMERE GOAT IN AMERICA.

The introduction of the Cashmere goat into the United States during the year 1849, by Dr. Davis, of South Carolina, must be considered an important step in the inauguration of a branch of industry destined at no distant day to add materially to the wealth and prosperity of that country. The original importation consisted of seven females and two males. These were retained in the more Southern States of the Union, and notwithstanding the change to a warmer climate (having been brought out from Turkey in Asia), the experience of the ten succeeding years proved that the American offspring was in many respects a finer goat, and yielded a heavier fleece. At the commencement of the civil war in America these animals had been introduced in most of the Southern States, but particularly in the States of Georgia, Tennessee and Texas, with the most satisfactory results. In the year 1858, a single company in Tennessee sold \$30,000 worth of their grade animals alone in the States of Tennessee and Kentucky. These were all descendants from the flock imported by Mr. Davis, and ranged from half to pure blood. The experiments made in the other States in the meantime were equally successful, especially in Texas, where both soil and climate seemed peculiarly adapted to the raising of this valuable animal.

The average weight of a full grown Cashmere buck is about one hundred and fifty

pounds, while that of a female is about one hundred pounds. The animal fleece of the buck will weigh about six pounds and that of the doe four pounds. The hair of the finer grade animals is a beautiful, soft and silky article, from ten to twelve inches in length, beneath which is found two or three ounces of short and very fine down from which the celebrated Cashmere shawls are manufactured. This down is of course much more valuable than the long hair, and when separated from the latter commands almost fabulous prices. The price paid for the fleece will depend entirely upon the grade of the animal producing it; but it may be safely stated that four dollars per pound for half-breed, and eight dollars per pound for pure breed fleeces is a very moderate estimate in the American market, while as high as fifty dollars per pound has been offered for American fleeces in the French market.

As the chief value of the Cashmere goat is its fleece, it is natural enough that those wishing to engage in the business should desire to commence with none but full-bloods, in order to realize a more immediate return; but experience has already shown that it is far wiser to cross a full-blood, or even a half-blood buck with a doe of the common goat kind, costing say \$3 per head, than to import males and females from Asia at a cost of not less than \$500 specie—risking all the casualties incident to a sea voyage and change of climate. By breeding upon a cross of the half-breed buck with a common doe, you acquire a finer grade each successive year, which by the fourth cross will have obtained an animal little, if any, inferior to the full-blooded ones, and at the mere tithe of the cost, making a due allowance for the trouble and time expended in accomplishing the object.

Taking into consideration the established fact that the Cashmere goat by the process already referred to is readily acclimated, and can be husbanded as easily and as successfully as blooded or grade sheep, and its fleece, weighing fully as much, can command *thirty dollars* per pound in the market, while wool will bring about as many *cents*, it would appear that argument on the subject is unnecessary. To enterprising capitalists this business promises a more certain return than any we know of, and as long as fashion rules the land they may be sure of a liberal market.

DRIED SWEET CORN.—The canning of corn cannot be successfully done in families, but dried corn is nearly as good if properly done, and can be had by all. The excellence of this depends quite as much upon the time of picking, as upon the method of curing. If too old, no process of drying will make it tender and savory. The ears should be plucked in the milk, their best condition for eating when fresh. With a sharp knife split the rows of kernels, and cut from the cob. Spread in iron pans and place in the oven to drive off a part of the moisture. Stir well to keep from burning, and when thoroughly heated, spread upon the sheets in the sun to dry. It must be thoroughly dry when put away, and must be kept in a dry place. Another method is to boil the fresh picked corn five minutes, then split the kernels and cut from the cob, and spread in the sun to dry. It is good cooked as a vegetable in winter, and still better made with Lima beans, or even common beans, into succotash. "Subscriber," Bloomfield, Iowa, boils the corn, cuts the grain one-half off, and scrapes off that which remains attached to the cob. The drying is done in a shallow box, covered with a hot-bed sash, set sloping to catch the sun.

MEETING OF FRUIT GROWERS.—The growers of small fruit of Santa Clara Valley held a meeting in San José, the other day, at which Judge Archer presided. He stated the objects of the meeting to be, to consider how remunerative prices could be obtained for small fruits. The following resolution was adopted:

Resolved, That it is the sense of this meeting that the fruit growers of this valley should organize themselves into a Fruit Growers' Association.

On motion, the following gentlemen were appointed to draft a Constitution and By-Laws: Dr. Hudson, Wm. Boots, J. Q. A. Ballou, Judge Thomas, Isaac Bird, and Judge Archer.

Another meeting to consider the same subject is to be held on the 19th instant.—*Call, Nov. 8th.*

—♦—

CONSTITUTION

OF THE

BAY DISTRICT HORTICULTURAL SOCIETY,

OF CALIFORNIA.

—♦—

ARTICLE I.

NAME.

This Society shall be called the BAY DISTRICT HORTICULTURAL SOCIETY, of California.

ARTICLE II.

LOCATION.

Its place of business shall be the City of San Francisco.

ARTICLE III.

OBJECT.

It shall be object of this Society to collect and distribute information in regard to Horticulture, hold exhibitions and award premiums for the best productions.

ARTICLE IV.

MEMBERS.

The Society shall consist of

- 1ST. Regular members, who shall be entitled to all the privileges of the Society and
- 2ND. Honorary members, who shall have the same privileges as the Regular members, but no vote in the transaction of business of the Society.

ARTICLE V.

OFFICERS.

The Officers of the Society shall be

1. President.
2. Vice-President.
3. Secretary.
4. Treasurer.
5. Board of three Trustees.

The President shall preside at all meetings of the Society, preserve order and in case of an equal division upon any question, shall give the casting vote.

The Vice-President shall preside and perform the duties of the President in the absence or disqualification of that office.

The Secretary shall keep on record the proceedings of the Society, collect all dues and pay them over to the Treasurer, taking his receipt for the same; and perform such other duties as may be required of his office.

The Treasurer shall take charge of all funds belonging to the Society, and disburse the same by order of the Society. He shall give bonds if required and make a financial report at the regular meetings.

The duties of the Trustees shall be the general management of the property of the Society.

ARTICLE VI.

MEETINGS.

The regular meetings of this Society shall be held on the last Saturday of each month, for the transaction of business. Special meetings may be called by the President at the request of five members.

ARTICLE VII.

AMENDMENTS.

This constitution shall not be amended, unless by a vote of two-thirds of the Regular members present, and notice of such amendment shall be given two months previously, and a written notice of the same shall be served upon each member of the Society by the Secretary.

BY-LAWS.

SECTION I.

MEMBERSHIP.

Any person, who wishes to become a regular member of this Society will be elected by ballot, after being proposed as candidate at a former regular meeting. Three black balls will exclude the candidate. No person shall be deemed a member and be entitled to act as such, until he shall have paid the sum of five dollars into the funds of the Society, and signed the Constitution and By-Laws.

Honorary members may be elected by a majority of those present at a regular meeting. No contributions shall be required of them.

The Secretary shall notify the candidates of their election in writing.

SECTION II.

ELECTION OF OFFICERS.

The annual election of Officers shall be held on the last Saturday of November, and the elected Officers shall enter on their duties on the last Saturday of December, following.

The candidates for offices shall be nominated on the last Saturday of October previous, and no person shall be elected to office, who has not been so nominated.

The election shall be by tickets of a majority of the members present.

In case of any vacancy, the same shall be filled by a new election to be held at any regular meeting.

SECTION III.

QUORUM.

At any regular meeting five members shall constitute a quorum for the transaction of business.

SECTION IV.

MONTHLY DUES.

Each regular member of this Society, shall pay into the funds of the Society a monthly due of fifty cents, to be collected by the Secretary.

SECTION V.

ORDER OF BUSINESS.

1. Call of the Roll of Officers and Committees.
2. Reading of the Minutes of the previous Meeting.
3. Report of Officers and Committees.
4. Proposition of New Candidates.
5. Election of Members.
6. Unfinished Business.
7. Appointment of Committees.
8. New Business, and subjects pertaining to Horticulture.

SECTION VI.

PENALTIES.

Any regular member who for the space of six months shall have neglected to pay his monthly dues, shall be notified by the Secretary in writing, and unless payment of such dues shall be made by him at

the next regular meeting, said member shall be considered expelled from the Society.

If any member of the Society shall disobey its laws, or do anything to dishonor the Society, he may be expelled by the vote of two-thirds of the members present. But no member shall be so expelled, unless a written notice of the motion shall have been served upon him twenty days before it is acted upon.

SECTION VII.

PROPERTY OF THE SOCIETY.

No member shall remove any of the property belonging to this Society out of their rooms, except by special permission from the members present at a regular meeting.

Donations to the Society shall be entered in a book kept for that purpose by the Secretary.

SECTION VIII.

EXHIBITIONS.

The Society may hold exhibitions of fruits, flowers, plants, vegetables, and seeds, at such times and places as it may hereafter determine.

Members and their families only shall have free admission to all exhibitions of the Society.

SECTION IX.

NEGLECT OF DUTIES.

Officers of the Society neglecting their duties as such without sufficient cause, may be suspended or removed by three fourths of the members present at a regular meeting.

SECTION X.

LIFE MEMBERS.

Any member can become a Life-member by the payment of twenty-five dollars into the funds of the Society, and shall be free from assessments thereafter.

SECTION XI.

READING ROOM.

The Society may establish a reading room for the benefit of its members, and may subscribe for and purchase such papers and books, as a Committee appointed for that purpose may find judicious.

SECTION XII.

DISBURSEMENTS.

All bills against the Society, shall be considered at the regular meetings, and after being passed upon by a vote of the members present, signed by the President, and countersigned by the Secretary, the Treasurer shall pay the same out of the funds of the Society.

SECTION XIII.

DISCUSSION.

No member shall speak more than three times on one subject, except by special permission of the majority of the members present.

SECTION XIV.

AMENDMENT.

These By-Laws shall not be amended unless by a vote of two-thirds of the members present at a regular meeting, and notice of such amendment shall be given one month previous to its being acted upon.

T H E

CALIFORNIA HORTICULTURIST

AND FLORAL MAGAZINE.

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DECEMBER, 1870.

No. 2.

THE ROSE—(ROSA).

There is probably no plant so well-known, and so extensively cultivated as the Rose; everybody knows it, everybody admires it, everybody loves it. Very often we find a plant of considerable merit discarded, merely because everybody cultivates it, and some other is preferred because it is new and rare, although possibly in many respects inferior—a whim of fashion.

This fickleness does not affect the Queen of Flowers, the Rose. She, in her majesty, rises supreme above all those freaks of fashion which disturb the reign of the less fortunate beauties of her court. However tasteful and costly, however elaborate and *recherche* the detail of the most artistically decorated and extensive villa grounds, the Rose constitutes the most prominent feature, and the chief floral embellishment. Roses in groups, roses in masses, roses in the elegant form of little trees, roses over trellis-work and frames, roses in hedges, roses in pots, roses as creepers over the lawn and the parterre, peeping in at the windows, and from under the eaves and balconies, clambering over the roofs, massing around the hall-doors, supporting the verandas, standing sentinel on the lawn, caressing and embellishing the statuary, toying with the humbler occupants of the parterre, screening less tasteful objects, softening and mellowing sterner foliage, festooning and draping in elegant ruggednesses, blushing in the ardent

sunlight, giving warmth and life and light to to the shade, smiling, sparkling, gratifying everywhere, gracing the hall, the boudoir and the drawing-room, yet modestly and gracefully asserting their dignity in the conservatory; everywhere claiming their places and filling them well. The freshness of their verdure, the beauty of their buds, the fine form of their flowers, the delicacy, variety, purity of tint in their colors, and their exquisite fragrance, all these characteristics entitle the roses to the first position among our floral favorites.

The Rose is indigenous in Europe, Asia, Africa, and America; the only country, where to the best of our knowledge, it is not a native, is Australia. There are more than 80 varieties of wild roses known, of which the majority are found in Asia.

Every year adds new varieties to the list of roses under cultivation, and within the last few years so numerous have been these acquisitions, that it is almost impossible to give even approximately the number of distinct and meritorious varieties—there may be about four hundred.

Roses, as now cultivated, are classified into certain divisions, of which however the gardeners differ very much as to the number and characteristics. We should like to see this matter of classification arranged, so as to be brief, yet intelligible to all. We will adopt the following as one to which very many nurserymen adhere:—Tea Roses, Bourbon Roses,

Noisette Roses, Hybrid Perpetual Roses, China or Bengal Roses, Moss Roses, Climbing Roses, and miscellaneous roses.

Under this classification we shall include all the varieties which have been successfully cultivated in California; some we shall omit because they only do well in certain localities and under peculiar circumstances. It will assist us very materially, and be very acceptable, if gardeners and amateurs will inform us if we have omitted any varieties which under their observation have been cultivated with success, at the same time mentioning merits, and mode of treatment.

CLASS I.

Tea Roses (Tea-scented Roses) are so called for their exquisite perfume; they bloom freely and are never without flowers, except during such cold weather as we never experience in San Francisco. The Tea Rose is not a robust or strong grower, the flowers are, with very few exceptions of medium size. The best varieties for cultivation in California, are the White Daily, color pure white; Safrano, most splendid bud, apricot changing to buff; Eliza Sauvage, continual bloomer, yellow to white; Devoniensis cream, yellow, buff centre; La Sylphide, flesh and pink, beautiful; Gloire de Dijon, yellow shaded with salmon. Some of the above varieties should be grown in every garden.

CLASS II.

Bourbon Roses. In this class we have a few varieties of great merit, nearly all of them are perpetual bloomers, and some of them produce flowers of very beautiful forms. The best are:—Hermosa, bright pink in color, beautiful cup shaped flower, always in bloom; Souvenir de la Malmaison, very large rose, very double, bright flesh color; Gloire de Rosamene, brilliant velvet, semi-double, the bud is very beautiful, it is always in bloom, and during the cold weather here it blossoms very profusely; Barron Gonella, cherry-red, a good rose of very delicate color.

CLASS III.

Noisette Roses. All of these have the habit of climbing roses, still they form a class by

themselves. With proper pruning these roses can be cultivated as bushes or trees; but we prefer to see them trained as vines. The white, yellow, and salmon colors are characteristic of them, their flowers are large and full, and nearly all of them are very fragrant. Their principal flowering season in California is during the early summer and late in the autumn, although being monthly roses, they may produce flowers at any season of the year. We will mention the following varieties as the most prominent of their class:—La Marque, white, yellow centre, one of the very best, and well known among gardeners and amateurs; Solfaterre, (Solfatare) sulphur yellow, large and magnificent form, similar in habit to La Marque; Cloth of Gold, (Cromatella) sulphur yellow, large and magnificent in form. This rose has been very extensively cultivated in California, and the plants have always been in demand at good prices; but around the city of San Francisco it has not answered the expectations formed of it; although it grows well, very few flowers are obtained—in fact we know some plants which have been cultivated for more than three years, and have not yet produced a single flower. On the Oakland side, and in some other parts of the country it succeeds much better, and among the foot-hills of the Sierra Nevadas it flowers beautifully. Ophir, (Gold of Ophir), orange-yellow, with buff and rosy tint, a fine rose which will do well in a warm situation; Marshal Niel, (Neil), is a seedling from the Cromatella, and a new acquisition, its color is of a beautiful yellow. This is one of the finest roses in cultivation, and meets with fair success in California. We are inclined to believe that the Marshal Niel will give more satisfaction when cultivated in pots or boxes, where its tendency to luxurious development of stock and branches, will be restrained by limited nourishment.

This class of roses contains some of the most valuable varieties, but they do not seem to flourish well in the atmosphere and climate of San Francisco. They do not flower as freely with us as is desirable; but we would advise giving them still further trial. We

would recommend for all of them the most sunny and protected situations in the garden, with strong soil and plenty of manure. We would further recommend, that these Noisette Roses be grown on budded stocks, and not on their own roots. We have seen them flower much better when so treated, for which fact we cannot account, and shall be most happy to hear it explained, if any of our friends have also noticed it.

CLASS IV.

Hybrid Perpetual Roses. The Hybrids are by far the most popular roses, they do best in a deep rich soil, and absorb a large amount of nourishment, for which reason they should have a good and frequent supply of manure. Their flowers are developed chiefly on new shoots, for which reason it is desirable to keep them in a constantly growing condition. This is easily effected here on account of our favorable climate; the old wood should be removed from time to time, and the young shoots should be cut back as soon as they develop their flowers. The best varieties of this class are:—Geant de Batailles (Giant of Battles), scarlet, crimson color, continuous bloomer and perfect flowers. Although an old variety, the Geant de Batailles will always be popular, and one of the leading varieties. Next comes Pauline Lansezeur, deep rich velvet, makes a beautiful bud which is very much used in bouquets. When in full bloom it is not very double, but for its buds and half opened flowers it is one of the most desirable varieties. Cardinal Patrizii, dark velvet crimson, does not flower very freely with us, but flourishes much better in Sacramento and other parts of the State; the soil for this variety should be very deep and rich, its peculiar dark color entitles it to a place in every collection of roses. General Cavaignac, bright cherry color, is a beautiful rose, and promises to do well here. Jules Margottin, bright cherry, is also a very fine rose, and should be cultivated more extensively. La Reine, a large and well-known rose of a rosy-pink color, very fragrant, a constant bloomer, and robust grower, very desirable. Lord Raglan, deep velvet crimson, one of the

very best, good bloomer, no collection should be without it. Madame Lafay, a well-known variety of good habit, blooms continuously; flowers, rosy crimson. M^{me} Rivers, light flesh-color; a beautiful rose of fine form. Marguerite Le Cureux, scarlet, crimson, white striped, one of the best variegated roses, and therefore extremely valuable for a collection. All of the above named varieties deserve places in the flower garden; all do well with ordinary care.

CLASS V.

Chiaa or Bengal Roses. This class is less numerous, they are of a dwarf habit, and their flowers are of smaller size. The best varieties are Agrippina, of a rich velvet crimson color, one of the best. Archduke Charles, rose changing to crimson, flowers larger than of the other varieties, does not open well here. Louis Phillippe, crimson, a fine and profuse bloomer, one of the best—no collection should be without it.

CLASS VI.

Moss Roses. There is nothing in the shape of floral production more exquisitely beautiful, than a well-formed Moss Rose bud, but we are compelled to admit with regret, that we have seen but very few good buds here; and to confess that this beautiful class of roses do not thrive well in San Francisco. In warmer localities, as Sacramento and Marysville, they do much better, but even there the production of flowers is far from satisfactory. A different mode of treatment may be productive of more pleasing results in the warmer portions of our State, but we cannot recommend the extensive cultivation of this class of roses near the Bay of San Francisco. There are Monthly Perpetual Moss Roses, but with us they seem to lose this characteristic. Some of the best and most popular varieties are the Luxembourg, dark crimson; White Cluster; Centifolia, pink—one of the best; Salet, bright rose, beautiful. We must plead for the continued cultivation of this class of roses to a limited extent, subjecting them to different modes of treatment. They are too beautiful to be discarded without some effort to retain them.

CLASS VII.

Climbing Roses. Nearly all of this class bloom during the early part of summer, and while in full flower they certainly present a most striking appearance; why they are not more generally cultivated is inexplicable to us. We foster many climbing plants and flowering shrubs which only bloom once during the year. Why should we not make room for some of our valuable climbing roses? The leading varieties are the Baltimore Belle, blush color, flowers about the size of a half-dollar, grouped in large clusters—a very desirable rose. Prairie Queen, rosy lilac, flowers large and cup-shaped, growing in clusters. It is a fast grower and continues in bloom for a long time—it is one of the best. Multiflora, blush color, very good.

CLASS VIII.

Miscellaneous Roses. We shall include in this class many roses of peculiar nature and habit, some of them may be considered as belonging to one or other of the former classes, but certain characteristics require them to be placed in a special class. The Persian Yellow Rose, is one of them, it is of a golden yellow color, not very double, and flowers during the early part of summer; Sweet Briar, single flower, it is cultivated for its fragrant leaves; Green Rose, that might be considered as belonging to class 5, China Roses, but we consider it more as a curiosity than anything else. Its flowers are as green as the leaves themselves, it is a native of Japan. Banksia, of which there are several varieties, they are sometimes called the thornless rose, there being no thorns growing on their stocks, the flowers are small and grow in clusters, the foliage is beautiful, and of an evergreen character. Myrophylla Alba, is a fine white, sweet-scented rose, it does well in a warm situation, but it is very little cultivated in this country.

This concludes our list of those roses which have been successfully cultivated in California. Our nurserymen have from time to time imported many other varieties, some of which were highly esteemed both in the Eastern States, and in Europe, but their experience did not justify their general introduction into our

gardens, some of them made a vigorous growth of wood, but failed to develop any flowers, while others did not live long enough to be recognized as additions to our collections and catalogues here.

To grow the rose successfully, and to obtain good flowers throughout the whole year, requires more than soil and water. In light sandy soil with the addition of manure and water, it will make a great deal of wood, but will not continue to flower throughout the year, in fact it will lose the characteristic of a monthly rose; to retain this desirable quality, it is necessary to supply it with strong loam and plenty of rich manure, and to cut back the wood frequently, particularly the side branches, which may be cut back to three or four eyes. We should recommend pruning roses in the same manner as that operation is performed on the vine *i. e.* during the early spring, and repeat four or five times during the year. By this treatment new wood will be forced out constantly, and with it, fresh flowers. One-half of the rose bushes here, do not receive a proper pruning for years; when these fail to flower freely, it may be justly referred to this neglect. The rose also very rapidly exhausts the soil, and unless a fresh supply of nourishment is provided, the reputation of this most popular flowering shrub is at stake.

The successful cultivation of roses in pots, is attended with many difficulties. One great mistake is the selecting varieties for such treatment, which are not adapted for pot culture. It is an incorrect idea that every kind of rose will succeed when planted in a pot; although professional gardeners may succeed in bringing every variety of rose in full bloom into our market, we must remember that this is in a great measure effected by forcing the plants under glass, and their object is the quicker sale and the better price which such plants will obtain, than those cultivated entirely in the open air, although these latter are far preferable to the former. The roses best adapted to pot culture, are the Bourbon, Tea, and China or Bengal roses, particularly the two latter classes. We should advise purchasing

small young plants, and using strong rich soil. A small plant will do well in a five inch pot for six or eight months, then it requires to be changed into a six inch pot, in which it may remain for another six or eight months; in this manner it should be changed from time to time to larger pots as its growth requires. The surface of the soil should occasionally be covered with some rich manure which will renew its strength, as well as retain the moisture for a much longer time. It is true this mode of treatment involves some little labor, but we cannot expect to succeed in the cultivation of any flowers without devoting some extra time and trouble to their necessities, and it is but a small equivalent for all the embellishment with which they adorn our homes, for all the fragrance and delight they afford us.

Although a monthly bloomer, yet like most of the flowering shrubs, the rose develops more flowers in the spring than at any other season of the year, under ordinary treatment, and we recommend the pinching off, at least one-half of the buds while yet young; this will give the remaining ones more strength, and produce better flowers, while the plant suffering less exhaustion, will throw more vigorous buds in succession. To have them flower during the winter, it is necessary to keep them inside of the house, or in some well protected position outside. If kept in the house, they should have plenty of light, fresh air, and moisture; a dry and hot air is injurious.

In watering roses we must carefully avoid excess; superfluous moisture becomes stagnant, and renders the soil in the pot sour, as the gardener calls it. The water which is supplied to pot plants, must be consumed by the plant, evaporated, or carried off by drainage; evaporation takes place when the atmosphere contains less moisture than the soil, and is expedited by a warmer temperature, the drainage we obtain by laying a piece of broken pot over the opening in the bottom of the flower pot. Drainage and evaporation thus relieve us of the onus of discriminating how much water is necessary for the growth of the

plant; but if we give more moisture than can be readily disposed of in these three different ways, the soil becomes sour, and the plant soon fails and perishes.

Monthly roses are the most neglected of all flowering plants, and yet when in bloom, they well repay us for our labor.

THE ERICA.

The Erica (Heath) is an evergreen shrub, varying in height from 2 to 4 feet, most of the species are indigenous at the Cape of Good Hope, and in Australia, but very few have their habitat either in Europe or America. The flowers according to variety, are of every conceivable shade, from pure white to the deepest red and purple—more than 300 varieties are cultivated in Europe, and more extensively in England than anywhere else. This handsome flowering shrub has not been cultivated to any extent in the United States; for this some few reasons may be adduced:—

First.—For many of the varieties the latitude of New York and Boston is too cold for outdoor culture, and under glass, the Erica does not thrive unless proper and expensive houses are built expressly for it.

Second.—It is a singular fact, nevertheless true, that the Erica family succeeds best when cultivated by itself; and in order to obtain good specimens, the plants require plenty of room. This mode of treatment the American nurserymen do not appear hitherto to have been willing to concede.

Third.—It must be remarked, that although the English gardeners succeed best in their cultivation, yet this to a great extent is attributable to the mild winters, and the moist atmosphere of that country; for they have not succeeded any better than others of the profession in the introduction of the Erica on the European Continent.

We believe that the Pacific coast offers facilities for the successful cultivation of a number of good varieties of the Erica, and our gardeners should make a strong effort to introduce this beautiful shrub into California to a

greater extent. Some of our nurserymen have given them a trial, but they have erred in cultivating them as greenhouse plants, and consequently have failed to meet with any encouraging results; but very few plants of only three or four varieties have been cultivated in the open air, but of these, some have flourished well. When we take into consideration that over three hundred varieties of the *Erica* exist, we feel certain that a large number of them could be cultivated here. The people of the Pacific coast have a mania for evergreen flowering shrubs, and we have no doubt but that this plant would grow largely in favor with the public if some of the leading varieties were properly introduced to them. It is true that some of the varieties require a particular soil and a certain climate, which we do not possess, but very many could be successfully cultivated in our own climate, and in soil which is easily procured. In the heart of large cities like San Francisco, we do not advise the cultivation of the *Erica*, as it does not like to be caged in by surrounding walls and a smoky atmosphere; but wherever it can enjoy a free circulation of pure air the *Erica* will do well; the best locality for it is near the Coast Range, where our heavy sea fogs supply that moisture so necessary to it.

A very good compost for most of the varieties of the *Erica* may be made of four-fifths of leaf-mould and strong stiff loam in equal parts, and one-fifth of sand, to this a small quantity of bone-ashes may be added; a number of varieties will thrive well in the ordinary beach-loam, so frequently found in this city, and indeed all over the country. It is inexpedient to use cold well water for irrigating, as it frequently contains lime and other mineral substances, and the watering with cold water during a hot day, very often results in the decay of the stems or trunks of the plants.

The *Erica* is propagated either by seed or cuttings; but as some of the varieties do not often produce seed, they are raised exclusively from cuttings. The seeds should not be sown very thickly, and it is better not to cover them with the soil, but to press them gently into the surface with a smooth piece of

wood, it is advisable to keep the flower pot or box containing the seeds or cuttings covered with a pane of glass to prevent the surface drying too rapidly; and it is further necessary to keep the soil well drained, which can be effected by placing pieces of broken pots at the bottom of the pot or box when preparing for planting, and thus obviate a stagnant or sour condition of the soil. The cuttings should be of one or two inches in length, and should be taken off when the wood is sufficiently ripe. They should be stripped of their leaves to one-half of their length, and plunged to that depth in the soil. The pot or box should be placed close under the glass in the frame or greenhouse, and after remaining in a cool place for some days, a little bottom-heat may be advisable, although it is not indispensable, and may be omitted where such appliance is inconvenient. The propagation by cuttings should take place during the summer months after the flowering season is over, at which time the *Erica* is throwing out new and strong wood, well adapted for that purpose. The seeds should be sown as soon as convenient after being gathered. It is well to remove the glass cover from time to time as the circulation of a little fresh air is beneficial to the young plants.

The best mode of watering the seeds or cuttings, is by placing the pot in a saucer. One circumstance connected with the propagation of the *Erica* is somewhat peculiar, although we find it the habit of some other woody plants; the cuttings from sickly plants are preferable to those taken from strong and healthy plants. After the plants are well rooted, they should be hardened by exposing them to the open air, at first during the day only, afterwards during the night also, they will soon be strong enough to be potted and repotted or to be turned out into the open ground. If the young plants are cultivated in pots, it is desirable to shift them very often, so as to keep them constantly growing.

To cultivate *Ericas* as well-shaped specimens, it is necessary to pinch off the young shoots early, this will force the plant into branches and produce a more compact growth, which is very desirable in this class of evergreen shrubs.

ORNAMENTAL AND LANDSCAPE GARDENING.

SECTION II.—LANDSCAPE GARDENING.

We will now request our readers to leave with us for a short time the thickly settled portions of the city, where the soil has the ill fortune to be cut up into slices of 25 x 100 feet, condemned to the drudgery of supporting the so-called improvements, lies secluded from the life-giving influences of warm sunlight, refreshing showers, and fresh pure air, within the narrow limits of dark damp cellarages and fœtid smelling basements, or encased in cobbles and coarse planking for traffic purposes, and accompany us to the suburbs and into the open country surrounding them, where although the landshark has left the imprint of his grasping heavy hand, nature yet reigns in all her pristine glory of valley, and hill, roek, stream, and lake, backed by her majesty of mountains; and where her graceful undulating lines of rolling surface, have not yet been graded or degraded with the tasteless straight lines of narrow-minded modern improvement men. Here, as we travel along feasting our eyes on the ever varying scene, we shall be attracted from time to time by the special beauties of certain localities, in whose adaptability to our views and purposes, we recognize appropriate spots for the settlement of homes, where by the exercise of experience in arrangement and construction, may be developed all that comfort, finish, and completeness which evince the cultivated taste of the owner, and where by the skillful adapting the peculiarities of surface, the addition of features, and the blending and harmonizing with the surrounding landscape, the art of Landscape Gardening may be manifested.

In selecting the site for a suburban residence we should be influenced by several important considerations; in the first place,—*Health*, and for this pure air and drainage are indispensable, the location should therefore, always be elevated; its *Aspect*—for this southerly or southeasterly are preferable; *Climate and Exposure*—it should be protected by superior elevations from strong winds; *Soil*—as it is almost im-

possible to make soil for an extensive tract of land, this is an important consideration in the selection, the best soil is loam, with an under-layer of clay; *Water*—the supply of which should be abundant; as without it in California, our labors cannot be successful, and finally its proximity by railroads, steamboat lines, or otherwise, to the place of business. If remote from the place of occupation, too much time is occupied in reaching it, and although the transit is healthful, yet it may often be fatiguing, and too many hours of home comfort are sacrificed. The purposes in withdrawing to a country residence are health and recreation, independence and seclusion, not exclusion.

Having decided on the locality for the future residence, it is necessary to determine the site of the house; an elevated spot is desirable, as well for health, the view, drainage, etc., as that the approach to it may be at an easy ascending grade, we of course do not wish to be understood, that the highest point should be selected, as in many cases this might not only be inconvenient, and inappropriate, but in positive antagonism, with all the rules of landscape.

The laying out and planting the grounds must next be considered; and here we will remark that the work of the landscape gardener will be far easier where the grounds are extensive, than where comparatively limited. The owner of five acres of land seeks the same result as the proprietor of fifty or one hundred acres, so far as rural landscape is concerned; and it is far easier to elaborate all desirable features on a large extent of ground, than where we are compelled to crowd them together into a narrow space. In this latter case the landscape gardener, with all his skill and experience, cannot avoid producing the impression that too much has been attempted. And herein we differ from many others, we maintain that where a place is too limited to admit the introduction of all the features of a good landscape, one certain phase should be made predominant, and as expressive as possible. For instance, where nature has provided

an abundant growth of trees and shrubs, *picturesqueness* is easily obtained: where new plantations have to be made, the *beautiful* may be made the important feature: where water can be had in abundance, that may be made the most prominent phase, etc.

In the practice of Landscape Gardening, certain styles have prevailed; the oldest has been designated the Geometrical or Symmetrical style, and is characterized by the adopting the lines and style of the grounds or garden, so as to harmonize with those of the house. Another has been called the Modern, and sometimes the irregular or English style; but with us in California, we adopt no style at all, but are governed entirely by local circumstances. We have a decided aversion to formality and excess of symmetry in everything pertaining to Landscape Gardening. In the laying out and planting of Public Squares in large cities, regularity and symmetry are preferable, and in fact unavoidable. The surrounding streets usually intersect at right angles, and must have the official grade, and convenient access must be established from every side and corner; but even here variety and contrast may be introduced, in arranging trees and shrubs, so as to produce a most desirable deviation from the sameness of the surrounding streets and houses. But for a Rural Residence, or for a Park, which every city should have, we insist on variety to the fullest extent possible and obtainable, not alone in trees and shrubs, but also in every feature and outline in the drives and walks, and in lawns, lakes, ponds, and every other embellishment.

In planting, we produce variety by varying the distances as well as by grouping different kinds of trees and shrubs together, and in some instances by massing them, taking care, however, to obtain harmony at the same time. In all our cultivation of variety, harmony must be cherished. A Landscape gardener must be well posted in regard to the habits and development of all the trees and shrubs he may require, as harmony and variety are not effected by merely mixing trees together, and in giving them certain outlines, nor by

assorting them into their respective varieties, but by assembling them with reference to similarity and contrast in habit and appearance.

The drive, forming the approach, should be convenient and short, and should not pass the front of the house before reaching it. We do not desire to view the best features of the grounds before arriving at the residence; on the contrary, it must be one of the principal endeavors to hide prominent features from the approach, otherwise the visitor will surely meet with disappointment.

In laying out the walks, we must bear in mind in the first place, never to allow the pedestrian to see more walk than what is immediately before him; and secondly, to form no walk without having a certain point of interest in view, to be passed or reached by it; it is absurd to make walks unless they are to serve a definite and reasonable purpose.

In our next we shall endeavor to conclude our general remarks on the principles of landscape gardening, and afterwards intend to be minute in regard to every feature necessary and desirable to make a rural residence complete.

POPULAR BOTANY.

CHAPTER II.

In our description, so far, of botanic life, we have dealt only with cells and their formation, as the elementary portions, that in the aggregate, make up all the compound organs of a plant; such as the root, stem, branches, and leaves. To obtain a clear and succinct idea of the growth and development of a plant, it is necessary to commence with the seed, and observe all the phenomena as they, in obedience to a regular law, gradually advance towards completion. Within a seed is contained all the ultimate parts of the plant which it represents, and it only requires to be subjected to warmth, moisture, and a proper supply of nutrition from the soil, to start out on that cycle of nature; commencing from the seed, passing through the different stages of plant-growth, and finally ending in just what it started with, *i. e.*, a seed.

When we place a seed in the ground, under circumstances favorable to its germination, we find it softens and swells, sending out two free ends, one of which pushes its head above the earth, while the other descends into the ground. This upward portion is called the stem; the downward part, the root; the plant is now established, and commences to perform its part in the economy of nature.

The first leaves of a plant exist in the seed in a rudimentary condition of more or less perfection; they are called *Cotyledons*, or seed leaves. As the plant progresses in growth, the root multiplies by branching, or giving off rootlets, which penetrate the soil in all directions, seeking the necessary material for its sustenance. At the same time, the upward part, or stem, elongates, giving off also branches, but unlike the root, these branches arise from definite points, and obey a certain law of development. The branches in their turn, give rise to other organs; the leaves. It is then seen, that a plant consists of certain essential organs, and upon their completeness, depends its future growth. These parts of a plant, viz: root, stem, branches and leaves, are called the *fundamental* organs of plants, or the organs of vegetation. To the root is given the duty of taking up the crude food of the plant, which passes through the stem and branches to the leaves, where it is acted upon by the light and heat, which action is a process of digestion. The nutriment so prepared is returned to the stem and root to be used in promoting the growth of new rootlets, branches and leaves; this action goes on continually multiplying its resources and its growth at the same time. After a while a new process begins, and a flower is developed, which finally ends in the production of seeds as the embryos of future plants.

In this outline of plant growth, we have used the higher order as an illustration, because they are really the typical forms of vegetable life. But there are other plants in which this action is materially modified, such as the *Ferns*, *Mosses*, and *Lichens*. With the ferns, we have no proper flowers, and therefore the embryotic seed disappears. As we pass on the

downward grade, among the mosses and lichens, we lose all distinction between stem and leaves; lastly also that of root, and find the plant but a collection of simple cells.

In considering the organs of a plant, we shall take up first, the root, describing that, and then pass on to the stem, branches and leaves, in their regular order. The root, we have stated, is that portion which descends into the ground, giving the plant a permanent position, and drawing from the soil the crude nutriment for its growth. It differs not only from the stem in the direction of its growth, but also in giving off branches without regard to their order, and in not bearing leaves. Its surface is destitute of *Stomates*, or breathing pores, and in the greater number of plants it has no pith. Roots increase chiefly by the addition of new matter to their extremities, where it is deposited layer over layer; the supply coming from within. Therefore the growing ends of a root are made up of new and very delicate tissue, which enables them to absorb with great readiness the different materials in the soil. Absorption only takes place in these points called *spongioles*, or *spongelets*; and thus we see the danger in disturbing the root while the plant is in active growth.

During the season of growth, when the plant is making new branches and leaves, the root increases below the ground in proportion as the plant increases above; as the season draws to a close, and the leaves begin to cease their active work, the rootlets also cease to grow, and the tissue of the *spongelets* not being renewed, they at length become hard and dense, losing their absorbing property and come into a state of quiescence; this is the proper time (if needed) for transplantation.

The roots of plants differ to a great extent one from the other. In *Annuals* (plants that live but one year), they are simply used as absorbents, and this alone. *Biennials* (plants of two years' growth), such as the carrot, beet, and turnips, not flowering the first year, accumulate a supply of nourishment in the roots for future use; these roots are said to be *fleshy*, and man, seeking everywhere for his

maintenance, has turned this action of nature to his own benefit. If these biennials are left in the ground, when the next season of growth comes on, they send up a large stem, which makes a rapid and vigorous growth, culminating in the production of flowers and seeds. This second year's growth is almost entirely at the expense of the previous store in the roots, and as the plant neglects to furnish new rootlets, it speedily perishes after the flowering is completed. There is a third class of plants called *Perennials*, which in addition to their first year's roots, are constantly producing new roots, and as fast as the accumulation of one period of growth is exhausted there are others to take its place. So the process goes on from year to year, and although a portion perishes every season, still the individual plant lives on, as an example of continuous growth.

There are roots which do not originate themselves in the ground, but still in all cases they follow the rule of seeking the dark, and to establish themselves in some kind of soil. These roots are called *aerial*, because they arise from the stem of a plant in the open air, and descend to the ground for their establishment. The *corn*, and *screw-pins* (*Pandanus*), are examples of this mode of root-development. In the case of true air plants, or *Epiphytes*, they not only strike in the open air, but throughout life maintain existence independent of the soil. These *Epiphytes* grow upon the trunks and branches of trees; their roots penetrate the bark, but do not draw any material from the tree, seeming only to act as hold-fasts for the plant which derive its nourishment from the air. On the other hand, in the case of *Parasitic Plants*, the roots push themselves down to the sap-wood of the tree, or plant, upon which they grow, and absorb the crude sap of the foster plant for their own use. Some *parasites* are not so generous; instead of crude sap, they take that which is already elaborated, and might be considered true vegetable *spongers*.

PRESERVING POLISHED STEEL FROM RUST.—A correspondent says that nothing is equal to pure paraffine for preserving the polished surface of iron and steel from oxidation. The paraffine should be warmed, rubbed on, and then wiped off with a woolen rag. It will not change the color, no matter whether bright or blue, and will protect the surface better than any varnish.

ROSE LORE.

A White Rose seems to have been unknown to the ancients, and, indeed, until comparatively modern times, consequently from *Rodon*, ruddy, its Greek designation, almost all the nations of Europe have adopted a name of synonymous meaning. *Rosa*, its Latin designation, has the same reference to color, and it is surprising—because without a parallel—that nearly every European nation has done likewise. In Anglo-Saxon it is *Rose*; in Welsh, *Rhos*; in Dutch, *Roos*; in German, *Rose*; in Danish, *Rose*; in Swedish, *Ros*; in Scotch, *Ros*; in French, *Rose*; in Italian, *Rosa*; in Spanish, *Rosal*; in Portuguese, *Roseira*; and in Russian, *Rosa*.

The unanimity characterizing its nomenclature also characterizes the high esteem in which it has always been held. It was the flower dedicated to Love and its birthgiver Beauty—to Cupid and Venus. The arrows of Cupid were said to be formed of Rose thorns, and his wings of its petals; he is always fresh, ruddy, and smiling, and his hair as golden as the flower's anthers. The flowers were said to have been created white from nectar spilled by Cupid at a banquet of the gods, but that blood from the foot of Venus as she rushed to the aid of Adonis fell on the petals and stained them permanently.

A deity to whom a flower was dedicated by mortals seems to have exercised the rights of ownership, and to have re-dedicated that flower to such as he or she deemed meriting the distinction, or even as a bribe. Thus, Cupid, like a dutiful son, dedicated the Rose to Harpocrates, the god of silence, to engage him not to betray the evil acts of his mother Venus. Hence it became the emblem of silence; was held up as a polite check to the loquacious, and was placed upon the guest table to intimate that the conversation around it was confidential. With a similar intent the Greeks also wore Roses at their feasts; *Comus*, deity of the table, and *Hebe* and *Ganymede*, nectar-bearers to the gods, were crowned with Roses.

"None, crown'd with Roses, drink the insipid spring;
No joy to mortals thin potations bring.
Bacchus loves flowers; to Bacchus garlands dear;
Witness the starry wreath on Ariadne's hair."

—Ovid.

When apuricular confession prevailed here, the English clergy wore commonly a Rose, and it frequently was retained by them, until about a century and a half since.

The Rose also was placed in the hand of one of the Graces, and wreathed the heads of two of the Muses, Erato and Thalia; it was also the emblem of youth, and sculptured on the tombs of the maiden dead. Even the tombs of all ages were decked with its flowers.

"When life's no more their odors shed
A grateful fragrance o'er the dead:
'Tis well, for when their charms decay,
And sinking, fading, die away,
Triumphant o'er the work of time,
They keep the fragrance of their prime."—*Anacreon.*

Even now in some parts of Wales it is customary to plant a white Rose upon a maiden's grave, and a red Rose on the grave of any one of noted excellence.

The Rose has always been preferred as the emblem of Beauty but it is also associated with effeminaey and voluptuousness. Gallienus, the Roman Emperor, justified this association by having in summer time a bed of Rose petals, and he, like Smindyrides, complained that a crease in one of them caused pain.

At Athens, early in May, at the festival of Hymen, the maidens and lads were crowned with Roses. Similar crowns were awarded to poets, and the Feast of Roses was one of the assemblies of the Troubadours.

Nor has the Rose escaped from association with superstition. In mediæval times the maiden gathered Roses on Mid-summer eve,

"And bid it, for her shepherd's sake,
Await the new year's frolic wake—
When, faded, in its altered hue
She read, 'My lover is untrue.'
But if retained the crimson paint,
Her sick'ning hopes then ceas'd to faint."

It has been a custom for the popes annually to bless and perfume a Golden Rose tree, and to send it to some sovereign or other eminent person who has markedly served the cause of Romanism. The French Empress had it presented to her by the present pope. This ceremony of blessing the Golden Rose was instituted by Pope Leo IX., who was elected to the pontificate in 1048. When the monastery

of Saint Croix, in Alsace, was founded, he stipulated that the brethren should send to the pope yearly a Golden Rose. The ceremony of its presentation to and benediction by the pope takes place at Rome on the fourth Sunday in Lent. Edward I., of England was not only a Crusader, but so aided the popes in their Sicilian wars, and so sumptuously furnished their table with a golden service, that it is probable "the Golden Rose" was presented to him, and that consequently be adopted it as his badge. At all events, he was the first English monarch who adopted the Rose as a badge, and his was a golden Rose on a green stalk. The red Rose was first assumed by the Duke of Lancaster, John of Ghent (Gaunt as usually erroneously pronounced and spelled), in the reign of Edward III., but Henry IV. was the first of English kings to adopt that badge. Edward IV., among other badges, had the white Rose, and it was a white Rose *in soleil*—that is, surrounded by rays. The succeeding kings had the same badge, but Henry VII. had for his badges the white and red Rose joined. Henry VIII. had both the red Rose alone and the white and red Roses joined and crowned. Queen Anne Boleyn had a white crowned falcon, holding a sceptre in her right claw, perched on a golden trunk, which bore both white and red Roses. Catherine Parr had a maiden's head crowned, issuing out of a bush of white and red Roses, very appropriate, considering the narrow escape from the executioner she had as Henry VIII.'s wife. Edward VI.'s badge was of red and white Roses combined. Mary had a red and white Rose and a Pomegranate, in compliment to her Spanish husband, knit together. Elizabeth had not only the red and white Roses, but many other devices. James I. had for his badge a demi Rose crown, impaled with a demi Thistle. Anne had the Rose and Thistle borne by one stem, and so had George I. Queen Victoria's badge is a red and white Rose united.

PRESERVING HOPS.—A new improvement in sacking, or baling hops, now in favor in Canada, is to put wide, strong sheets of paper inside the sacking. As paper is a non-conductor, and air-tight, it is believed to be a preventive of the rapid escape of lupuline.

TENDER BEDDING PLANTS.

We often wonder why such beautiful flowering plants as the *Cineraria*, with its endless varieties of blooms, the *Salvia splendens*, with its magnificent scarlet spikes; or some of the *Begonias*, with their exquisite drooping clusters, are not cultivated to a greater extent, as bedding plants in the open ground, during the summer. When we inquire as to the reason for this, we are told that they would perish during the winter, thereby entailing a great deal of trouble and expense consequent upon their replacement in the spring. As bearing on this point, we re-produce the argument of an Eastern nurseryman, who says: "Why such excessive economy in flowers alone? A dollar for a dinner, or an entertainment of a few hours; fifty, or a hundred dollars for a new suit, is not deemed extravagant now. Then the endless expenditure for eating, drinking, display of jewelry, confectionery, ale, tobacco, etc. All these things may to a certain degree, be essential to our mode of life, but not necessarily so. Why not love and adorn our homes at the same time; laying out each spring a few dollars, to bedeck them with new smiling summer-dresses, which shall give us at each outgoing and incoming, a glad welcome. Patronize, if we will, all manner of luxuries, but let us not in the mean time forget our nurseries and floral establishments."

RICINUS COMMUNIS.—(CASTOR OIL PLANT.)

This plant is a native of the East Indies and Africa, where it approaches somewhat in character, and height that of a tree, and contains a small amount of woody fibre. In cooler climates, it is an annual plant, growing all the way from five to twenty feet in height. The stalk is of a vigorous growth, being round, smooth and hollow. The leaves are large, bluish-green in color, serrated (that is, tooth-like upon their margins) and pointed. The foot stalks of the leaves are long, and inserted into the disks. The flowers are produced in a terminal spike, being monœcious; the same

plant bearing both male and female blossoms. The seed-vessels are covered with spines, and contain three flat, oblong seeds, which are expelled by the bursting of the capsule.

It is from the seeds of this plant that we obtain what is known as Castor Oil. There are three modes of extracting the oil: one by contusing the seeds, (after having gently warmed them,) and then subjecting the bruised mass to a heavy and continued pressure, allowing the oil to flow into a proper receiver. The oil obtained in this manner, is called "cold expressed," and commands the highest price in the market. The second method is to free the seed from their husks or pods; bruising them, after which they are tied in linen bags, and boiled in water; the oil which the mass contains, rising to the surface, is then carefully skimmed, and bottled for use. The oil procured in this way is considered by some, milder in its action than that made by pressure; it has, however, one fault, that of becoming sooner rancid. The third process is mostly practiced in France, and is by means of alcohol; it has nothing to commend it over the other methods, and the expense is greater, while the product is inferior in quality.

The "Castor bean" has been largely introduced, and cultivated in Europe, and the United States; it has also become so naturalized in the West Indies, as to occupy to a certain extent the position of a native plant. In the Eastern States, great attention has been paid to its cultivation, and a large amount of trade in the oil has grown up. The climate of California is well adapted for the cultivation of this valuable plant, and we find a number of cultivators of the soil, turning their attention to it. If we are not mistaken, Dr. McDaniels of Marysville, was the first in California to cultivate it on a large scale.

The plant requires no great amount of labor; about the same as that given to the cultivation of corn. The hills should be about six feet apart, and so arranged as to allow at certain intervals, passage-ways for the wagons used in gathering the crop. Not more than one plant should be allowed to grow to the hill.

It is said that three pounds of seed will suffice to the acre; we are inclined to think this a little under the amount required. The planting should be done during the last of March, or the first of April, and the seeds will be fit to pick about the last of July; at which time they will begin to turn blue. One hundred pounds of beans produce about five gallons of oil, which sells very readily in this city at two dollars per gallon, manufacturers price. We find upon inquiry that the California oil is much preferred over that imported; the only trouble about it being a darker color, which is easily remedied by bleaching it in the sun, a method that has no bad effects upon the oil.

There is no reason why we should not produce all the oil needed for the Pacific coast. Many farmers are deterred from raising the bean, under the impression that the demand for it is not sufficient to make its cultivation an object of profit. Such is not the case; castor oil is not only used as a medicine, but for many other purposes. We hope that some of our farmers will send us their experience in the cultivation of this plant, promising on our part, to set forth their ideas, theories and facts, in the best possible manner.

PASTURE GRASS FOR CALIFORNIA.

A very important desideratum for California, and one which has hitherto commanded but little attention, is food for our cattle, horses, sheep etc. During the winter and spring, we have no great difficulty in procuring a sufficient supply for them, as nature furnishes all that is requisite, and in abundance throughout the largest portion of the State. But in the summer and fall months, the live stock on most of our ranches suffers to a great extent (particularly in a long dry season) for the want of proper food. Many of our stock farmers sustain very heavy losses from this cause, and they will always be liable to meet with them in the future, unless something is done to clothe our hills and valleys with vegetation, which shall furnish food for their stock, during the dry seasons. We are of the opinion that

very little enterprise has been shown in this direction; and this fact goes far towards demonstrating the want of a proper attention to one of our best interests.

The meats furnished in our markets should be better in quality and cheaper in price; the butter more plentiful and of a lower rate. In fact, it is plainly to be seen, that the working man cannot afford to eat good meat, and good fresh butter, on account of the extravagant prices these articles command. If our pastures could be improved so as to furnish our cattle with good nourishing food all the year around, butter and meat could be supplied to us at a much lower rate.

The question arises at once, whether our hills and valleys are able to produce any kind of good food throughout the dry seasons; we think they are, and it only requires some enterprising stock farmer to take hold of the matter, and demonstrate its practicability and utility. To do our part in this work, we would recommend the introduction and cultivation of the Bermuda Grass, (*Cynodon dactylon*) which is now so extensively cultivated in the Southern States, and especially in Texas, the great cattle growing State of the Union. The Bermuda Grass throws out stems (or runners if you please) from three, to four feet long; at short intervals these runners strike root and so form new plants, which establish themselves so quickly and numerous, that in a very short time one plant will form an extensive and dense sod, or turf. This grass grows well in very dry soil, and will keep green during the whole summer, it will grow well in soil of any character, except where too compact, in which case, the roots of the young plant cannot penetrate sufficiently to establish themselves. One difficulty in the introduction of this grass, is its want of seeds, of which it furnishes a very small quantity. It is therefore necessary to depend upon the roots and runners for its propagation. It is only necessary to cut the roots and stems into pieces from two to three inches long, and to plant them; every joint planted will make a new plant, and a good sod may be formed in a very short time, say in one or two years.

When the Bermuda Grass has once established itself, it is very hard to exterminate, and should therefore be grown in places where its spreading does not interfere with the cultivation of other crops. This grass will undoubtedly thrive well in the Sacramento and San Joaquin valleys, thus affording a large amount of grazing land to the State. The roots can be obtained by writing to some of the nurserymen of the Southern States, who no doubt can furnish them to any extent. A few hundred dollars would secure the planting of a considerable tract of land.

There is still another use to which this grass can be put, and that is to stop the continual drifting of our sand hills. The grass grows well on sandy soil, and has the effect of not only clothing it with a mantle of green, but by its roots holding the particles somewhat together. It would be well for some of our large land owners around San Francisco, to undertake the introduction of this grass, and we are sure, that the outlay would return a handsome percentage, in the increased value of their property.

SHADE TREES.

Not long since we paid a visit to the neighboring City of Oakland. Our purpose was to see how our horticultural friends were progressing, and we much enjoyed the stroll among the enterprising, go-ahead people of the other side of the Bay, and we hope always to deserve the courtesy and kindness we received from the leading horticultural men. If the same good feeling towards our new enterprise, the "Horticultural Magazine," is manifested in other localities in this State, we shall meet with complete success.

When we speak of the enterprise of the people across the Bay, we do not refer so much to their new buildings, and such like improvements, which will return in a short time ample interest on the capital invested, but we allude to their desire and determination to improve the public streets and roads by planting shade or ornamental trees, and thereby setting a praiseworthy example to other communities, if they had any spirit of public enterprise among them.

Oakland presents the appearance at the present time of a forest of trees, and is a park in itself, and while walking around there, the air we breathed seemed so pure and fresh, the shade of the trees so grateful, and the perfume of the flowers so exhilarating, that we forgot that we were traversing the precincts of a busy, thriving city, the third in rank in the State. Why is it that we have no such improvements in San Francisco? It has been said by some that deciduous trees will not thrive here on account of our strong winds. All we have to say is that this is a very erroneous idea. We are certain that deciduous trees, if properly planted, can be maintained here, provided that some little care and attention is paid them. If we only apply the pruning knife properly we will have no difficulty in raising well-shaped trees along our public streets. We will instance the few maple trees growing on Stockton street; during spring and summer we never pass those trees without admiring their beautiful foliage, and we very often hear other passers by at the same time expressing their admiration of the same trees. Why cannot we have, say 20,000 of such trees ornamenting and blessing the thoroughfares of this City? The answer, doubtless, will be, "It don't pay." Here is the secret; there is neither taste, nor public spirit for anything of the kind. We cannot assign any other reason for the indifference of the people. The expense of planting out a few well-selected shade trees in front of our homes and places of business would be but little, and we feel convinced that trees so planted, with an outlay at the present time of a few dollars would not be parted with five years hence for ten times their original cost. Is there no one who will inaugurate the planting of shade trees in our streets? The maple tree, (several varieties), the Locust, the Eucalyptus, the Platana, the Catalpa, etc., can be had at a reasonable price in our markets, and will do well here if properly cared for.

We have visited all the principal cities and towns throughout California within the last five or ten years; Sacramento, San Jose, Stock-

ton, Nevada and many others. Everywhere we found trees planted along the streets, even in the principal business portions; but here in San Francisco, where nature has done so little for us in this matter, but where wealth and intelligence are abundant, and taste should not be wanting, we find an indifference entirely unaccountable.

The people of San Francisco are justly celebrated for their liberality in all charitable and patriotic causes, but outside of these there is no public spirit of any kind. The all-absorbing subject, the acquisition of the Almighty Dollar, leaves no room for the consideration of the Beautiful.

Let us picture to ourselves a few hundred shade trees along Kearny street! What a protection would they afford as well from the sun as from our strong winds. Again let us imagine forty or fifty trees around the Grand Hotel! What a finish it would give; would it not be one of the chief attractions of San Francisco? Of course it would not do to plant such evergreens as Pine, Cypress, etc., of which we have already too many within our city, but the trees we have already mentioned are in every way suited.

Oakland has every reason to be proud of the cultivated taste she has displayed in her public improvements, and we hope that San Francisco will follow her example.

THE SUGAR BEET—(*BETA CICLA*).

This root now attracting so much attention in some parts of California, is cultivated for the sugar it contains. A factory has already been established at Alvarado, Alameda county, for the manufacture of this sugar, and it is necessary for the prosperity of this new undertaking, that the beet shall be raised in sufficient quantity to supply its running capacity. For the furtherance of this object, we propose to give all the information at our disposal in regard to the proper cultivation of the root.

The soil best adapted to the sugar beet, is a deep, sandy loam; although, it has been grown, with fair success, in a great variety of soils.

The ground should be ploughed once in the fall, and again in the following spring, before the seeds are planted: we advise deep ploughing on general principles, and particularly in this case, or the main root will be apt to form side roots, which do not contain as much saccharine matter as the main body of the root. Four pounds of good seed should plant one acre; if the planting is done during dry weather, it will be better to soak the seeds in water for two or three days, in which case, the plants will make their appearance, in from ten to twelve days after planting. The rows of plants should be about eighteen to twenty-four inches apart, and in the rows, twelve to eighteen inches; every plant should be entitled to about two feet square, for its proper development. It is of great importance to work the ground often, so as to keep the surface in a porous condition, which will enable the atmosphere to more readily penetrate the soil, and also allow the roots a greater supply of oxygen. It is equally important to keep the earth well up to the neck of the plants, as the exposed portion of the root—generally of a greenish color—contains more salt. When the leaves lose their vivid green, and begin to assume a yellowish hue, the roots should be gathered. Plants cultivated under this mode of treatment, will furnish a greater percentage of sugar, and, as a consequence, be of more value to the manufacturer.

The sugar beet, in a warm climate, contains more sugar; yet we believe if the warm climate is assisted by a moist atmosphere during the nights, the product would be much greater in proportion to the quantity of beets. In Germany, the best variety, is supposed to be the "*Imperial Sugar Beet*," of which an acre will produce from eight to ten tons, yielding about 1,000 or 1,200 pounds of sugar. In California, the raising of sugar beets is a new enterprise, and we shall be pleased to receive any information in regard to its cultivation.

STRAWBERRY SHIPMENTS.—The consumption of strawberries in this market is enormous. During the last season we received 11,854 chests of the berries from Santa Clara Valley, and 400 chests from Mission San Jose—12,254 chests in all, averaging 96 pounds to the chest, making, in the aggregate, 1,176,384 lbs.

A SMALL FARM.

We paid a flying visit the other day to San Leandro, Alameda county, and we had the pleasure of making the acquaintance of Mr. R. S. Farrelly, who is the owner of fifty-one acres of farming land, situated on the road leading from San Leandro to Brooklyn. All the surrounding country is divided into small orchards, of from five to ten acres; and the numerous residences, with their well tilled fields, gave signs of general prosperity, while on all sides we noticed activity and enterprise.

Mr. Farrelly is an enthusiastic horticulturist, but does not experiment much with anything unless he is pretty certain of success, and therefore his experience is of practical value. We are under obligations to him for many interesting items, which we have taken the liberty of laying before our readers, to show them what can be done on a small farm.

About ten acres of his land are devoted to fruit, and the balance is rented out for general farming and gardening purposes. The ten acres, of which he takes care himself (with the assistance of but one man), are under a high state of cultivation. He has 3,000 plants of the Lawton Blackberry, of which 1,500 are two years old, the balance, one year; they occupy about two acres of ground, the plants being set four feet apart in the rows, with eight feet between the rows. Of his two year old plants he gathered this season, 3,900 pounds of berries, which sold for eight cents per pound, average price; he expects three times that quantity from the same vines, the coming season. The total expense of keeping 1,500 plants (or one acre) of blackberries in order, including the cost of gathering the fruit, did not reach fifty dollars for the year. He has also about 20,000 plants of the Cherry Currant, which are planted between his young Cherry trees; the trees themselves being of an upright growing character, and planted forty feet apart. His currant bushes are planted two and a half feet apart in the rows, and the rows are five feet distant from each other.

He has no experience yet as to the result of this plantation. Of cherries, he has two hundred and fifty trees, of which one hundred and fifty are young, and not in full bearing; they have paid him at the rate of ten dollars per tree. The varieties which he cultivates most successfully, are the Black Tartarian, Black Pontiac, Elton, Graffian, or Yellow Spanish. He has two hundred Pear trees, of which he considers the best are the Bartlett, which readily sold this season for two dollars per box, while last year they only brought fifty cents. The Flemish Beauty (a very fine pear), he sold during the summer at one dollar per box; the Seckel, which ripens in August, brought two dollars. Of winter pears, his best are the Winter Nellis, which he is now bringing into market, receiving for them two dollars and a half per box, and the Easter Beurre, ripening during December and January, which were sold last year at one dollar and a half per box, but will bring much more this year, as the supply of pears is rather limited. A box of pears contains about sixty pounds, while a box of apples generally averages only fifty. He cultivates about three hundred apple trees, the best varieties being the White Winter Pearmain, Yellow Newtown Pippins, and the Spitzenburg.

From all these facts we concluded that the ten acres under cultivation, yield to Mr. Farrelly over \$3,000 per annum, and we must consider such a result as a strong inducement for the inauguration of similar enterprises. We would not advocate the fruit raising in particular, as the prices would be greatly reduced if everybody should embark in this business, but we are convinced that a farm of ten acres, and even much less, will be very remunerative if cultivated properly. There is a growing demand for many articles of horticultural and agricultural productions, at very fair prices, and we shall from time to time point out what can be produced on a small farm, to pay well for the time and capital invested.

LETTER FROM DR. VON MUELLER, MELBOURNE.

We call the attention of our readers to the following letter from Dr. Von Muller, Director of the Melbourne Botanical Gardens, Australia. It is upon a subject of considerable interest to us, and points out a number of trees, and shrubs, whereby we can arrest the continual drifting of our sand hills. Dr. Von Mueller is a scientist of world-wide reputation, and therefore what he says should always command a careful consideration.

MELBOURNE BOTANICAL GARDEN,

July 25th, 1870.

It needs not my assurance, dear Mr. Miller, that I will be very happy to afford any information to aid in so important an object as arresting the sand drift of your coast, and to utilize those spots by covering with vegetation. The plants which I employ here for similar purposes are *Casuarina quadrivalvis*, *Pinus Pinaster*, *Pinus Halepensis*, *Melaleuca parviflora*, several species of *Mesembrianthemum*, *Cynodon dactylon*, *Agrostis stolonifera*, *Arun-do arenaria*, *Araria pyonan*, *Festuca litoralis*, *Spinifex hirsutus*, *Araria laphantha*, *Tetragonia expansa*, *Leptosporium (Fabricia) laevigatum*, several species of Broom plants.

* * * * *

It will require, to raise many of the plants indicated, at first in nurseries, and then to plant them out in places where by brush, and branches of any kind, the ground is sufficiently protected to allow any young plant to develop itself. It is scarcely necessary to remark, that all traffic, particularly that of goats, cattle, horses, etc., must be rigorously excluded from the sand, which is to be checked; fencing of the ground becomes therefore requisite.

Your letter arrived just at the eve of the departure of the mail for America, so I may not have time to get ready any seeds for you. * * I will be very happy to enter with you into direct interchanges, for which purpose the newly established line of steamers affords such great facilities. With my best wishes,

Your friend,

VON MUELLER, M. D.

The Blackwood, or Lightwood (*Acacia melanoxylon*), grows chiefly in rich Basalt.

LETTER FROM "HORTUS."

San Francisco, Nov. 17th, 1870.

Dear Sir: The *California Horticulturist* was handed to me by a friend two days since. I like the idea of it, think it may be made useful, and intend to be a subscriber; I am a bit of a florist myself, although only an amateur, and I like the chapters on the treatment of the *Camellia* and *Pansy*. How about the *Azalea*? Can't get that length of cutting off any of my plants, nor from any of my acquaintance. Should like to see yours. If I were to attempt to take off a three or four inch slip, I should be down into the two year old wood, instead of the half-ripe. Will try your plan of hardening the young plants. I can strike them, but they always fog off afterwards. By the way, I see you have a chapter on "Woodward's Gardens," taken from the *New York Horticulturist*. I know what you will say directly: that you are not responsible for the bad spelling; but perhaps we differ. You would not knowingly advise us in the treatment of our plants so as to cause us to lose them. Why then carelessly allow the mis-spelling of the names? An inadvertance—all right. But let us for the future look to you as an authority on this point; a most essential one. Common English bad spelling is common enough, and most of us merely smile at it, but very few of us have the authority at our elbows for verifying scientific orthography. By the way, cannot you drop a word in Woodward's ear, I see he advertises with you, and you inserted that article for him, so you must be acquainted. Just hint to him that although many who see his few labels, (many do not) do not read them, yet there are some who feel annoyed and disgusted to observe that the same label will do duty for widely different species in the course of one month. It savors much of Barnum; and I must remark that since the visit of Barnum to this coast I fancy Woodward's Garden seems much Barnumized. 'Tis a pity. He has a great many nice trees, shrubs and plants, and the study of them is highly instructive, but 'tis annoying and bewildering to

see them mis-named. Tell him 'twill cost him but little to have them re-named, and then make his gardener keep them correctly labeled. He is but a poor gardener if he cannot do that. Excuse any brusqueness in this letter, it is the bluntness of a friend.

Yours truly,

HORTCS.

LETTER FROM OAKLAND.

Oakland, Nov. 14th, 1870.

Sir: I am much pleased to see the first No. of your Magazine, and wish you every success in your enterprise, as I believe it will be productive of great benefit, by assisting to obviate an evil of which I am about to complain.

It appears to me that nearly all that has been done on this coast in agriculture and horticulture has been desultory in character; there has been a want of unity of action; a lack of public spirit; each cultivator seeking his own individual interest regardless of his neighbor's welfare, or the general good; and consequently a continual groping in the dark, a constant repetition of unsuccessful experiments by those who in very many cases could ill afford the time and money; when a little open-hearted liberality of spirit, some small reciprocity of feeling between residents even of the same district, would have saved much valuable time and a large amount of dollars and cents. A man, perchance, has experimented in a particular mode of treatment of a certain plant, and has failed, he has seen his neighbor making a similar attempt, instead of a kindly word of warning and advice, he has chuckled selfishly over the inevitable disappointment; he has suffered a loss himself, and now let neighbor Jones find it out, why should he tell him? when mayhap Jones could reciprocate the kindness by a word in season about some other enterprise.

There has been too much grasping after the dollar as if that was the *summum bonum*, the only thing worth living for; with the luck of Æsop's dog, who lost his beefsteak through trying to seize the shadow of it also.

I met an intelligent man not many months since, who, when asked to experiment on the cultivation of a particular plant, and informed that he could be supplied with the necessary cuttings, and further told that others living in widely separated localities in the State would also be furnished with like material, on the condition that the results should be made public; in order to test climate and soil, as well as mode of treatment; replied by requesting all the cuttings, and stating that he should desire to keep his experiments to himself, so that if successful, he might derive the full benefit, and possibly a bonus from the State; he said that he could not endure that any man should excel him in any thing he undertook, or achieve a success based on his unsuccessful effort.

But this loss of time and money is not due solely to selfishness, many would be glad to record their attempts, whether successful or otherwise, in the treatment of divers crops, seeking only to know how others have sped; but they know not how to interchange their experience. This opportunity your welcome magazine affords, and I for one intend to avail myself of it, and repeating my wish for your success, believe me Sir,

Yours truly,

CULTIVATOR.

AUSTRALIAN GUM TREES—(EUCALYPTI.)

BY PROF. BOLANDER.

Since the Australian Gum-trees (Eucalypts) are so extensively planted in California, it becomes almost a necessity to discuss and investigate the advantages and disadvantages offered by the various species of that extensive genus, the more so, since the time is fast approaching, in which forest-culture must receive our serious attention. I propose therefore to offer to the interested reader a summary of facts, derived from various books and reports, written by professional men on the subject.

The word Eucalyptus, the botanical term used to designate the genus, is derived from *eu*, "well" and *kalypto*, "to cover," in allusion to the lid which covers the calyx until the stamens are fully developed. According to

the Linnean system, the genus belongs to the class of Isocandria, and according to the natural system, to the order Myrtaceæ, derived from myron, balsam or myrrh.

The flowers have no petals, and the stamens which are very numerous, are, with few exceptions, white, whilst the tube of the calyx is permanent, and the capsule three, four, five or six celled. Generally speaking, the leaves are alternate, but in some species they are opposite, and in others, they are alternate and opposite in the same tree. The arrangement of the flowers is for the most part in umbels, varying very much in size, as well as in the number of the florets, and these umbels are sometimes axillary or lateral, and sometimes corymbose or paniculate. Being evergreens, and probably lasting for many generations, the species of Eucalyptus undergo many changes in their appearance, for while some of them are wholly or partially covered with bark in their youth, and become smooth as they advance in years, nearly all of them vary in the shape and size of their leaves in proportion to their age. As a general rule, the leaves are longer and broader on the young trees, whilst in some species they are first opposite, and then alternate. Being fixed vertically, instead of horizontally, they afford but little shelter from the burning rays of the summer's sun, or from the drenching showers which sometimes overtake the weary traveler; and on the whole, the Australian forest presents a dull and unvarying aspect, uninfluenced by the bright fresh verdure of spring or the gorgeous and variegated tints of autumn. And yet these Eucalypti are of immense importance, whether considered in reference to the value of their timber, the medicinal properties of their barks and resins, or the essential oil of their leaves; whilst the colossal dimensions and towering heights of some species are perhaps unrivalled in the world. According to a statement recently published by Dr. T. Mueller, Director of the Botanic Gardens at Melbourne, the Karri (*E. colossea* or *diversicolor*) attains in favorable spots the height of four hundred feet, whilst the messmate (*E.*

amygdalina) has been known to measure four hundred and eighty feet.

Of the one hundred and thirty-five species known, I will enumerate those that may become useful to California.

1. The Mountain Blue Gum (*E. eugenoides*). This tree attains a height of one hundred feet. Its wood is much used by wheelwrights and carpenters, but is inferior to the Blue Gum of Cumberland (*E. goniocalyx*).

2. Flooded Gum (Blue Gum of some districts) (*E. goniocalyx*). This is one of the most useful trees. It generally grows near the rivers and creeks, but it frequently occurs as a forest tree. It attains a height of eighty feet and more, and a diameter of seven feet. The timber is extensively used for ship-building purposes, such as scantling, battens, flooring-boards, posts and rails, and ship's planks; it is also excellent for the naves and felloes of wheels. Many a tree yields from six thousand to seven thousand feet of timber. It grows rapidly and its specific gravity is less than that of any other gum.

According to Dr. Mueller, it is also called "Spotted Gum." The foliage is rich in volatile oil. The bark yields a good packing paper, but hardly material for any good writing paper.

3. The Red Gum or White Gum. (*E. rostrata*) Flooded Gum, also Yarra. It attains a height of one hundred feet. Its timber is said to be impervious to the *Teredo navalis*. Large quantities of it has been used on railways. The specific gravity varies from 0.858 to 0.923. The paper prepared from the bark of this tree, proves much coarser than that of the (*E. obliqua*); the pulp may be either used as admixture to that of packing-paper and paste-boards, or in the composition, or perhaps as sole ingredient for blotting and filtering paper. The gum-resin of this special kind is preferred to others as a therapeutic astringent, and is particularly administered in Europe and India in cases of diarrhæa which assume a chronic state.

"A curious hardwood, remarkable for the conical projections from the sapwood into the

bark, and for the inner or older layers of wood into the next younger or outer layers."—*Knight's Report*, 1862.

4. Hickory or Leather Jacket, (*E. punctata*). This species attains a considerable height, and is frequently of a spreading habit. It is a good wood for fencing and burning, and is exceedingly tough and durable. Posts of this tree were perfectly sound after having been half a century in the ground, and next to Iron Bark there is no wood more suitable for railway sleepers.

5. Blackbut (*E. pilularis*). This is one of the largest and most valuable species of the genus. In some places it has been found to be more than forty-six feet in circumference at five feet from the butt, and one hundred and fifty feet to the first branches. The wood is excellent for house-carpentry, ship-building, and indeed for any purpose where strength and durability are required. From experiments made at the Universal Exhibition, held in Paris, 1855, it was ascertained that the specific gravity of Blackbut is 0.897, and that next to the "Rough-barked Iron Bark" no species of Eucalyptus is known to bear a greater crushing strain in the direction of the fibre. This tree prefers a good soil, and is rapid in its growth.

6. Box (*E. hemiphlaia*). This tree is widely diffused and indicates good grazing country; it rises to the height of one hundred and eighty feet, with a diameter varying from forty-eight to seventy-two inches, and the timber is reported to be of first rate quality for size, hardness, toughness and durability. It is also an excellent wood for domestic use, as it burns with great brilliancy, and emits a large amount of heat; but it does not stand long in the ground, as it suffers from dry rot. The specific gravity is 1.129.

7. Forest Mahogany (*E. resinifera*). "Red." The name red is taken from the color of the wood. The wood of this species is very strong and durable, and is extensively used for fencing, beams, rafters, and rough work. It may be mentioned as a remarkable instance of its durability, that some rafters of it which were

placed in St. John's Church, Parramatta, in 1798, were found in a perfect state of preservation in 1852, when the church was pulled down. Some portions of these rafters were dressed up and forwarded to the Paris Exhibition, 1855.

8. Messmate. (*E. amygdalina*.) This tree attains near two hundred feet in height. Its wood is not much valued.—*Wm. Woolf's Report*.

This is one of the so-called Peppermint-trees, more oily in its foliage than any of its congeners. The inner bark is adapted for the preparation of all kinds of coarser paper.

The marvellous height of some of the Australian, and especially Victorian trees, has become the subject of close investigation, since of late easier access has been afforded to the back-gullies of our mountain-system. Some astounding data, supported by actual measurements, are now on record. The highest tree previously known was a Karri—Eucalyptus (*E. colossea*), which rises to nearly four hundred feet. Into the hollow trunk of the Karri three riders, with an additional pack-horse, could enter and turn in it without dismounting. A fallen tree of *Eu. amygdalina* was measured and found to be four hundred and twenty feet; another Eucalyptus measured by Mr. Klein was found to be four hundred and eighty feet. Mr. Heyne obtained as measurements of height of a tree of *Eu. amygdalina*: Length of stem from the base to the first branch, two hundred and ninety-five feet; diameter of the stem at the first branch four feet; length of stem from first branch to where its top portion was broken off, seventy feet; diameter of the stem where broken off, three feet; total length of stem up to place of fracture, three hundred and sixty-five feet; girth of stem three feet from the surface, forty-one feet. Another one measured three feet from the base, fifty-three feet in circumference. Another was ascertained to measure eighty-one feet at a distance of four feet from the ground.

These enormous heights are, by no means, isolated cases; but there are vast masses of timber-trees in rich diluvial deposits of shel-

tered depressions that compare favorably with the dimensions given. Extensive comparisons instituted in the Botanic Gardens (at Melbourne) prove several species of Eucalyptus, more particularly *E. globulus* and *E. obliqua*, as well as certain Acacias—for instance *A. decurrens*, or *A. mollissima*—far excelling in their ratio of development any extra-Australian trees even on dry and exposed spots. This marvellous quickness of growth, combined with a perfect fitness to resist drought, has rendered many of our trees famed abroad, especially so in countries where supply of fuel or of hardwood is not readily attainable, or where for raising shelter, like around the cinchona-plantations of India, the early and copious command of tall vegetation is of imperative importance. On this I wish to dwell, that in the Australian vegetation we probably possess the means of obliterating the rainless zones of the globe, to spread at least woods over our deserts, and thereby mitigate the distressing drought, and to annihilate, perhaps, even that occasionally excessive dry heat evolved by the sun's rays from the naked ground throughout extensive regions of the interior, and wafted with the current of air to east and south, miseries from which the prevalence of sea-breezes renders the more littoral tracts of Australia almost free. But in the economy of nature, trees, beyond affording shade and shelter, and retaining humidity to the soil, serve other great purposes. Trees, ever active in sending their roots to the depth, draw unceasingly from below the surface-strata those mineral elements of vegetable nutrition on which the life of plants absolutely depends, and which with every drooping leaf is left as a storage of aliment for the subsequent vegetation. How much lasting good could be effected, then, by mere scattering of seeds of our drought-resisting acacias and eucalypti at the termination of the hot season along any water-course, or even along the crevices of rocks, or over bare sands or hard clays, after refreshing showers? Even the rugged escarpments of the desolate ranges of Tunis, Algiers and Morocco, might become

wooded; even the Sahara itself, if it could not be conquered and rendered habitable, might have the extent of its oases vastly augmented. Fertility might be secured again to the Holy Land, and rain to the Asiatic plateau or the desert of Atacama, or timber and fuel be furnished to Natal and La Plata. An experiment instituted on a bare ridge near Melbourne demonstrates what may be done. *Report of Dr. T. Mueller.*

9. Mahogany-eucalypt. (*E. marginata*). The timber of this tree exhibits the wonderful quality of being absolutely impervious to the inroads of the Limnoria, the Tereido and Chelura, those minute marine creatures so destructive to wharves, jetties, and any other works of naval architecture exposed to the water of the sea; it equally resists the attacks of Termites. The natural supply of this important timber will, sooner or later, prove inadequate to the demanded requirements; and it must be regarded as a wise measure of the governments of France and Italy now to establish this tree on the Mediterranean shores.

10. Stringy Bark. (*E. obliqua*). This species varies considerably, according to the soil and elevation in which it grows, and according to the proximity to the sea-coast. Wood forwarded to the Exhibition ranged between one hundred to two hundred feet in height. It is considered excellent for house-carpentry, such as flooring-boards, battens, etc. In some parts of the Colony the Stringy Bark is valued for fencing purposes. According to Dr. Mueller it constitutes the main mass of the forests of the more barren mountains, the height of trees of greatest size ranging from three hundred to four hundred feet. The Doctor also states, the paper prepared from the bark of this tree is not merely suited for packing, but also for printing, and even writing. It may also be employed for mill and paste boards. The pulp bleaches readily. Its bark, as is well-known, is extremely thick and bulky; it moreover, separates with the utmost facility, and is hence universally used for thatching rural dwellings. It yields readily to mechanical appliances on account of its lax and loose tex-

ture, and is also easily acted upon by caustic soda for conversion into pulp. It has also been successfully manufactured into door-mats. *Wm. Wool's Report*. Celebrated for the excellence of treenails it yields. *Knight's Report*.

11. White Iron Bark. (*E. paniculata*.) This is one of the most valuable trees of the Colonies. The specific gravity of the wood is one thousand and sixteen, and the breaking weight or transverse strain, beam four feet between bearings, one seven-eighth square, four thousand five hundred and nineteen pounds. It is the most valuable of all the Iron Barks, remarkable for its smooth, uniform outer bark, and its very hard, tough, inlocked, strong wood. The wood is highly esteemed by coach-makers and wheelwrights for the poles and shafts of carriages, and the spokes of wheels, and a great quantity has lately been used for piles in constructing wharves, and also for sleepers on railways. The presence of Iron Bark generally indicates a poor and indifferent soil.

12. Blue Gum. (*E. globulus*.) Among the woods of Tasmania this is one of the most useful. It attains a great size and yields ship's knees of any dimensions. The blue-gum is in great demand for railway-sleepers, felloes of wheels, etc.

PUBLIC PARKS.

All the larger cities of Europe have their parks, which not only prove to be great ornaments, but are the sources of pleasure, recreation, and health to the old and young, the rich and poor, the sick and healthy, who flock to them at all times, and at all seasons, the rich and luxurious for their afternoon drives, the men of business for their earlier ride or walk, as their means and time will permit, the humbler citizens as opportunity offers, the families of all as often as time can be spared. Here on high days and holidays the general public, high and low, luxuriate; they are in fact the very lungs of these vast hives of human beings, for without them a large portion of

the population, men, women and children, would never know what a breath of fresh air meant. Here invalids and convalescents feebly recuperating their wasted forces, feel the life-giving influences of a purer atmosphere, and children and infants while sporting and enjoying themselves under the care of their nurses, are inhaling that element so essential to the healthful and vigorous development of their young and immature constitutions. They afford not only the opportunity for breathing freely an improved and purified atmosphere, but the space and incitements to exercise and relaxation, promoting pleasurable reunions, while feasting the eyes with their fresh verdure and regaling with the perfume of flowers and fragrant plants; exhilarating the mind, giving buoyancy to the spirits, and a new and healthy impulse to the circulation.

All the larger cities of the Eastern States have also within the last few years taken steps to provide their populations with large parks, and in no case have the attempts failed, except where certain unscrupulous and dishonest officials, in pursuit of the Almighty Dollar, have made the public weal subservient to their own individual interests.

The City of London and vicinity has about 7,000 acres of parks. There are Hyde Park, Kensington Gardens, Regent's Park, St. James Park, The Green Park, Victoria Park, Greenwich Park, Battersea, besides several others which we do not now recollect; there are also a very large number of squares planted with trees and laid out with lawns and walks.

Dublin has its Phoenix Park, of 2,000 acres.

Paris boasts of the Bois de Boulogne with its 21,000 acres; the gardens at Versailles, of 3,000 acres, and many other smaller parks and public gardens. In fact, Paris has within the last twenty years effected more in parks and other public improvements than any other city on the globe.

Berlin has its Thiergarten, of 300 acres.

Vienna its world renowned Prater, of 1,500 acres.

Munich its English Garden, of 500 acres, and we might mention many more.

On the American Continent we have a noble beginning of improvements of this character, in the Central Park of New York. In 1856 the Legislature of New York authorized the City of New York to acquire those lands for park purposes, which now constitute the Central Park of New York. The Commissioners entrusted with the effecting of the projected improvements, accomplished their task as nobly as the citizens responded to the call for capital; from the commencement to the present time the Commissioners have employed only the very best men in the several departments in the construction of the park, and most of the officials holding position in the park, have held office since 1857. The Commissioners have never permitted politics to interfere in the operation of the work, and never has a committee on public improvements served the people better than the Park Commission of New York. It is to be hoped that San Francisco will be able to record similar facts in regard to those public improvements which are now, or will shortly be, in progress in this city.

The Central Park of New York contains 843 acres, of which 136 are covered by the Croton reservoir. During the years 1859-60-61, more than 86,000 trees were planted out, although some portions of the park grounds were already well timbered. Of those trees set out, over 19,000 were raised in the nursery established by the Park Commissioners, the balance were purchased. The drives laid out are about fifteen miles in length, being on an average thirty-three feet in width. There are also about thirty-five miles of walks, from three-and-a-half feet to sixteen feet in width. The cost of constructing the drives was \$25,000 per mile. The quantity of water used for irrigation and other purposes averages two hundred million gallons per year, or about five hundred thousand gallons per day. About \$12,000,000 have been expended so far, in the purchase of the land and the improvements. The park is now finished, and is an institution of which New York may justly be proud. We do not at the moment recollect what is the es-

timated number of visitors to the park per day, but we are certain that over one hundred thousand persons have visited the skating ponds during one day.

In these times when we hear so much about corruption and incompetency of officers appointed or elected to high and responsible positions, it does us good to hear of an instance wherein strict economy, superior judgment, unimpeachable integrity have consummated an undertaking to the satisfaction of all parties.

We shall at some future time refer more particularly to sundry improvements contemplated or already inaugurated in the State of California.

AGRICULTURAL AND HORTICULTURAL WORK FOR DECEMBER.

Farmers and gardeners pretty generally have a busy time during this month. In November we expect rain in sufficient quantities to permit ploughing the fields, and preparing generally for planting.

Although we cannot lay down definite rules for work to be done during this month in California, as they do in the Eastern States and in Europe, on account of the peculiarities of our climate, yet the beginning of the rainy season presses certain work upon the farmer and gardener in every part of the State, which cannot very well be done at any other time. When Horace Bushnell speaks of the incredible anomalies of the California climates, we must admit his correctness, as work which is very properly performed during May in the northern parts of the State, may be effected in January or February in other parts of it.

Fruit and ornamental trees, evergreens and flowering shrubs should be planted as soon as the ground can be prepared for them, as nothing is so beneficial to newly set-out trees, shrubs and vines as a few good showers of rain. Early planting should be an established rule in California.

Lawns and flowerbeds should receive a good top-dressing of manure now. Some object to this on account of the odor and appearance,

but we advise our friends not to be too particular on this point, if they wish to keep their lawns, grassplots and flowerbeds in a condition to produce a new and vigorous growth.

One great objection to using stable-manure, is the many weeds which are produced by it; to obviate this annoyance we would recommend the use of bone and other ashes, which are great and effective fertilizers, and are much cleaner and more easily managed.

This is a very good time to prune all kinds of trees and shrubs; to clip hedges and borders, and to provide plants with proper stakes, so as to keep them in good shape. In cold countries this work is delayed until Spring, as severe frosts seriously injure the newly-cut wood.

Any tree, shrub or flower seed which is sown during this month should be raised under glass, and have the full benefit of a sunny aspect; many varieties even require bottom heat to cause them to germinate freely.

Greenhouses and conservatories should receive plenty of fresh air during the morning and early afternoon, to harden the plants to some extent; we do not like to see plants in the greenhouse or conservatory throwing up spindling shoots as if they were climbers, which they will frequently do, and which is attributable to close confinement, insufficient room, or being placed at too great a distance from the glass roof. Plants under glass require less water during the winter months on account of the moist and cold atmosphere, but when artificial heat is maintained for tropical plants or for forcing purposes, the amount of water to be given must depend chiefly on the nature of the plants themselves. A high temperature generally requires an abundance of moisture.

The old wood of blackberries and raspberries should be pruned out now, if not already done; if this is left until the Spring, a great many fruit-bearing buds, and young suckers not now visible, will be broken off and destroyed.

Strawberry vines should be planted out this month, if a fair crop is expected of them during the coming season.

We would also advise the owners of vineyards to prune their vines now, or as soon as time and circumstances will permit.

Hyacinths may be placed in glasses or pots now, so as to have them in bloom during January and February. We would advise the lovers of this beautiful bulbous root, to place them after planting, in a dark room for a fortnight when they will make strong roots before developing their leaves, this will enable them to send forth a much more vigorous flower-stock than will be obtained under the ordinary treatment.

We had almost forgotten to mention the Dahlia which should now be taken up and stored away in some cool, dark place where the temperature is even and comparatively dry, and where the tubers can rest and recuperate preparatory to being planted out again.

BAY DISTRICT HORTICULTURAL SOCIETY OF CALIFORNIA.

The third regular meeting of this Society was held at the rooms of the California Academy of Natural Sciences, on Saturday evening, November 26, 1870. President H. N. Bolander in the chair. Minutes of the previous meeting read and approved. Reports of Secretary and Treasurer were then accepted and placed on file. The reports show a cash balance on hand \$72.50. On motion, Mr. R. B. Woodward was elected a life member. Nine regular members were also elected, making in all fifty regular members. On motion a committee of five to draw up rules and regulations for the future exhibitions of this Society, was appointed, consisting of the following named gentlemen: R. Turnbull, of Oakland; C. Schuman, of San Francisco; E. L. Reimer, of San Francisco; F. A. Herring, of Oakland, and F. Lueideman, of San Francisco. A communication (directed to the Secretary) was read containing inquiries as to what is meant by "*Sour Soil*." After some discussion on the subject, the letter was referred back to the Secretary. A new Gladiolus raised from seed by Mr. F. A. Herring was presented, with a

request that the Society give it a name. On motion of Mr. F. A. Miller, it was named the "*Pride of Oakland*." On motion the Secretary was authorized to have notices of the meetings of this Society printed and mailed to each member, at least one week before the date of each regular meeting. There being no further business before the Society, Professor H. N. Bolander proceeded to deliver a lecture on the Coniferæ of the Pacific Coast.

LECTURE ON THE CONIFERÆ—BY PROF. BOLANDER.

Commencing in the southern part of the State, we meet in her littoral belt, a little north of San Diego, a small species of pine, known to Botanists as *Pinus Torreyana*. I have thus far, not been able to learn its vernacular name.

The trees are small and few in number; they resemble most the so-called Digger Pine (*P. sabiniana*), of our interior valleys. The leaves are in fives and pretty long.

The seeds are about as large as those of *P. Coulterii*. The locality mentioned is the only one known. It has not been tested long enough in our gardens to know what may be expected of it as an ornamental tree. In a practical point of view, it is unimportant.

Going northwards and keeping close to the sea coast, we find at San Simeon Bay, at Monterey and at a place a little south of Pescadero the so-called Monterey-pine (*P. insignis*). The latter named place is its most northern limit. It seems to occur only on the immediate coast, on bituminous slate. Monterey is the oldest sea-port and the oldest point where Botanists began their labors in California. Already, towards the close of last century, it was visited by Menzies, an English Botanist. Our species in question, being variable in the form of its cones, and the form of cones being one of the chief characters relied upon in a botanical description, gave rise to quite a number of synonyms.

In Capt. Beechey's work, we find it figured under the name *P. Sinclarii*. Later it is again described by Loisleur and called *P. Californica*. Don described it even twice, calling it

one time *P. radiata*, and another time *P. tuberculata*. The name *P. insignis* given to our species by Douglas, who visited Monterey in 1830 or 1832, is the one now generally used. The name cannot be considered as settled; for according to the laws of nomenclature adopted by Botanists, it must retain its first name: *P. Sinclarii*.

This species attains a height of eighty to one hundred and twenty-five feet, and a thickness of two to four feet. In old age, its shape is very irregular and anything but beautiful. Its cones, three to five in a whorl, are persistent for many years. The leaves are in threes. Its timber is of little value, when better can be had. In dry protected places it is pretty durable; but exposed to the vicissitudes of climate, it perishes soon. The tree, when young, is undoubtedly beautiful. It is extensively found in our gardens and is known to every one as the Monterey-pine.

Mixed with the species, just treated of, we find another two-leaved one, *P. muricata*. The vernacular name, in the southern portion of the State, is Bishop-pine; in the northern, pitch-pine. It occurs near San Luis Obispo at an altitude of three thousand feet; near the Mission La Purissima, where it forms a small grove; near Monterey, as just mentioned, sparingly; near Tomales Bay, scattered over hills, facing the ocean; near Point Arenas; also at the Albion River, extending northward to the Ten Mile River, (Mendocino county). Its cones are in whorls of two to four, persistent for many years. Some trees two and one-half feet in diameter, had cones on the lower branches, partially overgrown by the bark. In some trees, we find a series of cones of twenty-five to thirty years. This species has not yet found its way into our gardens. When young, it is beautiful and apparently of a quick growth. The old tree is irregular in outline, mostly weather-beaten and unsightly. It attains a height of fifty to eighty feet. Its wood is fit for fuel only.

At the Albion River *P. muricata* is mixed with another two-leaved species of pine, *P. contorta*—Dougl, (*P. Bolanderi*, Pall). It at-

tains a height of thirty to fifty feet. On the upper drier portions of the so-called plains of that region, it bears cones when it is about five feet high, and one or two inches thick. The cones, several in a whorl, are also persistent for many years. Its small size and slender, upright branches, its short and densely set bright-green leaves, render it desirable for ornamental purposes. It evidently requires a sandy soil, whether wet or dry; it grows in both as its natural haunts. In the vicinity of Fort Bragg, this species forms a perfect barrier and shelter against wind and drifting sand. Nature here hints at a remedy for us. This species, used with the Monterey-pine and cypress, would protect our city from drifting sand and fix the sand and soil. The people in that section of the country have no vernacular name for it. In any other point the tree is unimportant. It extends along the coast northward up to Alaska. On the Sierras it occurs between three thousand to eleven thousand feet, descending, however, gradually to the north. This gradual descent of all of our trees on the Sierras towards the north, is readily explained, yes, it is self-evident. On the Sierras, opposite Visalia our Big-trees set in at eight thousand feet altitude, the Mariposa Big-tree grove is found to be six thousand five hundred, and the Calaveras four thousand seven hundred feet above the level of the ocean. On the Sierras, *P. contorta* or twisted-pine, grows on the banks of streams, on wet and moist flats and in the higher portion of the mountains on moraines. Here it attains a height of one hundred and fifty to two hundred feet, and a thickness of three to four feet. Its outline is strictly cylindrical. Its wood is, owing to the frequent storms on the mountains, twisted and therefore hard to split. It is principally used for building log-houses and railway-ties. The vernacular name applied is Tamarack. The application undoubtedly arose from the resemblance in form and habitat this species presents with our eastern Larch (*Larix Americana*, Tamarack, *Haekmatack*), growing chiefly, if not exclusively, in swamps. The identity of the coast

and mountain form is not altogether safely established.

Receding from the coast towards the east, we meet on dry hillsides, a small tree, generally known as *P. tuberculata*. It attains a height of twenty to forty feet, and a thickness of ten to twenty inches. Its outline is conical. The leaves are in threes, and the cones persistent. In gardens it does well, and as an ornamental tree preferable to the Monterey Pine. I have not been able to learn its vernacular name. Being small and unsightly in its natural haunts, farmers never made any use of it, and therefore give it no vernacular name. It occurs on the coast mountains on the road to Santa Cruz, on the Oakland hills, on the mountains around Ukiah, on the Red Mountain, Humboldt county; also near Forest Hill, at Cape Horn (C. P. R. R.), and further up near Alta in the dry slopes of the cañon of the American river. In most cases this small tree forms a small grove by itself.

After the trees have attained a height of twenty to forty feet, they die and decay.

Continuing our march eastward, we next meet, although sparingly at first, our well-known Yellow Pine (*P. ponderosa*). This species attains a height of one hundred and fifty to two hundred and fifty feet. Its form is cylindrical in outline. The branches are short and generally deflexed. The leaves are in threes and cones deciduous, falling every winter to the ground, after they have opened (about the first of September,) their scales to allow the seeds to be spread by the winds. In gardens it cannot be called an object of great beauty. But on the higher mountains, where it develops its full colossal growth, it is certainly a grand object to behold, and I can well see, why Douglas called it *ponderosa*, the mighty. Generally speaking, its timber is rather inferior, being too coarsely grained, and therefore subject to early decay. It must be mentioned, however, that there is a considerable difference in the quality of the wood in different localities; yes even in trees standing side by side. The timber from Truckee, so-called Truckee Pine, belongs entirely to this

species. The species in question, is one of the most widely distributed trees of the western coast of North America. It grows on all higher and drier points of the coast ranges, and it descends even into their dry gravelly valleys, as is the case a little north of Ukiah, Mendocino county. It occurs on the Sierras from one thousand five hundred to nine thousand feet in great abundance. In fact it is the principal component of that mighty belt of timber, extending from south to north, along the western slope of the Sierras, between two thousand to seven thousand feet, a belt of timber whose equal cannot anywhere else be found. It extends from the Colorado north throughout the Rocky Mountains, and occurs also in the higher mountain ranges of the Great Basin. Its northern limit is unknown. This immense diffusion over so large a territory, exhibiting so many different expositions and climatic differences, must naturally cause a great variation in form and size of the tree and in the quality of its timber. Its very botanical history proves this assertion; for there are few trees that have more synonyms than the one in question. Besides the name above given, there are the following synonyms: *P. Engelmanni*, *P. brachyptera*, *P. Benthani*, *P. deflexa*, and *P. jeffreyi*. The cones of trees in a dense forest are usually small, while those of isolated trees, standing in alpine meadows or on bare rocky slopes of mountains, or on wide sandy plains (Mono Lake) are from four to six times larger. This larger size of the cone is perhaps due to the intense reaction of the atmosphere, caused by bare rocks, wet meadows and dry sand. Considering the quick radiation of heat in such localities towards evening and shortly after sunset, which cools the air and causes a heavy dew-fall, we may be able to understand this phenomenon.

Ascending the highest points of the Coast Ranges, we meet the well-known Sugar Pine, *P. Lambertiana*. But the Sugar Pine of the Coast Ranges is not that colossal structure of the higher or rather middle Sierras. Its beauty, size and length of cones are inferior. This tree yields an excellent timber, and attains a height of one hundred and fifty to two hundred feet,

the outline is cylindrical, the branches are short, dense and much divided into spray. A characteristic exception, make the top-most branches, which spread in a loose irregular manner, almost horizontally. These are the cone-bearing branches, which attract the attention of everybody by their clusters of pendent cones, fifteen to eighteen inches long. The cones open about September to emit their seeds, and fall then themselves during winter to the ground. This noble tree has its leaves in fives; they are comparatively short and of a glaucous green color. It ranges throughout the entire length of the Sierras, north to the Columbia river, between four thousand to ten thousand feet. I have not yet observed it in any of our gardens. The resinous matter exuding from burnt spots of the trunk, hardens into a whitish mass, sweet as sugar.

Descending into the more easterly valleys of the Coast ranges, we meet a very peculiar pine, the Digger Pine, (*P. Sabnana*.) This species attains the height of forty to sixty feet, and a thickness of two to three feet. Its outline is irregular, the trunk is generally low. Its branches are characterized by a few main leaders and by the paucity of their spray. The foliage is light and quite glaucous green. The leaves are in threes, and the cones persistent, although not to the extent of some other species. The seed is the largest of all our pines. The testa of its seed is very hard and bony. The species occurs in the driest portions of valleys and hillsides, even up to four thousand feet of the Sierras. It forms very seldom small groves. On account of its irregular form, it is not a desirable tree for gardens. Its wood is useless, except for fuel.

In similar localities, we find growing with the Digger-pine, although less frequently, another pine, *P. Coulterii*. This species attains the height of thirty to fifty feet, and a thickness of two to three feet. It has a broad oval outline. The branches and branchlets are thick and clumsy and few in number. The leaves are very long, bright-green and in threes. The cone is the largest produced by our pines. It occurs at pass Tejon, on the Santa Lucia mountains, and Mount Diablo. In our gardens it does well.

Editorial Portfolio.

It is but natural, that at the close of a year, we should pass briefly in review the actions and events of that year; and looking backward should draw such lessons from our successes or failures as shall guide us in the future. The year now about to retreat into the dim and misty past, has almost run its course, and is making its final entries in that record, which no regrets, or heart-longings can erase. To us in California, it has been a trying year; not that we have actually lost ground, but rather, that we have seemed to stand still, in what has been heretofore a somewhat rapid race. We have been so long isolated as it were, from the rest of the world, forming to a certain extent a community by ourselves, that we had almost arrived at the conclusion that we were independent of the balance of mankind. The first rude shock to this conceit, came with the completion of the Pacific Railroad, and we found we were no longer an outlying territory of the United States; but in reality an integral and essential part thereof. It was the demolition of what might be called our day-dreams, that has produced the present condition of things. Even now we are not fully awake, and we do not take kindly to the ways and usages of our eastern brethren. California must place herself more upon the same footing as her sister states, before she can advance further in prosperity and material wealth. There must be less desire for the sudden acquisition of riches, and more attention paid to those slow but sure steps that lead to success and fortune.

During the past year our agricultural interests have advanced in a most encouraging manner; still, there is room for more progress in that direction. Every day our people are turning more and more attention to the cultivation of the soil; thus not only increasing their own wealth, but also that of the State. We would say to every young man: "There is health and wealth in the broad valleys and rolling hills of California; only awaiting stout hearts, and ready hands, to yield their treasures to you." One of the great evils of the

present day is the tendency of our young men to flock to the cities; building up those at the expense of the country. This is all wrong; and if we could have a grand exodus from all of our large cities, of at least one-half of their inhabitants, we would be all the better for it. San Francisco has at least fifty thousand more inhabitants within her corporate limits than she ought. Just think of the general good to the State, if this same fifty thousand were distributed throughout her agricultural districts? Here they are consumers, there they would become producers.

Along the whole line of the foot-hills the mining interest seems to have new life infused into it, and the yield of gold and silver in the aggregate, is on the increase. This branch of industry will always stand second to agriculture, yet it is one we would do well in fostering.

Manufactures are not in so good a condition as they were at the opening of the year; but those in operation are doing well, and seem to be on a firmer basis. We cannot but think that the strikes, trades unions, etc., of the past two years, have had a damaging effect upon the manufacturing interests of our State. It is an ill advised action, for labor to strike against capital; for capital is, after all, but the accumulation of labor, and without it all labor ceases. Equally indiscreet is a combination of capital against labor; but, fortunately, such a condition of things is to a certain extent impossible. Capital, if unemployed, necessarily comes to loss. It is like a rich fertilizer; if idle, it wastes; while, without it, the land will scarce give bread to the tiller. But distribute it, mingle it with the soil, work it intimately and widely, and after yielding to the laborer ample return for his toil, and making glad the country around, what a rich harvest does it not add to the garner from whence it flowed! When labor and capital stand as antagonists; one saying, "I shan't;" and the other "You shall," they occupy false positions, that confer benefits on neither.

In entering upon the new year, we should endeavor to correct many evils under which

we labor; to turn more attention to the development of the State in its agricultural, mechanical and business pursuits; to draw into closer relations with all parts of our common country; to drop our somewhat provincial ways, and rise to the dignity of the title, which we have claimed and still maintain, that of the Empire State of the Pacific.

WOODWARD'S GARDENS.—An article with the above heading (taken from the *New-York Horticulturist*) appeared in our last number. Several errors in the spelling of botanical names occurred in the original copy, and by some oversight on our part, we have helped to spread these errors still further. We discovered them before the printing of the number was completed, but still too late for our remedial aid. We, however, sent a note to the printer, to be inserted as a last resort, and of course, under the old rule, "of troubles never come singly," our note "disappeared without appearing." We give here the correct "scientific orthography" which "Hortus" so much desires.

On page 9 instead of Chirimoya read *Chironia*; in place of Caladums read *Caladiums*, and replace or by *and*, so as to read Banana *and* the Sago Palm. On page 10 instead of *Acacia linearis*, read *Acacia linearis*; for *Callistema* read *Callistemon*; *Tobera* should be *Tobira*; *alwsoniana*, *lawsoniana*; *veroanica*, *veronica*; *lauruntine*, *laurustinus*, and *Metaluca decurrata*, *Melaleuca decussata*.

FOREST TREES.—The Illinois State Horticultural Society recommends the following forest trees as shelter from the action of violent winds: Black Walnut; Hickory; Butternut; Wild Cherry; Silver Maple; Basswood (Linden); Honey Locust; Larch; Oaks, (the red, white and bur); Elm; Ash; Chestnut; Lombardy Poplar; Cottonwood; White and Yellow Willows; Sugar Maple; Ash-leaf Maple; Red Mulberry; Catalpa and Silver Poplar. Out of this large number of forest trees we ought to be able to choose several well adapted to California.

"Hortus."—In reply to "*Hortus*" we would state that the faulty orthography he complains of, is only partly chargeable to us. The mistakes were discovered when it was too late to remedy them. We did the next best thing, and that was to send an explanatory note to the printer; unfortunately this note was, by some mistake, left out. It is our intention to make this journal as near perfect as possible, and we shall always be glad to have any of our readers point out mistakes, which they may find in our columns. "*Hortus*" will find in another part of this department, a correction of the mis-spelled names in the article on "*Woodward's Gardens*," published in our last number. What he says about the labels, in the Gardens, may be true, and no doubt when attention has been called to the fact, it will be remedied. In regard to the Barnumizing, we fail to see it. We would ask "*Hortus*," if he does not get his twenty-five cents worth, when he visits the Gardens? If the enterprise shown by Mr. Woodward savors of Barnum, all we have to say, is, we very much like the process of *Barnumizing*, and hope he will continue it. As for the Azalea, the writer of the article on its propagation claims success by his mode of treatment. The length of the cuttings is a matter somewhat immaterial. If "*Hortus*" cannot get them of that length, he will have to do with somewhat less: The main point is to take them off when the wood is half ripe.

LETTERS.—We have received a number of encouraging letters from different parts of the State, bearing words of glad import to our editorial ears. We return our thanks for these letters, and shall keep them always before our editorial eyes, as reminders of what is expected of us, and also as incentives to further exertions in the Horticultural and Agricultural cause. Surely if our eyes and ears are engaged in the work, our hearts must be also.

TANGERIN ORANGE.—The best soil for this small tree, is stiff loam, and well-rotted manure.

TALLOW TREE.—The "East" has always been a land of marvels to us outside barbarians, and therefore, we are at all times prepared to believe in any of its wonderful stories. The latest one, comes to us in the shape of a *Tallow Tree*. This tree is said to grow in China, where it forms vast forests, and gives rise to a considerable branch of local trade. The fruit of this tree produces seed that are covered with a white, solid, fatty substance which is converted into candles. The tallow, if we might call it such, is said to be of a very fine quality, burning with a clear white flame, without odor. Would it not be well for some of our horticulturists to introduce the tree into California, and set up opposition to the Gas Company? It seems to have just the qualities that their production lacks.

THE MECHANICS' INSTITUTE.—The Managers of this Institute have already commenced preparation for the Eighth Annual Industrial Fair, which is to be held in the Pavilion, commencing on the second Tuesday in August, 1871. A few weeks ago, a committee of three was appointed to prepare circulars for distribution in China, Japan and Australia. Judging by this early action, we should say that the next Exposition will excel any heretofore held in this city.

TO OAKLAND SUBSCRIBERS.—Mr. W. B. Hardy, west side of Broadway, below Seventh street, in Oakland, will take subscriptions for the CALIFORNIA HORTICULTURIST, and receipt for the same.

OMISSION.—In the report of the "Bay District Horticultural Society" in our last number, we omitted the name of Mr. Meyer, who occupies the position of Treasurer to the Society. We beg friend Meyer's pardon for this oversight, and give him this notice to make up for it.

The microscope reveals the fact that a speck of potato-rot the size of a pin head contains about two hundred ferocious little animals, biting and clawing each other savagely.

Correspondence.

All communications intended for this column must be addressed to the editor of "The California Horticulturist," 418 Kearny street, San Francisco. Correspondents are required to be brief and concise as possible, stating their questions in such a manner, as shall allow of their being answered with satisfaction to the editor, as well as to themselves.

DEAR SIR:—Will you assist me on a subject, which as an amateur florist gives me some trouble. Some of my pot plants look sickly; on pointing this out to my gardener, he replies that the soil is *sour*, and that they want repotting; but on asking him what he means by *sour*, he fails to explain, in fact he does not know! I have asked some others, still they do not explain; now as we have a horticultural society, holding regular meetings, will you refer this question to that august body, who must know, and who will doubtless give a scientific reply, and at the same time tell us how to avoid or remedy this evil.

Yours Sir, very respectfully,

AMATEUR.

Amateur's question has been referred to the Horticultural Society as he desires, for their consideration, and we shall give the result in our next number.

DEAR SIR:—Will you inform me if it is expedient to use Guano as a fertilizer in small gardens, if so in what manner, and in what quantities may it be applied?

Also is this the season for sowing *Mignonette*, and can it be transplanted?

Yours truly,

R. W.

Guano may be used as a fertilizer in small gardens though there are other forms of fertilizers much to be preferred, such as bone-dust, or well-rotted manure. Guano should only be used for this purpose in solution, say about one pound to twenty-five gallons of water. Warm water is the best as it dissolves the fertilizing ingredients more readily than cold.

The solution should be stirred often, and then allowed to stand for one or two days. Only the clear liquid should be used. The best season to plant Mignonette seed is in the spring, though here in San Francisco it may be planted at almost any time of the year, provided there is a sufficient number of warm days after the planting to insure the sprouting of the seed. The plants are easily transplanted when young; but it should be done on a cloudy day, or the plants should be covered for a day or two during the bright sunshine. A very good way to raise Mignonette is to plant the seeds in a pot or box covered with a pane of glass, and give it a warm position. The young plants will appear within ten to twelve days, when the glass may be taken off to harden the plants. When one month old they may be transplanted as above directed.

LARGE HOP YIELD FROM ONE YEAR CUTTINGS.—Mr. Ralph Hamlin, of Alameda county, informs us that he has raised from 2½ acres of hop cuttings, planted last February, 4,600 lbs. of hops of excellent quality. This is about equal to the yield of old vines. He says that he does not train his vines upon poles of any kind, but lets them trail upon the ground like melon vines. He thinks they do better on the ground than when climbing upon poles. His land is heavy alluvial. He cultivates until the vines occupy the ground, then lets them go until picking time.—*Scientific Press.*

WOOL.—The wool crop of Boutwell & Dunlap, of Placer county, is being now received. These gentleman have about 10,000 sheep, the progenitors of which were imported from Missouri in 1854. They are of mixed breed, principally French and Spanish Merino, with infusion of Saxony blood. The latter, it is said, gives finer and more valuable wool, although lighter fleece. The average clip from the flock above mentioned this year was seven and a half pounds. The location of the firm is near the junction of the Central Pacific and California and Oregon Railroad.—*Encinal.*

Editorial Gleanings.

MECHANICS' INSTITUTE FAIR.

THE PREMIUMS TO BE PAID FOR THE BEST ESSAYS ON
TIMBER, STONE, WOOD, ETC., AT THE EIGHTH IN-
DUSTRIAL FAIR.

At a meeting of the Managers of the Mechanics' Institute, held on Tuesday evening, the following premiums were determined on, to be paid to the successful competitors:

Best General Report on the Manufacturing Interest in California, its present condition and future prospects.—Statistics of Manufactures, showing their Establishment, Progress and present status, Imports, Exports and Consumption.—Causes operating against and for it. \$400.

Best Report on the Currents and Tides in the Bay of San Francisco—the effect of building piers—jetties and obstructions therein—the requirements of the harbor and the needs of shipping, and matters of interest in connection therewith, and the water frontage of San Francisco, \$250.

Best Report on the Timber of the Pacific Coast, its adaptability to the industries—embracing its application to ship-building, house-building and general construction, with specifications of location, distinctive features, durability, transverse strength, value in San Francisco, etc., \$250.

Best Collection of Woods of the Pacific Coast, not less than four samples of each wood—two of these samples to be 12 inches long and two inches square, and two to be 12 inches long, six inches wide and one inch thick—each specimen to be faced on one side, properly classed and labelled with species, transverse strength, specific gravity, green and seasoned, location, dimensions of tree the specimen is from, soil, exposure, special characteristics, etc., \$250. Second ditto, \$100.

Above specimens to be the property of the Institute.

Best Collection of all kinds of Stone of the Pacific Coast, with Report on location, accessibility, available for building purposes, pavements, slating flags or ornamental work; limes, cements, etc., \$250.

Specimens to be the property of the Institute.

Best Street Pavement, adapted for heavy traffic and the climate of San Francisco, accompanied by statement of cost, method of construction, actual tests made, durability, etc., \$150.

Best Report on System of Drainage, adapted to the City of San Francisco, its sanitary requirements and its future wants, \$200.

Best system for economical transportation of ores, minerals and goods over mountainous places and difficult roads, and its application more particularly to conveying the products of the mines to the mill, \$100.

Best system of reclaiming overflowed and tide lands, \$100.

For the best Essay and Report on the various modes of treating ores of gold and silver, here and elsewhere, showing the best *practical* results (*i. e.*, the largest percentage of precious metals at the lowest cost), where and how obtained, with a view to pointing out the advantages and defects in the system adopted on this Coast in the management of the mines, above and under ground, \$250.

[NOTE.—In the above Report it is not the object to advance any new theory, but to confine it to practical processes, modes and results, now in existence. It is also desirable that the methods adopted in the reduction of low-grade rock in Australia be presented.]

For the best method of Clearing and Cultivating Tule Lands, \$100.

Best Report on economical process of Preserving Timber and Wood from decay, with samples, \$100.

Best and most successful attempt to raise Ramie Plants, with statement of cultivation, method, etc., \$100.

Best and most successful attempt to raise Beet Root for Sugar, with statement of method of cultivation, and other data in connection therewith, \$100.

Same of Tea, \$100.

Same of Cotton, \$100,

Same of Tobacco, \$100

Same of Rice, \$100.

Best design for a Cocoonery adapted to climate of California, \$50.

Best collection and largest variety of Metals of Pacific Coast, \$100.

Best design for iron frame for roof, \$100.

The above premiums are to be paid either in cash or plate (engraved) of equal value, at the discretion of the successful competitors. The Board of Managers reserve the right to reject any Report, Essay or Exhibit which may be deemed by the judges to be unworthy.

All communications, papers, reports or essays for premiums, shall be considered the property of the Institute, and may be published by them in any way and time they may deem proper; and any papers which have been read in any public manner whatsoever, or published in any form, shall not be admitted to competition.

The list of premiums is only that which it will require time and attention to prepare, and is not the entire number which will be awarded. Over four hundred premiums are yet to be determined on.—*Call, Nov. 24.*

[In offering the above premiums the Mechanics' Institute has taken a right step in the direction of aiding the development so necessary to our prosperity as a State. We should like to see an addition made to the list, in the shape of a premium for the best essay on a Scientific System of Irrigation in California. This is an important matter, and one they should by no means overlook.]—EDITOR.

THE "TROPHY" TOMATO.—MR. C. H. WHITNEY has raised about a bushel of this uncommon variety of tomato, this season, on his place near this city. Its chief difference from the ordinary tomato consists in its size, which is simply prodigious. Its flavor is said to be excellent and it is extremely prolific. Twenty seed, which were obtained from New York, cost \$5, or 25 cents a piece. Out of the twenty planted singly but two seeds sprouted.—*Vancouver Register.*

TO PICKLE NASTURTIUMS.—Gather the nasturtium berries soon after the blossoms are gone off, put them in cold salt and water; change the water once a day for three days. Make some pickle of white wine vinegar, mace, nutmeg, pepper-corns, salt, shalots, and horse-radish. It requires to be made strong, as it is not to be boiled. When the berries are well drained put them into a jar and pour the pickle over them.

T H E

CALIFORNIA HORTICULTURIST

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No. 3.

FLOWERING BULBS.

The present is the time of year when seedsmen and florists advertise their stock of flowering bulbs—we believe but few of our readers have any idea how extensive a trade is carried on in the East and in Europe, in bulbs of every description. It is a notable fact, that in former years better and more extensive collections of flowering bulbs, were offered for sale in our California markets, than have been within these last two years. In explanation of this, our importers of bulbs assert that they actually lost money on their importations, so limited were the sales they made. If this is a test, to what a low ebb must the Californian taste for flowers have fallen; notwithstanding the admiration lavished whenever our florists exhibit a well developed Hyacinth or Lily, in their show windows.

A year since, Mr. Schuman, of Woodward's Gardens, exhibited some splendid specimens of Hyacinths, grown to perfection in his greenhouse, they presented a beautiful appearance and visitors admired them more than any other plants in his valuable collection; at our late Horticultural fair some beautiful specimens of the *Lilium Auratum* were exhibited by Wm. Meyer & Co. and others, and were admired by everybody. When Mr. Reimer succeeded last spring in bringing the Lily of the Valley into full bloom, amateurs were agreeably surprised at their exquisite beauty and fragrance. Whoever had

the opportunity of seeing the Bouquet, or Liputian Dahlias which Mr. Herring of Oakland imported and brought into bloom, during the last summer expressed a determination to cultivate them. When the tables of our floral establishments were loaded down with the flowers of the *Amaryllis*, they were considered by all who saw them most beautiful. The *Gladiolus* exhibited at our late fair, produced quite a sensation among the visitors. Even when the Chinamen pass through the streets with the *Narcissus* in full flower, supported by a dish full of gravel, they are eagerly purchased by admirers as worthy specimens for parlor windows. Yet despite of all this admiration, when the proper season arrives when all these bulbs should be planted, and when they can be procured at every seed store, *nobody wants them!* How is this to be accounted for? If bulbous roots were difficult to manage so as to bring them to perfection, or if the prices asked for them were extravagant, there might be some excuse, but it is an indisputable fact that no class of plants are more easily cultivated, or require less care; there is less trouble with them than with any other class of flowers, and with very few exceptions, the treatment of bulbs is very plain and simple indeed. What then can be the reasons why they are not sought for, and cultivated as ornaments to our gardens and parlor windows, at a season when scarcely anything else is in flower. We believe it to be thoughtlessness

and neglect on the part of those who most admire them when in bloom—but fail to acquire them at the proper season—and want of taste in those who see them when in bloom, but fail to admire them—and let us here add we think it want of taste, ignorance, and carelessness in those gardeners, and florists, who, professing to know more than they really do, fail to impress on their own particular patrons, who rely on their advice, and on the flower-loving public generally, the peculiar beauty and exquisite loveliness of flowering bulbs.

To facilitate the cultivation of this estimable class of plants, so well adapted for outdoor and indoor, for pot, and open ground cultivation, we will give our readers from time to time a description, with the mode of treatment, of the more popular varieties of flowering bulbs, hoping thereby to induce an increased demand, and thus afford some encouragement to the importer, and more especially to the cultivator for sale—who, like Mr. Nolan of Oakland, has paid special attention to bulbs during the last ten years, but has not realized 10 per cent of the original cost of purchasing and importing them.

We have mentioned, contrary to our adopted policy, several firms who cultivate bulbs, in order to establish the fact that they have been offered for sale, and must also suggest that unless the public exhibit more taste in improving their flower beds and parlor windows during the different seasons, the dealers will certainly cease to import or cultivate bulbs, but will supply us with an increased quantity of pines, and cypress, or daisies and hollyhocks.

One of the most popular and well-known classes of bulbous roots is that of the

HYACINTHS.

They are cultivated to a greater extent here than any other flowering bulbs. The majority of those supplied by the dealers, are imported annually from Holland, where they have been more extensively cultivated than anywhere else since the 16th century. The Hyacinth can be grown with success in almost any soil, except in heavy clay; even our sand

is adapted to its cultivation if mixed with old rotten cow manure. Hyacinths are perfectly hardy, and do not require any protection in any part of California. They can be cultivated in the open ground, in pots, under glass, or in hyacinth glasses, made for that purpose, and filled with water.

If grown in the open ground, they may be planted in California at almost any time from November until April. The ground should be well worked and manured, but special care must be taken not to permit the bulbs to come into contact with the manure, which may cause them to rot—they should be planted in a warm situation and nothing further needs to be done, except to keep the ground free from weeds. They will produce their flowers early in spring. When the leaves have turned yellow, the roots should be taken up again and allowed to dry, after which they may be cleaned and stored away in a dry cool place, until the time for planting has again arrived. Hyacinths will produce much better flowers under such treatment, than if permitted to remain in the ground for years.

Hyacinths are also well adapted for pot-culture. For this purpose, care should be taken to select large round bulbs, they can be easily forced, either in the house or under glass, and it is advisable by progressive planting, to have successive sets coming into bloom as the earlier ones cease flowering. In a moderately warm room the Hyacinths will develop their flowers in from three to four weeks. If flower pots deeper than usual can be obtained, they are much to be preferred.

The soil for pot-culture should be $\frac{1}{2}$ of old rotten cow manure, $\frac{1}{4}$ of strong sand, and $\frac{1}{4}$ good light garden loam. The bulbs should be planted so as to show their necks above the soil; after planting they should be well watered, and placed in a cool dark room for 10 or 12 days, to permit them to put forth their roots. This will enable them after being transferred into a warm light room, to send up more vigorous stems and trusses of buds, and flowers, than can be obtained by permitting roots and leaves to develop themselves simul-

taneously. Hyacinths have been forced into bloom in 16 days—but under ordinary treatment they will require about 30 days.

The setting of Hyacinth bulbs in glasses filled with water, is going out of practice in Europe, for the simple reason that they cannot be forced so well in this way; another objection is the necessity for changing the water at least every other day, at the same time observing that the fresh water should be of about the same temperature, as that in which the plant has been growing. Single Hyacinths are better adapted for glasses than double ones. After flowering, the bulbs should be treated in the same manner as directed for open ground culture.

Hyacinths are both single and double, and for our part we admire one as much as the other, the varieties are too numerous to particularize. The leading colors are blue of all possible shades, white, yellow, and red of divers tints. The difference between single and double Hyacinths is sometimes hardly perceptible. The finest varieties are all named, and although we may pay a little higher price for them, we know exactly what we purchase.

This beautiful class of flowering bulbs deserves a place in every collection of plants for the garden, the green-house, or the parlor-window. If kept in a shady place after the flowers have developed themselves, they will continue in bloom for a long time and will well repay for the little labor bestowed in their cultivation, and for the small expense in procuring them.

If cultivated in the open ground, a sunny place should be allotted them, either by themselves or mixed with other flowering bulbs, where after their flowering season, their places may be filled by annuals, or other bedding plants as Lobelia, Nemophila, Pansies, Asters, Balsams, Flox Drummondii, Zinnia, Cineraria, etc., so as to keep up the floral display.

Our climate is favorable to the cultivation of the Hyacinth, and we hope that it will become a favorite both with our gardeners and amateurs, not only here in San Francisco and its vicinity, but everywhere throughout the

Pacific coast; there is no place in California where the Hyacinth will not grow to perfection.

THE TULIP—(*Tulipa*).

Next to the Hyacinth the Tulip is the most popular of flowering bulbs, but although its cultivation is fully as easy as that of the former, the success has not been so encouraging, especially with us in California. Many have complained to us that they have met with disappointment in growing the Tulip—we will endeavor to point out the proper mode of treatment, but fear that its cultivation here will be attended with difficulties not easily overcome.

Two years since a gentleman residing in this city, imported a parcel of Holland bulbs consisting chiefly of Hyacinths, Tulips, and Anemones. He prepared a bed for them in a sunny exposure, and added sufficient of old cow-manure—to make it half manure, half soil. In this bed so prepared, he caused the Hyacinths and Tulips to be planted; we called his attention to the fact that Tulips do not require so much manure, and we expressed fear for his ultimate success. We have never seen a finer lot of Hyacinths in bloom in California than his, but the Tulips were a complete failure. This example, vindicating as it does, an old established rule, that “the Tulip will not thrive well in heavily manured soil, and even if it does the flowers will exhibit much inferiority in the various shades of color,” should go far towards settling this point. Another mistake is often practiced here, that of planting Tulips too near the surface when they should be planted from five to six inches deep; and still another objection to the mode of treatment they usually receive in spring-planting, when they should be set in the fall of the year.

The rules for the cultivation of Tulips are: After procuring healthy bulbs, plant them without delay in deep loose soil, neither too sandy nor too clayey, selecting a sunny exposure, more so if possible than for the Hyacinth; they can do with less moisture, too much of which promotes decay. If under this treatment the Tulip will not thrive, we are certain that either the soil or the climate of Califor-

nia is uncongenial with this bulb. As for our own experience we have grown splendid Tulips in the northern part of the State, where the winters are colder, and the summers warmer, and the conclusion is forced on us that the climate of San Francisco is not well adapted to the cultivation of Tulips. However we are under the impression that with the above treatment, and the influence of all the sunshine at our disposal, the Tulip can be brought into bloom.

The varieties of Tulips are many, and they are divided into several classes in relation to their time of flowering; they generally come into bloom later than the Hyacinths, and are divided into early, medium, and late-flowering. Tulips are also single and double. The single Tulips are preferred, being handsomer in shape, and much finer in color. The flowering season of the different classes of Tulips continues for about eight weeks, after which the leaves begin to decay, when we subject them to the same mode of treatment which the Hyacinth bulbs receive. Although Tulips can be grown in pots, and forced as the Hyacinths, we prefer to cultivate them in the open ground if possible; but if pot-culture is resorted to, the early varieties are more generally used for that purpose.

In regard to varieties in character, we have *Bizzare Tulips*, single and having a yellow and brown ground splashed with crimson or purple. The *Bybloom (Bybloomen) Tulips*, single and white or yellow ground, with black, lilac, or purple shades chiefly; and the *Rose Tulips*, variegated with pink, crimson, or scarlet. There are other classifications, but we omit them as impracticable for our purposes.

The Hyacinth has been proclaimed the Queen of spring flowers; we feel fully justified in designating the Tulip the King of early-flowers. Only those who have seen them in all their glory can fully appreciate their value.

Tulips can be purchased in our seed stores and floral establishments at prices much less than those of Hyacinths, and a few dollars will procure a very fair assortment to commence with. The Tulip does not generally arrive

here in as good condition as the Hyacinths, and it requires a little more attention in selecting sound bulbs. If once attacked by the dry rot they cannot be easily cured.

We desire very much to be able to record instances where parties in California have met with success in this cultivation, that we may encourage those who have sustained repeated disappointments. Any communications in this relation will therefore be highly esteemed.

GLIMPSES INTO THE WORLD OF PLANTS.

TRANSLATED FROM THE GERMAN.

Long ere the appearance of what we designate animal life, plants inhabited and dominated this world. The roar and dashing of the waves of the mighty ocean, the hurtling of the trees clashed wildly together by terrific storms, already resounded, but were as yet unheard by mankind. Titanic tempests were raging and by hurling forests upon forests, wrought unheeded those immense coal deposits for the approaching human race.

Already then the world of plants, for countless thousands of years were in two-fold action, busily subserving the requirements of the future Lord of Creation. Living, they purified the air of the superabundant carbon so pernicious to animal life; dying, they formed that vast and unappreciable treasure, by whose instrumentality we arrived at the assured domination over the world.

The destination of some of these plants, however, was already to a higher and nobler being, even to develop themselves into animal life and to sustain it. We instance the Zoophyte; the so-called animal plant, which, existing on the dim verge of both eras, belongs to both. The Crinoidea, again, which, in her incipient state, takes root as a lily on the bottom of the ocean, but as soon as her destined time arrives, tears herself from the mother seat, and swims away endowed with volition and animal character.

Thus were formed thousands of bridges, over which the animated world, starting from

the world of stone, and passing through another metamorphosis, to the animal world, which we at present—mayhap incorrectly—designate the final act of creation. The plant incident to its transformation inherits from the stone its stability, its fixedness, yet exhibits at the same time as precursor of the animal, such marvellous qualities, that the observer regards them with astonishment, mingled with awe; he stands before these enigmas of nature, as before a revealed wonder, a noble mystery;—he comprehends why the polytheist attributed animal life and passions to the tree, and sensation to the plant which he personified as hamadryad;—where the deep thinking Greek saw a nymphean tree, there science of to-day recognizes only the living plant.

But how far are we even now at our present time from a just appreciation of this most interesting of studies. Who can contemplate all the changes through which the cobble stone, on which he steps, has passed!—an ancient witness of the days, when mighty glaciers covered all; through those dim and misty ages, when by the terrific agency of deluges and uprisings of oceans, long since disappeared, they received amid the mighty turmoil their rounded forms, ere they submitted quietly to be used for the purposes of to-day.

Do we give a thought to the marvellous processes in operation behind the bark of a tree, when we idly use it for cutting into it a heart, and two letters. When thoughtlessly we pluck a violet to enjoy its perfume, do we remember that we stand in the presence of the spring of love, of incomprehensible plant natures. Even in the great book of nature, which appears to us filled with northern lights, meteors and flaming worlds, the quiet little plant is not one of her most uninteresting leaves.

Novalis called plants and animals the dreams of nature—and the production of mankind her awakening. This is expressed more beautifully than truly. Dreams are remembrances and mixed up metamorphoses;—the plants as forerunners of animal life have nothing confused, everything is positive and full of har-

mony. The plant breathes, eats, drinks, and sleeps; it loves, and suffers, it sometimes travels, it flies, borne by the storm, with the birds of passage to a southern clime during the cold season, to return to us in the spring. There are plants, who have an uncontrollable desire for liberty, and which dig for themselves passages beneath the walls, to obtain their freedom. The plant breathes—it inhales the deadly carbonic acid gas, so fatal to animal life, and gives us in return the oxygen, just the reverse of men and animals. Plants are therefore a most necessary element in the household of nature, as they regulate the balance between the different parts of our atmosphere.

The population of this earth—estimated at twelve hundred millions—uses every year 160,000 millions of cubic meters of oxygen, and exhales just as much carbonic acid gas, which is quickly absorbed by the plants. This proves, that the planting of a single tree is a benefit; and why life in the country is more healthy, than in cities. The culture of forests is therefore not only a gain to the lumber dealers, but is an advantage to the whole country.

Plants subsist on water, carbon, ammonia, phosphorus, and sulphur. The organs which conduct the nourishment have therefore partly to go into the ground, and partly to be in the open air. For these reasons the plant makes roots and branches, on the latter grow the leaves, which are the lungs of the plants. The sleep of most plants is at the same time with the animal kingdom, that is during the night; although there are animals and also plants, which sleep during the day. In cities which are lit up with gas, the trees next to the lamps die off for want of sleep. Some of them resemble our aristocracy, who turn the night into day; they awake about noon or even sleep on, should the weather be bad, or rain threatening.

It would not be at all difficult for our lady friend readers to arrange in their gardens a flower clock, not perhaps to miss their dinner at the right time like poor Linné, who had

no watch; but to study the plants and be able to regulate their watches to within a few minutes of the correct time. What pleasure would it not be to discover something new in this line? To do this, we propose a kind of alley. Twenty-four stands made of marble or wood, according to the wealth of our readers, representing the hours, and on each of these the flowers carefully arranged according to their habit of going to sleep and waking up. Between each of the above stands, we might have twelve smaller ones, also to receive flowers, to represent each intervening period of five minutes.

We give here the names of a few plants easy to be procured: At one o'clock after midnight, therefore in the morning, the Goosethistle wakes up; between

2-3 o'clock:	the Milkroot, (<i>Tragopogon</i>).
3-4	" A. M. " Anemone.
4-5	" " Lionstooth, (<i>Lenotis</i>).
5-6	" " Sea-lily, (<i>Scilla</i>).
6-7	" " Water-lily (<i>Nymphaea</i>).
7-8	" " Venus looking-glass.
8-9	" " Field Azalea.
9-10	" " American Malva.
10-11	" " Snakeroot.
12	" noon " Lychnis viscaria wakes up, the Rabbitkehl falls asleep.
12-1	" P. M. " Portulacca closes itself.
1-2	" " Malva, Lachnis goes to sleep.
2-3	" " Myosotis, (Forget-me-not), and Lungweed, (<i>Pulmonaria</i>) falls asleep.
3-5	" " Field Azalea goes to sleep.
5-6	" " Sea-lily goes to sleep.
7	" " Hesperis wakes up.
8	" " <i>Cereus grandiflorus</i> wakes

up, but its time of blooming is not only sedom, but it lasts but a few hours; it soon fades, having filled the air with a powerful perfume, somewhat resembling vanilla. At nine o'clock the night-flower (*Nyctanthes*) wakes up, and at ten o'clock the *Convolvulus Rubra*.

How many gaps are here still to be filled?—How imperfect is still our knowledge of the sleep of plants.—How much have we still to observe, and to study, how much dependent on bright or dark days, on pleasant or cold weather.—What influence have natural phenomena, northern lights, storms, and the eclipses of the sun. Why should ladies not be able to

make discoveries in botany? The plant has the sense of feeling and tasting, for how carefully it selects the most proper nourishments. She has weapons for defence, but not to attack, and though she may rob our sheep of many a small tuft of wool, she does not do it for a selfish purpose, but for the benefit of her darling singing birds, for their nests. In this, she is like Saint Crispinus, who stole leather, to make shoes for the poor.

There are, however, also plants, which permit no fooling; dangerous, unapproachable natures. The nettles shoot small poisoned arrows into the hand which dares to come too near. Who of us, did they not make cry in our childhood? Who has not read of the bohun Upas, the poison tree? Who at least did not see the "awful" pretty Manzanilla in the 5th act of *L'Africaine*? Who does not know, that there are poisonous mushrooms, and the deadly nightshade? But there are few, who know, that we have in our gardens and all around in the country the very dangerous *Rhus toxicodendron*, (poisonous sumach,) and that it would be just as foolhardy to break off a twig, as to feel the tooth of a rattlesnake.

The following has come under our observation: In the year 1832, Mr. Fallermaier, the head gardener of the botanical gardens in St. Petersburg, cut a branch off the *Rhus toxicodendron*; the sharp end snapped against his hand, and broke the skin but a very little. After two hours his arm swelled up enormously, red lines on bluish ground denoted an inflammation of the lymphatics; the whole left side of his body then commenced to swell, and a general poisoning of the blood, with delirium, as in typhus. Although the patient got well again, it was only after weeks of careful nursing and the particular attention of the most eminent physicians, and even months afterwards his face showed that yellow tint, and that unhealthy bloatedness, which we observe in the highest degrees of the scorbutic and the yellow fever.

Notwithstanding our great love for plants, we cannot but allow, that there are many reprobrates among them, like the water-plague (*wasser-pest*) and the disagreeable wild mustard, the severe affliction of the farmer; but still the virtues predominate by far. R. W.

[TO BE CONTINUED.]

HEDGES.

It is somewhat difficult to comprehend, why on the Pacific Coast so little attention is paid to the planting of hedges, when their importance as an ornament, and their usefulness, can not be over-estimated. We wish to call renewed attention to this matter, and in so doing will speak first of *hedges for ornament*, such as may be planted in and around ornamental grounds.

Some expense and care are necessary in raising hedges of this description, but these are amply repaid by their additional embellishment of our gardens. The following varieties of shrubs make good ornamental hedges. *Laurestinus*, *Euonymus*, *Privet*, *Polygala*, *Cratægus*, *Veronica*, etc. In California the three first named have been used more extensively on account of their cheapness, while the others, not being raised so extensively, command a much higher price.

The *Laurestinus* makes a very good hedge for any locality in this country. It is perfectly hardy, grows rapidly, uniform and dense; it may be clipped into any shape and at any time. The foliage is of a dark green color, and the flowers are white; it blossoms with us during the entire year, and is therefore very desirable. Plants one foot in height or even less, may be planted one foot apart, and in ordinary soil a well framed hedge may be raised in two years.

The *Euonymus*, (of which there are several varieties distinguished by the color of the foliage) is also well adapted for ornamental hedges on account of its elegant foliage. It bears close pruning and is of fast and uniform growth. Many *Euonymus* hedges in San Francisco, as well as in other places, have ceased to be ornamental on account of their becoming bare near the ground. This however, is attributable to mismanagement. The *Euonymus* requires a strong soil to make it thrive well; and to cause it to grow as dense near the ground as at the top, we strongly recommend clipping the sides of hedges so as to slope upward, thus exposing every part to the air and light. It is an error to cut hedges in a square form, particularly

the *Euonymus* hedge, as the lower stems will soon become deficient in foliage and covered with insects. If cut with sloping sides pointed on top we venture to assert that the *Euonymus* will give every satisfaction as a hedge plant. Our nurserymen have neglected to raise the *Euonymus* extensively during the last two years, the sale having become very limited. This is attributable to the fact that hedges and specimens of this plant set out three or four years since have failed to retain their good appearance, this failure can be easily remedied by not allowing the specimen plants to become top-heavy and by keeping the hedges sloped instead of square. We are much in favor of *Euonymus* hedges if properly treated.

The *Privet* is also a favorite hedge plant in the East and in Europe, but here it has not been extensively cultivated. We have now so many beautiful varieties of shrubs well adapted for hedges, that we cannot advocate the planting of the *Privet* to any great extent. It does very well when nothing better is at hand, but here we can do better with other varieties.

The *Polygala* is a fine flowering shrub, and certainly makes a beautiful hedge; the only objection is the high price which it still commands. It is not so easily raised as the preceding varieties, and therefore the stock is very readily sold at a good price; however, we predict that the *Polygala* will always be in favor with our people, and as a flowering ornamental hedge-plant it has no superior. The *Polygala* is a hardy evergreen which flowers throughout the year; it grows very rapidly, and can be pruned at any time; the color of the foliage is a light green, and the flowers are purple.

The *Cratægus* is used very extensively for hedges in Europe and is well adapted for the purpose. We do not know any hedges of this kind here—in fact the number of plants cultivated here is very limited.

The *Veronica* makes a handsome hedge-plant. We admire its spikes of blue flowers with its dark green leaves. The variegated leaved *Veronica* is also well adapted for hedges, and would be an embellishment to any ornamental

grounds. The Veronica, however, would most usefully serve as a screen or shelter if allowed to develop itself with but little check. We noticed some time since, a very strong hedge of this shrub from twelve to fifteen feet in height, answering every purpose as a screen, at the nursery of Mr. Patterson, on the San Bruno road.

Besides the shrubs above particularized, other plants may be used with advantage in hedges, although they may not be hedge-plants. Roses of certain varieties form an elegant hedge, but require a wooden frame for support. If an ornamental hedge of about two feet in height is desired, we can recommend the *Diosma Alba*. This beautiful shrub, with its graceful foliage and fragrant little white flowers, will form a most exquisite low ornamental hedge.

Ornamental hedges should be used only where they answer certain purposes, for instance between the flower garden and the drive, to divide the ornamental grounds from the kitchen garden, to border the main walk from the entrance gate to the front of the house, in fact whenever a boundary or division line may be properly established, or where protection of some kind may be required.

An altogether different purpose is sought in establishing farm-hedges, or hedges which are intended to form a line of protection from cattle or from strong winds. Different classes of plants are used for these purposes; the Osage-Orange, Irish Whin, (*Ulex europæus*) Honey Locust, Hemlock etc.

The Osage-Orange has been for some time the most esteemed hedge-plant for this purpose both here and in the East. It is exceedingly well adapted for this use, and is highly ornamental. We do not know what success those met with who planted the seed in the hedge-rows; doubtless only a small portion of the seed came up; but where the seeds were sown in nursery-rows, and the young plants were transplanted in the fall of the year, our farmers had but very little trouble to achieve success. The young plants should be set out at from eight to twelve inches apart, and the tops should be cut back. If the plants are of differ-

ent sizes, it is advisable to assort them and to plant those similar in size together. After planting we advise a good top-dressing of manure or straw to keep the ground moist. As the plants grow up the tops should be pinched off from time to time to establish an even growth and to force out lateral branches. However, to secure a very dense hedge, it may be as well to let the plants have their own way the first year and then to cut them down to the ground. This treatment will start out a number of shoots from the ground the second year and give the hedge naturally a pyramidal form. Following up this treatment, the hedge may be cut back to two and a half feet at the commencement of the third season, and so on until a compact and strong hedge is raised which will serve every purpose.

The Whin (*Ulex europæus*) is very extensively used for hedges in England, and is of rapid growth. A very good hedge, (or rather screen) at Mr. Hudson's place at Bay View, shows how well the Whin is adapted for this country. Mr. Hudson's screen was planted only a few years since, and is now impenetrable both to man and beast. The Whin is an evergreen, bearing a yellow flower, and will grow in almost any soil. It is easily raised from seed, which may be sown in the hedge-rows, or it may be sown in nursery-rows and afterwards be transplanted. We consider it fully equal if not superior to the Osage-Orange as a screen.

The Honey-Locust also forms a strong hedge, but it has not been, to our knowledge, introduced into California yet. Not being an evergreen, it will be less ornamental than the Osage-Orange or the Whin.

The Hemlock is an evergreen which certainly does not figure as a hedge-plant. It is used for that purpose to a great extent around Philadelphia and other Eastern cities. The "Gardener's Monthly" says: "Some think as the Hemlock is a large forest timber tree, it cannot be kept down as a hedge-plant, but summer-pruning will keep the strongest tree in a dwarf condition for a great number of years; the pruning has to be done just after

the young growth pushes out. It is very important that the hedge should be cut with sloping sides so that every part of the surface shall have the full benefit of the light. No hedge with the upright sides or square top will keep thick at the bottom long."

It will be a long time before Hemlock hedges will be cultivated in California, as the plants command too high a price; but if the above argument holds good in regard to the Hemlock, we see no reason why we should not make hedges of Cypress and Acacias, which are more plentiful here, are well adapted to our climate, and perhaps superior as an ornament.

Lumber is high in California, and the labor of putting up fences amounts to more than the setting out of small trees and shrubs. Wooden fences will not last many years, and must be often repaired. Why should our farmers neglect the more extensive introduction of hedges. A few dollars' worth of seed will raise a great many plants, and we are convinced that hedges will be far cheaper in the end than wooden fences; they will form better protection, and are certainly more ornamental

A HINT TO CALIFORNIA.—In August, 1869, a company of five gentlemen at Salisbury, Md., bought a wholly unproductive bog, irrigated it with water from the river, and cut it up by intersecting ditches into squares of 150 feet each. The turf was then broken and turned; this was covered by six inches of sand, and then the vines were planted. About two acres were planted last season. Six more acres have been prepared this season, making now about eight acres. The swamp is now bearing enormous crops of cranberries, and one of the owners recently sold for \$1,000 a share which has cost him in all less than \$700.

TO MAKE NEW ROPE PLIABLE.—Considerable difficulty is sometimes experienced in handling new rope on account of its stiffness. This is especially the case when it is wanted for halter and cattle ties. Every farmer is aware how inconvenient a new stiff rope halter is to put on and tie up a horse with. And new ropes for tying cattle are frequently unsafe, for the reason that they are not pliable enough to knot securely. All this can be remedied and new rope made as limber and soft at once as after a year's constant use, by simply boiling it for two hours in water. Then hang it up in a warm room and let it dry out thoroughly. It retains its stiffness until dry, when it becomes perfectly pliable.

BONE FERTILIZERS.

Bones are almost completely insoluble in water—practically so. When very finely divided, as in fine bone dust, a small amount is dissolved by the water of the soil containing carbonic acid, but the quantity is small, and the time taken to do it is great. For the useful effects of bones, therefore, the farmer must dissolve them, and sulphuric acid is alone the most powerful and economical means for that end. It depends on the different form of bone which the farmer operates on as to how much acid will be required. The sulphuric acid used should be of considerable strength, and the farmer should ask for it of the specific gravity of 1.70 or marking 140° Twaddell. When the acid reaches the bones, the mass effervesces, boils up, and becomes warra, the sulphuric acid taking away two-thirds of the lime of the bone from the phosphoric acid, which remains united with the other third, forming a superphosphate, biphosphate or mono-calcic phosphate, which substance is perfectly soluble in water, and is called soluble phosphate. The sulphuric acid uniting with the lime forms a sulphate of lime, (gypsum, or plaster). So that in every heap in which a superphosphate has been made there is always an amount of sulphate of lime (plaster) formed, and the plaster forms the greater portion of the whole mass.

The bones which are used for making superphosphates by manufacturers, or which may be had by farmers, are found in the following conditions; 1. Bone dust or ground bone. 2. Boiled or steamed bones. 3. Bone ash of sugar refineries.

1. *Bone dust.*—Before the bones are crushed they are now generally boiled for the sake of the fat, which is sold to the soap boiler. It is of no value as a manurial agent, but is rather deleterious, coating the bone and protecting it from the action of the acid, and it would be advisable for the farmer when possible to boil the bones.

2. *Boiled or steamed bones.*—Bones are steamed for the purpose of removing gelatine or animal

matter of the bone for the purpose of converting it into glue. The effect of steaming on bone is therefore to deprive it of some of its organic matter, but it must not be supposed that the whole of the organic matter is removed; a considerable quantity remains, and some ammonia can always be found in such bones when decomposing. A reference to the analysis shows that not more than five or six per cent. of organic matter has been extracted from the bone.

3. *Bone ash.*—If bones are burned in contact with the air, the greater part of the carbon is driven off with the other combustible parts of the bone. To avoid this result, which would render the ash worthless for the use of the sugar refiner, the bones are charred in heated iron cylinders, out of contact with the air, by which only a portion of the animal matter is burned off. A large amount of finely-divided charcoal remains, mixed with the bone earth, giving the valuable properties to the bone ash. It has become a great deodorizer and antiseptic, and capable of condensing gases with its pores, by which means it retains both the ammonia and nitrogen of the soil and the manure. The black color of the bone ash is due to this charcoal.

	(Voelcker.)		(Anderson.)
	Bone dust.	Steamed bone.	Bone ash.
Moisture	12.06	8.06	6.10
Organic matter*	31.12	25.45	5.05
Phosphates of lime and magnesia, (bone earth).....	49.54	60.48	79.20
Carbonate of lime.....	4.99	3.25	4.05
Magnesia and alkaline salts, (chiefly common salt,	1.91	.43	.15
Sand38	2.33	5.45
Total.....	100.00	100.00	100.00
* Containing nitrogen.....	3.69	1.34
Equal to ammonia.....	4.49	2.24

One hundred pounds of bones, ground, crushed, or dust, (not burned), require forty pounds of sulphuric acid, (vitriol). This quantity, if acting solely on the bone phosphate, would remove two-thirds of its lime; but, as there is always some carbonate of lime present, this is first acted on by the acid, and thus some of the phosphate escapes decomposition, and

remains in the mass as insoluble phosphate; hence in the mass there are always three constituents, the amount of which it is desirable the farmer should know, viz: the soluble phosphate, (mono-calcic phosphate,) the insoluble phosphate of lime, (undissolved bone earth), and the sulphate of lime. These are the three important substances in a superphosphate, for although ammonia may be potentially present if raw bones have been used, yet a superphosphate is not made or used for the sake of the ammonia; and when bone ash or burnt bone is used no ammonia is required.

If calcined bones, or the bone ash of the sugar-house, be the material used, every 100 pounds will require 87½ pounds of vitriol; when these have fully acted on each other the mass would give: superphosphate of lime, 26 pounds; gypsum, 66 pounds; sulphate of magnesia, 1½ pounds; soda, 2¾ pounds, and the balance of the 187½ pounds would be water and undissolved bone earth. If the farmer uses steamed bones, a quantity of vitriol intermediate between the two proportions named will be needed, say 66 pounds.

The usual mode of making the fertilizer is to select a good wooden floor of a barn, well covered overhead, or to make a box floor of thick plank, laid tight. On this first throw the bones. If not in dust, it would be well to sift the bones, and place the coarser part on this floor, putting the finer portion aside for mixing in afterwards. By this means the rough bone will come in contact with the strong acid first and be more effectually divided, while the finer parts can then be added to dry up.

No metal (except lead) should be used on the floor, or where the acid can reach. Water equal to one-fourth or one-sixth the weight of bone is then to be poured on the bone, well stirred in with a spade, and left for two or three days to heat and ferment; it would be well to use the water boiling. Then add the sulphuric acid, mixing well with a wooden spade or board; the mass effervesces or boils; stir twice a day well for two days, so as to turn the whole mass over; let it stand for two or

three days to dry; add the fine bone and mix well. If not dry, use some absorbing substance, as sawdust, dry peat, or dry earth, in small quantities, and mix well. *Do not use for this purpose, lime, ashes, or marl*, as they would destroy the superphosphate and spoil the whole work. Made in this way from bone ash, this fertilizer will yield 30 per cent. of soluble salts, of which 26 per cent. is superphosphate of lime. The manufacturer will say that there is 35 to 37 per cent. of superphosphate present, but he always over-estimates; indeed, 26 per cent. of soluble superphosphates is *more* than any farmer wants; it is too soluble, and will pass out of his ground too soon, especially in wet weather; 12 to 15 per cent. is a better proportion for the farmer, for then he has a proportionally larger amount of insoluble bone phosphate in store for future use in the soil. On this account it is better for the farmer to use raw or steamed bones than bone ash; he has a sufficient, though a smaller, quantity of superphosphate present.

This fertilizer will not suffer from exposure to air, but it must be protected from rain or wet; it ought to be barreled up when not used immediately. This fertilizer, made as directed, will be of a whitish color if made from raw or steamed bone, and gray black if made from bone-black of the refinery; but the color of a superphosphate is of no consequence, and no test of its quality; neither is its smell; it ought to have no smell, or a faint acid odor, if any. One ton of a manure made by the farmer as directed is worth two purchased in the market.

A good manure may be made from bones without forming a superphosphate, by dissolving the animal matter of the bone by means of alkaline leys, and thus freeing the bone earth, which is then in excessively fine particles fit to be dissolved in the waters in the soil. Many recipes have been given for this. Dr. Nichols in his *Boston Journal of Chemistry*, (February 1869,) gives the following, which he recommends: Take a barrel of fine-ground bone and a barrel of good wood ashes; mix well together and add three pailsful of water; mix the whole intimately, stirring daily; the mass

will be fit for use in a week. This is a good manure for corn, a gill being used to the hill. In this fertilizer there is, as stated, no superphosphate found; the bone earth is merely separated from the hard gelatine or animal matter, which is dissolved by the potash of the wood ashes; this organic matter is in a soluble state, the bone earth is finely divided, and there are present the potash and other mineral salts of the wood ash, all of which make a most valuable fertilizer.

The South Carolina phosphates may be treated in a manner similar to bone ash of the refinery, with vitriol, but will not make so valuable a manure, because the amount of phosphate of lime present is not nearly so great as in bone ash; it rarely exceeds the quantity in bone dust, and has 10 to 20 per cent. useless matter present. Carolina phosphates at \$30 a ton will not make a richer fertilizer than raw bone at \$45 a ton.—(*Monthly Report, Department of Agriculture.*)

SUNFLOWERS FOR INTERMITTENT FEVER.—Mr. Martin, in a paper presented by him to the "Société Therapeutique de France," affirms that the common sunflower, extensively cultivated, has the effect of neutralizing the unwholesome vapors which are so fatal to health and life in marshy districts. The Dutch, who live only by dyking and draining their low lands, and are therefore good authority, pronounce sunflower culture a specific for intermittent fever, the scourge of Holland. They assert that it has disappeared from every district where the experiment has been tried. It is not yet known whether this is the result of its rapid growth, producing oxygen, or whether it emits ozone and destroys those germs, animal and vegetable, which produce the miasma which brings fever in its train.

FOOD FOR STOCK.—Ten bushels of boiled potatoes, mashed and mixed with three bushels of finely ground corn meal, will make as much pork as double the quantity fed in a raw state.

It is the custom of poultry keepers in France to cook their grain for fowls when they intend to fatten, boiling it in water till it is soft enough to be easily bruised between the thumb and fingers.

While all other domestic animals are regularly supplied with salt, the hog is generally neglected. He requires however, to be as constantly supplied as the ox, the horse or the sheep, and suffers as much from privation as either of the above named animals do.

OLEANDER, (*Nerium*).

The derivation of the botanical name of this beautiful shrub is somewhat obscure; while some consider it derived from Neiris, a king of Egypt, others trace it to the Greek word *Neros*, (moist,) as the plant generally grows in the vicinity of brooks and rivers.

There are two species of Oleander; one, the Fragrant Oleander (*Nerium odorum*) is a native of the East Indies; the other, the Common Oleander (*Nerium Oleander*) is a native of the southern parts of Europe; of these the Fragrant Oleander is that mostly cultivated here, and although many varieties are enumerated in catalogues, it will answer all practical purposes for us to make but two distinctions, the white and red (or rather pink).

Our gardeners and nurserymen confine their attention almost exclusively to these two varieties.

The Oleander requires a warm climate, and is cultivated in pots as well as in the open ground. It will withstand a light frost, but not a severe winter. We have seen some beautiful plants twelve feet high in Sacramento and Marysville, where the Oleander seems to feel at home. It flowers there beautifully during the entire summer season, and we do not know a more attractive flowering shrub for localities of similar climate. We have also seen it flower splendidly in Nevada City, during summer in the open air, and during winter in the house. As a house-plant it is easily cultivated, but should be kept clean from insects, and during its growing season rather moist. Here in San Francisco it does not flower well, it makes a spontaneous growth, forces up a strong round flower stem, but the buds in most cases fail to develop themselves. This is due entirely to our cool climate, however, and if we can manage to give the Oleander a place where it can enjoy the full benefit of the sun, and where it is well protected from our strong chilly winds, we have no doubt that it will produce flowers in abundance.

If treated as a pot-plant, all that it requires is a moderately warm situation with plenty of

air and light during warm days, and there will be no difficulty in having the Oleander flower freely. We consider a rich sandy loam, with a fair proportion of old manure, a good soil for this shrub.

We have often seen great errors committed in cutting back the flower stock immediately after the development of the flowers; the fact is that if we allow it to remain, new buds will be formed, and new flowers developed, similar to the habit of the *Hoya carnosa*, (Wax-plant). The stems should therefore not be cut off until they are actually dried up.

The Oleander is easily propagated; plants can be raised by putting the lower portion of the cuttings in a small bottle filled with water. The mouth of the bottle may be closed up lightly with some soft material and the cuttings will soon form young roots; however, here in California we prefer to plant the cuttings in sandy loam or clean sand, and keep them moist, when they will form root in a short time. If the cuttings are rooted in water, the transplanting into soil must be done very carefully, as the roots are very tender and brittle, and they should be kept very moist after transplanting until the plants accustom themselves to soil. This additional care is avoided by raising the cuttings in sand or sandy loam.

The habit of the Oleander is upright, and the disposition of the leaves, as well as of the branches, is symmetrical, being generally in threes. Suckers or side-branches should be cut off at any time, so as to cause the full strength of the plant to pass into its main stem and branches. If suckers and side-branches are permitted to grow on the Oleander, it will not be likely to flower well.

When grown in pots for several years, we have found it very beneficial to the plant to shake off the soil entirely from its roots, cut them in, and then re-pot it in the same sized flower-pot with fresh soil; this should be done during its season of rest. It is hardly necessary to say that the plant should be well watered and kept in the shade for five or six days after transplanting in the above manner.

The Oleander is a popular flowering shrub, and is well worthy of cultivation. If there is no warm and protected corner for it in the garden, it is certainly entitled to a place under glass or near the window.

RAMIE.

A short time ago we had the pleasure of a visit from Mr. J. S. Finch of Hayward's, Alameda county, who is at present engaged in the cultivation of the Ramie plant. We were shown by him, specimens of the Ramie and its bleached fibre. He stated to us that he had raised last year 150,000 plants. He is not at present producing fibre, but intends planting out a large tract of land in the southern part of this State during the present year. He expects to receive a machine for clearing the fibre sometime in May. The cost to be about \$300. From a pamphlet furnished by him we take the liberty of making a few extracts for the benefit of our readers.

"This new textile, lately introduced into the United States, is a native of the Island of Java, and was first brought to Europe for investigation in 1844, where it received the botanical name of *Boehmeria Tenacissima*, and, by the beauty and strength of its fibre, attracted much attention in manufacturing circles.

Since its introduction into the United States, in March, 1867, it has excited much interest among European manufacturers.—They consider the fibre of the *Boehmeria Tenacissima* superior to that of any other textile plant, and very valuable for manufacturing purposes; the supply from the East Indies is entirely inadequate to fill the demand, and unequal to the fibre produced here, in quality; they are, therefore, very desirous of seeing Ramie successfully cultivated in some country where the yield will be large and regular.

The soil and climate of California is peculiarly adapted for the cultivation of Ramie, which requires a sandy, loamy soil, and a temperate climate.

Cotton may be totally destroyed by the army worm, or other insects. The fibre of the Ramie, being contained in the inner bark of the stem, cannot be injured in that way, and will not be hurt by either long continued wet or dry weather; besides, it requires but small capital to start a Ramie plantation, the plant being easily propagated and cultivated; it is

a perennial, and will not require replanting.

Ramie being a novelty in this country, it is necessary that some general rules should be established for its cultivation.

Rich sandy or loamy soil is the most suitable for a nursery, when the plants are to be rapidly grown. For field culture the plant will thrive in any good sandy or loamy land. To secure a rapid and vigorous growth of roots, the land should be thoroughly and deeply broken to a uniform depth of about ten inches, and well pulverized. Root cuttings should always be used for first planting.

After the ground has been thoroughly prepared as above directed, the roots should be planted about six feet apart each way, three inches deep, and slantingly, with about one inch exposed above the surface. No further attention, with the exception of weeding, is required until they have attained the height of three or four feet, when it will be noticed that they become of a brownish color near the roots—they are then ready for propagation; the stem should then be bent gently down and covered with about three or four inches of loose earth, care being taken to avoid detaching the stem from the parent root. About two inches of the leafy end should be left uncovered. In the course of three or four weeks the layers will have made shoots and may then be separated from the main root, divided in pieces of four or five inches long, for planting in the field.

The cuttings for sale being so limited in number, it would be impossible for farmers to begin planting at once on a very large scale; they are therefore compelled to begin with a few thousand cuttings, and make their own plants.

The culture of Ramie is necessarily divided into two parts.

The culture on a small scale (to propagate and provide cuttings) we have already given. To cultivate in the field, to make crops of fibre, the land must be prepared as in the first instance, with the exception that the plowing is not required to be so deep, although the deeper the plowing the better the crop will be; and

this is the hardest of the labor, but it will amply remunerate.

The land being well ploughed and cleaned, the cuttings obtained from the mother plant must be planted three feet apart, in rows four feet distant from each other. When well rooted, the few stems of these cuttings must be cut off near the ground to force new shoots to spring from the root, and in from four to six weeks thereafter the entire field will be covered with fine green bushes of Ramie. It will be necessary, especially in the beginning, to keep the field clear of weeds; but this labor will be dispensed with when the plant has grown thickly. After five or six crops the field will be as thickly covered as a wheat field ready for the reaper, and will remain so for years.

The time for planting in California is during the rainy season, and the earliest planting will obviously produce the earliest crop of fibre or cuttings, as the farmer may select.

When the stems have attained a height of six or eight feet, they will then be ripe and ready to harvest; and this will be known by the leaves falling from the stock. But should it be inconvenient for the farmer to commence cutting at that time, the fibre will not be seriously injured if the cutting is delayed a week or two.

In cutting the stems, an ordinary mowing machine may be used, care being taken to cut the stems as near the ground as possible.

It will also be advisable to extract the fibre when the stems are not too dry, as that labor is then much more easily performed, and the fibre is of better quality if broken out while in that condition. A simple and easily-worked machine has been constructed for that purpose, with which the farmer can make his crop marketable at small expense. In preparing the fibre for packing, it should be done up in hanks and packed in bags or bales like cotton. All refuse matter, such as leaves, the woody substance of the stem, etc., should be strewn over the ground; no other manure is required.

Plants cannot be injured by cold unless the ground freezes to a depth greater than six

inches, and continues frozen for several days. Many persons suppose *Boehmeria Tenacissima* and China Grass identical; this is not the case, although they belong to the same family of plants. The China Grass produces seed from which it can be propagated, but the system is difficult, and the fibre unequal to the Ramie in texture. *Boehmeria Tenacissima* can be propagated from root cuttings, and is the finest variety of the *Urticacea* family. In commercial parlance, the fibres of both the *Boehmeria Tenacissima* and the *Boehmeria Nevia*, or (China Grass,) are called China Grass. In preparing the fibre for market, it will be to the advantage of the producer to ship it in its crude raw state, as very little expense will be incurred in so preparing it. In this condition, as before stated, it is worth from twenty-five to thirty-five cents in specie per pound. In preparing it for the spinner, a chemical process and costly machinery would be required. A factory for this purpose will be erected in the East at an early day, and producers will find a ready market there as well as in Europe.

The Committee on fibrous and textile substances, at the Seventh Industrial Exhibition of the Mechanics' Institute, held at San Francisco in October, 1869, in their Report say:

"We do not propose a premium, because this enterprise is, as yet, but an experiment, but from a careful examination of the subject we are strongly convinced that the cultivation of this most valuable plant can be successfully introduced into California. We are satisfied it will flourish in the Southern counties, particularly in Tulare and Kern counties, where the nights are comparatively warm. Wherever Indian corn can be raised in perfection, there will the Ramie grow. It promises such large profits that, once introduced, it must soon become the great staple of the Southern section of our State."

The same Committee include in their Report the following letter.

SARTORIA, Miss., Sept. 1, 1869.

"The Ramie plant, like everything new, meets with opposition from those who have not practically tested it. We have tried it

this year, and the result is a decided success. It grows eight feet high in this climate, and make two crops a year, and probably three. Its roots grow two feet in the ground and notwithstanding the unprecedented drought of this Summer—not a single copious rain having fallen since April—it still continues to put forth its luxuriant shoots and grows rapidly. So dense is the shade it makes that the ground continues always moist. Ramie requires the same cultivation as corn the first year, and one good hand will cultivate thirty acres, or three times as much as can be managed when planted in cotton. After the first year little or no cultivation is required, one or two plowings only being necessary to keep the plants from entirely covering the ground. The second year the same hand will cultivate twenty or thirty acres more, making a field of from fifty to sixty acres, which will thresh out with the Ramie cleaner working all the year. The labor of its cultivation is so light, that it can be performed by white persons or by freedmen indiscriminately. The threshing or cleaning is done under cover.”

WM. HALL.

Messrs. Andrew J. Moulder, S. S. Tilton and John C. Mitchell, constituted this Committee.

HOW SUGAR IS MADE WHITE.—The way in which sugar is made perfectly white, it is said, was found out in a curious manner. A hen that had gone through a clay mud puddle, went with her muddy feet into a sugar house. It was discovered by some one that wherever her track went there the sugar was whitened. This led to some experiments. The result was that wet clay came to be used in refining sugar. The sugar is put into earthen jars, shaped as the loaves are. The large ends are upward, while in the smaller end is left a hole. The jar is filled with sugar, the clay is put over the top and kept wet. The moisture goes down through the sugar and drops through the hole in the end of the jar. This makes the sugar perfectly white.

THE average consumption of wine in California is ten gallons to every citizen. The average yearly consumption of coffee in this State is sixteen and three fifths pounds.

THE Maine forests have been so well stripped, that not a tree of old growth is to be seen in them. The white pine is represented only by saplings, which will not be of any service, as lumber, for years.

ORNAMENTAL AND LANDSCAPE GARDENING.

SECTION III.—LANDSCAPE GARDENING.

In California one of the most important considerations in Gardening of every description is a copious and continual supply of water, and every individual, as well as each large community, in fact the entire State itself, has excellent reasons for giving this subject the gravest attention. In most of the larger cities of California, companies have been formed for the purpose of supplying the inhabitants with water, for domestic purposes as well as for the irrigation of ornamental grounds; the charges however for water are so enormous that these water companies have discouraged gardening and public improvements, in very many instances. Their excuse is a limited supply of water, but we believe this to be incorrect. The business of supplying cities with water seems to be monopolized as much as many other branches of commerce and industry. Yet the occupant of a city residence is far better situated in this respect than the owner of a rural residence, who is dependent on his own resources, and how is he to overcome the difficulty? This need should be provided for by proper legislation, and we have no doubt that with moderate State aid, assisted by contributions from private individuals who are directly interested, some of the irrigation schemes, (so much vaunted, but not carried out) could be successfully consummated, so that thousands of acres now laying waste, might be put into a high state of cultivation for various purposes, and our hill-sides would be covered with fine villa grounds and rural residences.

To make Landscape Gardening what it should be, we need ample water, not so much for the cultivation of the trees, most of which will live and thrive by being planted early, and having the soil worked deep, but the majority of the flowering shrubs, the flower beds, and the lawns, must have water during the heat of summer. Besides this, water is required for other purposes, as the formation of lakes and

ponds, the supply of brooks and rivulets, cascades, and waterfalls, of jets, and fountains. We agree with Downing, one of our best American authors on Landscape, who says: "The delightful and captivating effects of water in Landscapes of every description, are universally known and admitted. The boundless sea, the broad, full river, the dashing noisy brook, and the limpid meandering rivulet, are all possessed of their peculiar charms, and when combined with scenes otherwise finely disposed, and well wooded, they add a hundred fold to their beauty."

In California the absence of water as a feature in Landscape is more observable than in the East, or in Europe, on account of our dry summers, and we regret to say that no department of Landscape Gardening is more neglected and less understood than the introduction and management of that feature. It would be well therefore for every one who contemplates laying out extensive grounds, to search diligently for water. Independent of the companies, water may be obtained from springs, artesian wells, by windmills, or by horse or steam power; springs cannot be found everywhere; the boring of artesian wells is too experimental, and windmills are uncertain, but horse and steam power are more reliable. At some future time we will treat this subject more fully.

Many other features are requisite, and still others may be introduced into the grounds of a rural residence, as vegetable and flower gardens, lawns and rockeries, green-houses and conservatories, aviaries and grottos, arbors and summer houses, rustiework and statuary, etc. We shall speak of all these embellishments more minutely in due time.

We will now make a few remarks in regard to the entrance to the grounds of a rural residence. In a large majority of cases we notice the total absence of embellishment outside of the entrance gates, even a meagre appearance of the gates themselves, as though they were nothing more than a moveable portion of the common board fence; also a neglected appearance of the approach from the gates to the house, producing the impression that nothing

more was desired than a fine architectural building. The entrance gates, with their surroundings, and the approach to the house, should be in keeping with the house itself and the ornamental grounds.

In concluding our general remarks, we will advise all those who contemplate improvements similar to those of which we have treated, to prepare, or have prepared careful estimates, not only of those contemplated improvements, but also of those current expenses which will be necessary to keep them in good order. We think it very indiscreet to cultivate any more ground for ornamental purposes than the owner is willing to keep in proper condition. In all these matters it is particularly desirable that an able and reliable Landscape Gardener should be consulted. We are convinced that projectors of ornamental grounds whether on a large or small scale, will profit by timely advice. Most people know how to admire a beautiful garden, but few understand how to accomplish what they admire, and they therefore require the aid of some one who has made it a study, and who by experience is prepared to adapt the rules of art to the natural features, and is able to guide their taste. Landscape gardening is yet in its infancy in California, and it will be an arduous task to establish it here as one of the fine arts, as it is in Europe. We find very few men who take any pleasure or delight in performing the labor pertaining to gardening, not from want of time, but because they think it beneath their dignity; but there is scarcely such a person to be found as a lady who is not fond of flowers; many of them are enthusiasts in gardening, and we know several of our most highly educated and intellectual ladies are early, diligent, tasteful and successful workers in this pre-eminently healthy pursuit, and they are abundantly repaid by their enjoyment of all the delights connected with the association with choice plants and flowers; by the pleasure of successful enterprise, and by the possession of that rich glow of health and contented calm, which are invariably attendant on this delightful recreation, and if we are successful in effect-

ing a general reform in the taste for gardening, it will be through the valuable example and assistance of these our more refined ladies, who have so just an appreciation of the beautiful.

In our next we shall inaugurate a series of articles on the different features of Ornamental and Landscape Gardening, which we hope will meet with the approval of the readers of our magazine.

CALIFORNIA GRAPES AND WINES.

So much has already been said about the cultivation of the Grape, and the making and keeping of Wine, that it seems difficult to present anything new. In this article, however, we propose to treat on the entire absence of united action on the part of the cultivators, to obtain the best possible results; and then refer to the prejudices of consumers, and their indisposition to patronize home products and home manufactures.

It is a settled fact that we have both the soil and climate to grow excellent Grapes for the table, for wine and for raisins; of which three uses the manufacture of Wine is the most important. In relation to the making and keeping of Wine, we believe there are many opportunities for improvement, and it certainly is a most important question how these improvements may be inaugurated. We notice in the Eastern States, where the Wine interest is of much less importance, its cultivation being limited to a comparatively small number of acres, that a general feeling has arisen for united action on the part of practical men, to subject the Grape and the Wine to various experiments, and tests, in order to obtain the very best results; but we also notice with regret among our own Grape growers, that same unfortunate selfishness and inactivity which is so characteristic of Californian industries and pursuits. However, we hope to see before long more united action on their part to protect, improve, and further their own interests.

In this connection we will refer to a report of Hon. J. Stanton Gould, Secretary of the

Committee of the Pleasant Valley Grape Growers' Association, upon the Grape tests at Hammond's Port, New York, October 12th, 1870, as published in the "Pleasant Valley Fruit and Wine Reporter."

"The Annual National Convention for the testing of Grapes, was held at Hammonds Port, Steuben county, New York, commencing on Wednesday, October 12th, 1870, and continuing through that and the next following day. There were present Col. Marshal P. Wilder, of Boston, Massachusetts; Mr. Charles Downing, of Newburgh, New York; Dr. John A. Warder, of Cincinnati, Ohio; Mr. James H. Ricketts, of Newburgh, New York, and J. Stanton Gould, of Hudson, New York. Col. Wilder was with great unanimity elected chairman, Dr. J. A. Warder, chemist, and J. Stanton Gould, appointed Secretary."

Before this Convention of well-known and prominent Horticultural men, Catawba grapes of 13 different localities were presented, and after converting into juice a remarkable difference as to the amount of sugar and acid in each sample was ascertained. The amount of sugar to the 100 gallons ranged from 182 to 240 pounds, and the amount of acid from 533-100,000 to 775-100,000. Of the Isabella Grape, specimens from seven different localities were presented, and the juice of the different samples, gave from 168 to 183 pounds of sugar, to the 100 gallons, and from 490-100,000 to 710-100,000 of acid. Other varieties of Grapes were presented, but we omit them, as they are not, to our knowledge, cultivated with profit on this coast.

We will here remark, that although very poor samples of both the Catawba and Isabella grapes, (the Catawba in particular), were exhibited during our late Horticultural fair in San Francisco, both of these varieties thrive well in the northern parts of California. In the vineyards of Mr. Seibert, of Mr. Hellwig, and of Mr. Craig, of Nevada City, we have seen them growing in perfection. This would indicate that these grapes require a locality where the contrasts of winter and summer are stronger than near the coast range, and the

valleys. We are certain that some of the most valuable grapes for wine-making, will do better among the higher foothills of the Sierra Nevadas, for the same reason. But it was not so much our intention to speak of this fact as to demonstrate the necessity, and the practicability of following the example of our Eastern friends, in gathering knowledge by practical experiment, and imparting to one another and the general public, the results of our experiments and deliberations. So long as a few individuals who have succeeded in producing an excellent article of wine, persist in keeping their experience to themselves, so long will the large majority of our grape growers suffer, the bulk of California wine be inferior, and of consequence, the reputation of our wines be at stake.

Now let us see what these experiments and deliberations of our Eastern friends amounted to.

First.—In regard to the influence of soil, on color in grapes. Grapes grown on clayey soil were invariably darker and more glossy, and would be estimated by appearance to be richer than those which had been grown on gravelly soils, which were lighter in color, and less covered with bloom; but the Saccharometer and Acidometer estimated differently, they showed that the richest grapes were those which were not grown on clayey soils.

Second.—In regard to influence of exposure. It will be observed that there are great discrepancies among grapes of the same variety. The answers to the questions submitted this year fail to account for this. Thus among the Catawbias, there was a difference of 46 pounds of sugar in the one hundred gallons of wine. We attribute part of this difference to the amount of water which had been evaporated from one sample before it was brought to the press; but how are we to account for the difference of twenty pounds of sugar in two other samples. The exposure of the sample containing the excess of sugar is toward the southeast, while that of the sample containing the minimum quantity is toward the east. Are we to take for granted that the difference between an eastern and a

southeastern exposure, amounts to twenty pounds of sugar per 100 gallons?

C. H. Perry, and the Pleasant Valley Wine Co., have each of them grapes containing precisely the same amount of sugar in them. The former has a southern, and the latter a southeastern exposure. It does not seem from this, that a southern sun has a very magical effect in augmenting the amount of sugar in the grape. The amount of acid in each, is also very nearly equal, we will however add, that the grapes of the Pleasant Valley Wine Co., were gathered on the 26th of September, and those of Mr. Perry, on the 11th of October. Mr. Parker's grapes contain five pounds less of sugar than those of the Pleasant Valley Wine Co.; but his exposure is east by south, while theirs is southeastern. The grapes of the Urbana Wine Co., contain seven pounds less of sugar, with a western exposure, than those of the Pleasant Valley Wine Co., with a southeastern exposure; but on the other hand, they contain six pounds more of sugar than those of Mr. Fairchild, which have a southern exposure. Both Perry and Fairchild, have the same exposure towards the south, the former has thirteen pounds of sugar less than the latter; but we must take into consideration other circumstances: Fairchild's grapes grew on a shaley soil, with a clayey sub-soil; ploughed twice and hoed, distance between the vines, seven by seven feet; time of picking, October 6th. Perry's grapes grew on gravelly loam; ploughed and hoed once, distance eight by eight feet; time of picking, October 11th.

On carefully collating, and comparing the data obtained this year, it seems that in the long run, and in the greatest number of cases, eastern and southern aspects have an advantage over northern and western ones; but so many modifying circumstances have to be considered, that this influence is probably less than has been generally supposed.

In the majority of cases, California grape-growers have paid but little attention to these matters, and we believe that the sooner steps are taken to test the condition of things, the better it will be for all parties concerned.

California wines do not stand as high in the East in general reputation as is desirable, and as is generally supposed; this evil may be easily obviated by supplying to our cultivators generally, the best method of treatment, which has been arrived at by those who have proved successful. In support of our ideas we extract the following from the *New York Evening Express*:

"When some years ago it was publicly announced that Americans as a people should no longer be dependent upon the varying chances of foreign harvests, and the equally doubtful uniformity of our national tariff, for the purity of their wines and liquors, a feeling of thankfulness found expression in our minds, and our stomachs rejoiced at the hope of deliverance from the long course of logwood and poison that had gone far to ruin them; not until this statement had been fully and exhaustingly considered by our people, had California been so truly the promised land to us, the real El Dorado, furnishing us the foundation of human enjoyment and a medicine which would extend our lives and health. It was not long before our physicians left their legendary prescriptions of foreign wines for their patients and concluded to give our invalids a native article that contained every essential of the old, and with it the prime and necessary associate, purity. This was the beginning of the new era. As large crops warranted it, dealers began to advertise California table wines, that were novelties in our high priced age, and the people, full of hope and confidence, entered upon the new path.

For a while every hope was realized; wanting strength and age, the new wines did not at once overcome the tastes of the veteran drinkers, who by a long course of liquid fire had become unable to appreciate pure wine; still at every bar, "native wine" became known and noted, to the injury of the manufactured brandy and whiskey that had before been the only drinks. Hardly had this much been accomplished when the demand had exceeded the supply, and knavish dealers, unwilling to forego the profit, set their manufactories to

work out California liquors as they heretofore had foreign. Home demand helped this scarcity, for with unexampled strides the new State was marching on in wealth and power, and soon interested parties published the statement that all the California wines were used at home, and what was so called at the East, was a manufactured article. The bad article sent out by dealers, helped on this rumor, and soon the brand was shunned as if it had been a deadly poison.

The failure of this experiment, however, only proved to our people that the resources of the country were enough to warrant the attempt to supply our country with a pure wine.

What we want now is cheap and good Wine, something that shall take the place of our fiery brandy, now slowly but surely destroying our youth, and laying up the seeds of hereditary disease, that will surely result in suffering spread broadcast among our descendants. All are willing and fast to acknowledge this want, this necessity.

The evidence of all men upon this point is uniform, that in countries where wine is cheap and pure, drunkenness is unknown, we burn our brain and our bodies by the fiery fuel that we pour into our stomachs, because we force both into an unnatural activity. Purify and weaken our liquors, and the system is invigorated, pleasantly excited, and the whole physical and mental economy perfected. Men who are trained to a fanatical worship of cold water, affect to find in this fact the danger of native and cheap wines. We do not believe that the government either of habits or of nations, can exist on a basis of fanaticism. There must be a golden mean. Satisfied that no laws can destroy the evil of intemperance until we gradually educate the people by pleasing their tastes, and by so doing improve them."

The *N. Y. Evening Express* is right in advocating our native wines. We do not know what our California wines are sold for in the East, but we can assure our Eastern friends that the article is obtainable at very reasonable prices in our own markets, so that every

one here can afford to drink our home product of wine, but we are necessitated very reluctantly to admit, that even here, it is difficult for the lover of our prime wines to obtain the best article. We do not understand why the bulk of our wines should not be of superior quality, if proper attention were paid to the making and keeping of them.

When our system of wine making is perfected, and not till then can we expect that our people will become a wine drinking, instead of a whiskey drinking people.

RHODODENDRON CALIFORNICUM.

(*California Rose Bay.*)—See Illustration.

We give in this number of our journal, a true representation of this beautiful California flowering shrub, which grows with great luxuriance in Santa Cruz county, and a few other localities.

The *R. Californicum* belongs to a numerous family of evergreen flowering shrubs, which are considered in the East and Europe, valuable acquisitions for the gardens and conservatories. Here on the Pacific coast, they have commanded but little attention; in fact, we believe that there are not over a half dozen of these plants in cultivation, (at the present time,) in this city. Our gardeners and nurserymen say that they will not do well here; how much they are in the right, we shall at some future time endeavor to show. Inasmuch as the *R. Californicum* grows to such perfection, within a few miles of San Francisco, we have every reason to suppose that some of the others could also be grown with satisfaction in our gardens. The efforts which have been made by our gardeners and nurserymen, can by no means be considered final.

The *R. Californicum*, is found growing in masses along the margins of creeks, and in hollows, in a damp sandy soil. It attains the height of from four to six feet; having a beautiful dark green, glossy foliage, and clusters of flowers of a delicate rose color. Its flowers are developed during the early part of May, and remain in bloom for some time. The

specimen from which our plate was taken, was found growing at Waddell's Mills, Santa Cruz county. The original painting from nature, was executed by A. W. Saxe, of San José, through whose kind permission we are enabled to reproduce it, and so furnish our readers with a representation of one of the Floral Beauties of California.

THE CULTIVATOR OF THE SOIL, THE MANUFACTURER AND THE CONSUMER.

It is all very well for the newspaper men to undertake to demonstrate to our agriculturists and horticulturists that California is able to produce with ample profit the very many articles introduced into our fields and gardens; and we notice that the farmer is only too willing to adventure a crop which promises to pay him so well for his labor, although he is really risking in many instances more than he can well afford. But how often does he meet with disappointment when he brings his products into market and finds himself entirely at the mercy of certain combinations which are organized to deprive him of his just remuneration, while they impose their own prices upon the consumers. The producer of limited capital is compelled to take whatever he can realize, and he goes home discouraged.

Of course we are not now alluding to the fluctuations of market prices, which doubtless are ruled by circumstances other than that referred to—in the same manner as other legitimate business—we allude to those operations in which both producer and consumer are victimized.

There are many other circumstances which annoy and embarrass the farmer, but for want of space we shall at present only allude to one other of these, and that is, the condition in which the cultivator is necessitated to bring his produce into market. The farmer, for instance, who raises sugar beets, supplies his crop in a raw state; and we attribute the early success of the beet sugar manufacture to this fact. But how is it with the ramie, silk, flax, etc. Here the farmer is not permitted to furnish the raw material, but is necessitated to

pass his product through several initiatory processes before it is presentable in the market, thus prepared for the manufacturer or for commerce. It appears to us that the manufacturer imposes upon the cultivator a portion of labor which really belongs to his own department. The work of preparing flax, ramie, silk, etc., for the manufacturer must surely be an embarrassment to the farmer, as it compels an additional outlay of capital for machinery which may be difficult to procure and keep in order, and only be required for a short time and then be set aside to spoil. He is not likely to possess the necessary knowledge for the process, and will possibly require a different staff of employés from his usual farm laborers. If the farmer were permitted to bring the raw product to market, the material could be prepared cheaper and more uniform by skillful and experienced hands, with efficient plants of machinery and every needful appliance. And if the cultivator could realize the cash for the flax-straw in its raw condition, thousands of acres would be under cultivation with that crop; but so long as he is expected to do the rippling, breaking and hackling, of which, doubtless, he has little knowledge, and which compels an additional outlay, we are afraid he will be rather slow in the production of this article.

The labor of the farmer should end with the gathering of his crop, and that of the manufacturer should begin when additional preparation is required—this applies to flax, ramie and silk in equal force.

Let a manufacturing company advertise for the raw material of these articles and the farmer will readily respond; here is an instance where capital could come to the aid of the cultivator, and thousands of acres now lying idle would be brought under cultivation.

We do not hope for much better times in California until capital allies itself with the advantages of soil and climate to encourage home manufactures and home industry.

BEET SUGAR.—A lot of two hundred and fifty barrels of Alvarado beet sugar was sold in San Francisco for fourteen cents per pound. At this price an immense profit is assured to the manufacturers.

SUGAR BEET CULTURE.

SHERMAN ISLAND, December 22d.

Probably there is no question relating to agriculture creating more inquiries than the subject of raising beets for sugar; and, therefore, I would caution all persons before going to raise them, that they have the right kind of seed. Because a beet is of the sugar variety, it does not follow that it will do to make sugar of.

My experience in the raising of sugar beets from seed has been thoroughly tested during the past seven years. I have grown eleven different varieties, and in 1867 I had nine of them tested at the sugar refinery by Mr. Spreckels. The result was that five were condemned, they going below eight per cent. Three of them gave an analysis; one of twelve, the next ten, the third eight per cent. Of the two first I have this year raised some 600 pounds of the following varieties: First best *White Tropical*, second best *Green Sileria*.

I have noticed in several of the papers inquiries as to what kinds of soil are best adapted to the culture of sugar beets, and if that of an alkali nature will do.

I have grown them in Alameda in deep, sandy soil; near Oakland on dark, gravelly soil, on dark, alkali ground, and upon this island. My judgment is that land that has a small amount of alkali in it, is not in the least detrimental to the raising of the beet for sugar; instead of being an injury I think it would be of value. Adobe land will not answer for beets, for I have tested that well; I should prefer tulle or black loam to a sandy soil. The sweetest beets I have ever raised or tasted of, have been grown upon this island, and although I have not seen any of them tested, I think they will give 13 per cent of sugar. And again, I am satisfied that there is no better place for a sugarcane than upon this island—the richest of soils, every access to the market, plenty of coal and the best of water.

My views in regard to the planting of beet seed for sugar differ a little from that of raising them for stock. For sugar the quan-

tity of seed that is necessary is about five pounds to the acre, sown as follows: The drills to be thirty inches or two feet apart and seed planted at intervals of six inches in the row; the ground to be well plowed at least twice or three times if convenient, then well cultivated with a horse-hoe cultivator. My judgment is that the beets ought not to weigh over from eight to ten pounds, as at that size they will contain the largest amount of saccharine matter. I am of the opinion that we can raise them to the amount of forty tons per acre on the island, and keep a sugarie in full run all the season. There is one thing quite certain, I can grow a crop of water melons that will be ready to make into sugar the first or middle of July. After that will come the beets. Then I have succeeded in growing a fine cantalope that comes in the first of December, and will run into January. The name of them is Magnesia, the seeds of which come from Asia Minor. They stand the frosts well and are only fit for the table in the winter. When ripe they are delicious and seem to be full of saccharine matter and are very solid.

Probably there was no man in the State so well pleased as I was, when I heard that they were successful in making sugar at Alvarado. I have written for the past six or seven years that California could or would beat the world in making sugar from beets.

In my article published in the *Pacific* of July 19th, 1869, I predicted that the time was not far distant when we would be making sugar from beets, not only for ourselves, but export large quantities of it, and I still adhere to it, that, take all things into consideration, climate, soil, and a good supply of capital, that in less than a decade California can furnish the entire Union with beet sugar. It only requires a little time, only a beginning, and when skill and the right kind of men take hold of it, we can then feel proud that we live in a State that yields us abundance of grain to feed upon, abundance of wool to clothe us, and sugar to sweeten us, through the journey of life. No greater monument can be built in

this State than the towering chimneys of a hundred sugar mills. It will give labor to many, and bring from the old countries, hundreds of skillful workers in that branch of business.

D. L. PERKINS.

POPULAR BOTANY.

CHAPTER III.

As has been stated in a former chapter, the stem is that portion of a plant which pushes its way above the soil, seeking the influence of the atmosphere and sunlight, and producing as a distinguishing feature, branches and leaves. Branches are but a duplication, as it were, of the stem, being produced from the main stem in the same manner as the parent stem was produced from the seed.

A stem always has an ascending direction at the commencement of its growth, but does not always maintain it. In some plants it soon trails on the surface of the ground, or even penetrates beneath it, from whence it sends up branches, flower-stalks, and leaves.

In the embryo, the stem is supplied with leaves in a state of more or less perfection, and as this stem elongates, the leaves are produced at certain definite points. The growth of a stem is principally between these points which allows the leaf-points to increase their distance from one another, and secures their proper development. The joints, or points from whence the leaves arise, are called *nodes*, while that portion of the stem between the two points, is termed an *internode*. In many plants these points are not readily distinguishable, while in others, (as the bamboo, sugar-cane and the grasses,) they are well marked.

In the embryo, the stem consists of but a single joint with a node at its terminal point, which repeats itself, producing a second like the first, and a third like the second, and so on during its period of growth. Thus we find that a stem has always at its apex, or summit, an undeveloped portion, which is called a *bud*, and is in fact the terminal node of the plant. In addition to this terminal bud which contains

the main stem, we find one or two additional buds as new axis of growth, giving rise to branches, which as we have before stated, are but repetitions of the main stem. These branches are provided with buds in the axils of their leaves, bearing the same relations to the first branches, as the primary branches bear to the stem. So we see the whole is but a "repeated repetition" from new points, of what occurred in the first axis of the embryotic seed. This regular law of development is often interfered with; many of the buds remaining dormant, or are destroyed, others being developed in their stead. Here we get a modified form of the plant, shrub or tree whose branches to a certain extent are produced in an irregular manner. This want of development seems to occur without order, yet even here, we see a certain uniformity of action in each species.

It is on the characteristics of the stem that the oldest division of plants is founded. *Herbs*; containing no woody fibre and generally dying (at least so far as the stem is concerned) after flowering. *Shrubs*; woody plants branching near the ground, and less than thirty feet in height. *Trees*; growing to a considerable height, with stems unbranched near the ground. In trees the stem is called the *trunk*, in grasses a *culm*. Stems which do not grow erect, that is, recline or trail on the ground, are said to be *decumbent*, *procumbent* or *prostrate*; and when they strike roots at certain points they are called *creeping*. There are other forms of stems such as *climbers*, which elevate themselves by means of tendrils (as the Passion-Flower) or by their leaf-stalks (*Clematis*).

A *Stolon* is a form of branch, which curves or turns down to the ground, and there strikes root, making an independent plant. It is no doubt but this action on the part of nature first suggested to horticulturists the process of *layering*.

A *Sucker* is a subterranean branch which has pushed its way along under the ground, until at last finding a favorable chance and locality, it rises out of the ground and becomes somewhat independent of the parent plant. It is

by severing the connections existing between the two, that gardeners produce plants by division.

A *Runner* is a slender prostrate branch rising out of the base of the parent stem, striking root at its apex, and producing a tuft of leaves. Of this class the strawberry furnishes the best example.

An *Offset* is but a modified form of the above, and the two might be considered almost identical.

A *Spine* is an imperfectly developed branch, and is contracted at its apex into a sharp ridged point; being in common language a *thorn*.

A *Rhizoma*, or *rootstock*, is a prostrate stem growing either beneath the soil, or upon its surface, and is thickened by the accumulation of nutritive material in its tissues, which serves as a source of nourishment to the plant.

A *Tuber* is formed by the enlargement of the apex of a subterranean branch, the further elongation of which is stopped, and the whole very much thickened by deposits of starch, etc., in its tissues. A potato furnishes the best example of this form of a stem.

A *Cornus*, or *corm* is a fleshy stem somewhat round in form, and growing beneath the soil; they are compact in texture, and resemble a bulb to such an extent, that they have also received the name of *solid bulbs*.

A bulb is a shortened stem covered with scales; in growing they produce a flower stalk from the apex, and send out roots from their base. The bulb, then, we see, is really the stem of the plant. The Hyacinth is an example.

We have so far given a few of the most important forms of the stem. In our next chapter we shall take up its internal structure and the duty it performs in the economy of plant life.

THE cactus fence is an institution peculiar to Mexico. The variety of the plant used for this purpose is called the orange. It is eight sided, and shoots up straight as an arrow, from ten to twenty-five feet in height, and five to eight inches in thickness. The fence builders cut the cactus into sections of right length, stick the cut end into a trench, cover the dirt around it to the depth of about a foot, and the fence is made. The pieces are set as closely together as possible, and, as they take root and grow for centuries, the fence improves with age, instead of going to decay like other fences.

INTRODUCTION OF GAME INTO CALIFORNIA.

In looking over our vast plains, up the rugged mountain sides, deep down into the wooded gorges, searching and seeking in vain for birds familiar to us in other parts of the world, we ask ourselves the question, why it is that here in this moderate climate, with food and cover in abundance, we have so few of the different varieties of game birds. If we take Quail from the list of California game birds, we have absolutely no upland shooting here. The Grouse family also are but poorly represented, at least we miss the Ruffed and Pinnated, the Partridge, Ptarmigan and Pheasant. There is no reason why these birds once introduced should not multiply and do well here.

The Ornithological and Piscatorial Acclimatizing Society of California, has been already organized not only for the purpose of importing the different species of game birds and fish foreign to this State, but also for the protection of those already here. In aquaculture the field of work for this Society is extensive, we have no Pickerel, Black Bass, White Bass or Pike, and but a few very inferior Trout compared with those of other countries. It is the intention of the Society to hatch fish artificially, and when hatched to stock the streams, lakes and ponds of this State, and when practicable to import live fish and to breed from them.

The following are the birds and fish recommended by the Committee, nominated by the Society for that purpose.

BIRDS.

- Ruffed Grouse.....*Tetrao umbellus*
- Pinnated "*T. Cupido*
- Wood Grouse, or Caper Cailzie. *T. urogallus*
- Black " " Black Cock.*T. tetrix*
- Red " " Red Ptarmigan,....
Lagopus Scoticus
- White " " Common Ptarmigan.
L. mutus
- Partridge.....*Perdix cinerea*
- Red Legged, or French Partridge.....*P. rufa*
- Quail, (Eastern).....*Ortyx Virginianus*
- " (British).....*Coturnix dactylisonans*

- Wood Cock, (if possible).....*Scelopax minor*
- Turkey.....*Meleagris gallopavo*
- Pheasant (European).....*Phasianus torquatus*
- Golden Pheasant, (China).....*P. pictus*
- Silver " "*P. mychemerus*
- Pigeon.....*Columba migratoria*

FISH.

Black Bass, White Bass, Lake and Brook Trout, Pickerel and White Fish.

Many of the feathered songsters might be added to the list useful for destroying insects and worms, as well as pleasing to the ear.

There are none of the game birds on this list, that will in any way interfere with the welfare of the horticulturist or farmer, with the exception of the wild pigeon. There are many of our farmers who harbor the idea that the importation of game birds will be deleterious to their interests, but the very reverse of this is the case, although we admit at the harvest season they eat a few kernels of grain, but to the growing crops they are a decided benefit by the destruction of grubs, snails, insects and worms that are continually and everlastingly eating both root and seed of all vegetation. A few of the game birds are at certain seasons gregarious, but the great bulk of the different varieties are to be met with singly or in pairs. The very time the congregations are largest is about the time the farmer is cutting his crops, and after the breeding season, the birds are usually shy, and remote from the habitations of man. The nourishment that supports the class of Gallina, is made up of the small seeds of grasses, weeds and flowers, mixed with a large quantity of animal material in the shape of flies, worms, grasshoppers and other insects. It is a known fact that the common hen will not live on a diet of wheat and water, and he who cares for them properly supplies them with animal matter in some shape or form, or permits them liberty to forage for themselves. The domestic hen or turkey will do well miles away from the grain field, and industriously scratch a livelihood. Game birds then will do no harm to the growing crops, their haunts and homes being gen-

garden, and if they pay the vineyard or orchard a visit, their visit will not be as injurious as generally supposed. The Red-headed Woodpecker, Blue Jay and California Linnæ, will do more damage to the fruit grower, than all the family of game birds. Add to those few birds the mammals, viz: the Gopher, Squirrel, Skunk and Coon, and you have the worst enemies of the farmer.

To every true lover of the dog and gun, California is a paradise, for low-land and bay shooting. Since the days when "Cush begat Nimrod," who was a "mighty hunter before the Lord," never was there a better field for sportsmen than this, our adopted State; add the different varieties of game from other countries, and we have within our own boundary everything the heart could wish for, and the appetite demand. The people of California may rejoice on the day when the Ruffed Grouse on the wooded mountain sides is heard drumming his praises to Nature's God, who so beautifully adorned him; his congener the Pinnated Grouse, strutting over our broad valleys, thankful that after many miles of travel, he has found so beautiful a resting place; and our little Bob White, the familiar little Bob, shouting from early morn till night, his note of joy echoing from mountain top to valley beneath, his voice reverberating through the deep gorges and cañons, mingling with the hues of the rustling leaf, clad in all the gorgeous hues of the rainbow, and yet so harmoniously blended by Nature's artist that he looks both trim and modest.

This valuable Society had a law passed last legislature, to prohibit the killing of all imported game birds in this State, for a period of four years, under the penalty of fine or imprisonment. This will be ample time to stock the country, at least to have their numbers increase sufficiently to protect themselves. We will be content the day we can capture a White Bass, from some mountain lake, or kill a Grouse on the neighboring hillside, returning to the camp fire to discuss dainties now far from our reach.

As a matter of interest to the State at large, the importation of game birds and fish of different species will furnish a large supply of good, nourishing and healthy food for the inhabitants.

The Ornithological and Piscatorial Society are in communication with several well known sportsmen in the East, in London and in Australia. R. B. Woodward, Esq. has with his usual generosity, offered the Society both room and water in his gardens to hatch out some thousands of trout ova which they have on the way from the East.

All persons holding large tracts of land containing springs, will remember that they may be made with little outlay, a source of great profit, as one acre of water properly stocked and taken care of, returns as much income as ten acres of land used for farming purposes.

The mountains, valleys, streams, lakes and woods, peopled with animated nature in the shape of birds and fish (whose flesh is appetizing and suited for the well being of man) the capture of which in a legitimate and sportsman like manner, gives enjoyment, and hearty invigorating exercise to the emaciated muscle and over taxed business brain.

We sincerely hope that the endeavors of this Society will meet with the approbation and cordial support of every well wisher of this State.

J. WILLIAMSON.

CEMENT FOR FASTENING INSTRUMENTS IN HANDLES.—A material for fastening knives or forks into their handles, when they have become loosened by use, is a much-needed article. The best cement for this purpose consists of one pound of colophony (purchasable at the druggists) and eight ounces of sulphur, which are to be melted together and either kept in bars or reduced to powder. One part of the powder is to be mixed with half a quart of iron filings, fine sand, or brick dust, and the cavity of the handle is then to be filled with this mixture. The stem of the knife or fork is then to be heated and inserted into the cavity; and when cold it will be found fixed in its place with great tenacity.

AGRICULTURAL AND HORTICULTURAL
WORK FOR JANUARY.

The weather during the latter part of December and the beginning of January was very fine for all out-door work; although unfavorable to the farmer on account of insufficient moisture. Had the same continued much longer, the consequences might have been serious; but as we are now writing a general rain is descending, and from appearances at this moment there is no occasion for anxiety. The young grass has certainly suffered somewhat, and more land would doubtless have been planted, had we had earlier rain; but there is time enough yet to make all right. The croakers may as well postpone their lamentations *sine die*.

It is difficult to establish rules as to time for agricultural and horticultural work, applicable to every locality; the best we can do is to suggest a plan of operations which may be available in an average climate, such as San Jose, Oakland, Sacramento, etc. But even if we could suggest positive rules, yet every year's experience of the practical cultivator may induce him to modify those rules to suit his peculiar locality, or his special convenience. Those which we offer are generally, though not invariably, practiced throughout the State.

Whoever has taken advantage of the fine weather for farming, to prepare his ground for planting trees, shrubs, and vines, should proceed with that operation without further delay. In the extreme northern parts of the State where heavy frosts occasionally appear, the planting of grape-vines should be delayed until February or March, unless the weather should be very pleasant and open; but in all moderate climates, further delay may be injurious.

Lawns and flower-beds which were well manured during the last month, should still be left undisturbed for another month, so as to permit the rain to carry down all the fertilizing matter of the manure into the ground. In many cases, even an additional top-dressing may be advisable, as manure when spread over the ground and exposed to a dry atmo-

sphere, will to a great extent, if not entirely, lose its fertilizing qualities.

The pruning of trees and shrubs, the clipping of hedges and borders, and the trimming of flowering and ornamental plants should be performed immediately, if not already done. The latter part of December and the beginning of January, was rather severe on tender out-door and green-house plants. We have had a spell of cold weather, which to the best of our knowledge, has been of longer duration than has ever been previously experienced,—yet comparatively little damage has occurred, which is doubtless attributable to the fact that the atmosphere was rather dry than otherwise during that time. We have not heard of any serious effects from the cold weather, on any other than such plants as are cultivated for ornament.

In the green-houses, fires had to be resorted to, and our professional gardeners had to be on their guard for several days. During such cold weather as we have experienced lately, we advise the watering of green-house and parlor-plants more sparingly, and to give plenty of air from early morning till early afternoon; also to close green-houses early during cold weather, which has the effect of retaining the warmer temperature of the day, always remembering that plants that receive little airing suffer most from frost.

Orchards and vineyards which have been pruned, should now be cleared from all rubbish; stakes should be examined and replaced where necessary, and stocks and branches tied up.

It is now time to make cuttings of such trees and vines as are propagated in that manner, such as mulberry trees, grapevines, gooseberries, currants, &c., &c. These should be carefully selected from strong wood, tied up in bundles, and buried in light well drained soil in some shady place, until the ground is prepared to receive them. It is not so well to plant cuttings immediately after they have been taken off.

Hyacinths which were planted about the latter part of November, or early in December, are

now coming into bloom, another set of them should be planted, so as to have them flowering as the others fade.

Various bulbous roots may now be planted in the open air, such as Hyacinths, Tulips, Crocus, Narcissus, Peonies, Gladiolus, Lilies, &c. The planting of Dahlias should, however be delayed for a time to allow the roots to rest, and also as any light frost will kill their young shoots.

Flowers from out door sources have been scarce during the past month, on account of the cold weather. Violets, Sweet Alyssum, Laurestinus, Polygalas, and the Acacias, bloomed as freely as ever, but Roses and Pinks are scarce, although enough of them are produced in the open ground to supply the wants of our florists. For some reason there is a falling off in the quantity of Violets brought into this market, severe frost no doubt checks them also, but even in pleasant weather the demand seems less abundant. What is the cause?

Under glass and in the parlor window, the Camellia is now producing its exquisite flowers in profusion, while the demand for them is fully equal to the supply. Chinese primroses are also in full bloom. The Azaleas, Cyclamen, Cinerarias, Cuphea, (fire-cracker plant), Bouvardia, Bignonia grandiflora, Fuchsia and Heliotrope, are among the chief attractions of the green-house at the present time.

In the kitchen garden we advise the planting of early cabbage and cauliflower plants, and the sowing of later cabbage and cauliflower seeds. Cabbage, cauliflower and tomato seeds should be sown under glass and transplanted. Early vegetables such as peas, radishes, lettuce, carrots, &c., may be planted now at any time, when the ground has been properly prepared; if the weather should continue cold, which is unlikely, we may lose some of the seeds in the open ground, but we must take those chances, seed is cheap, and we can well afford to plant twice.

When we visit our markets at the present time, and notice young onions, leeks, cab-

bage, cauliflowers, artichokes, celery, parsnips, young radishes, lettuce, spinach, green peas, &c., &c., it seems that we may raise these things almost at any time.

LETTER FROM NEW YORK.

NEW YORK, DEC. 27th, 1870.

Friend Horticulturist:

I have received your two initial numbers of "*The California Horticulturist*," and perused them with more than usual care and interest.

They are indeed a great credit to you, both in style and contents—able, practical, tasteful, dignified, and appropriate to the necessities of your portion of the U. S.

I am surprised to see how well you have done your work, and in candor must admit, that your publication, in value and literary interest, is equal to anything published here in the East.

Our field here being wider than yours, and having better facilities of correspondence and publishing, perhaps we enjoy some advantages and a larger circulation than one like yours would possess, devoted to the needs of a single section; but I am gratified that a Horticultural Journal is started on the Pacific coast, and has the prospect of so good and successful a career.

I am constantly "on the wing," traveling into all parts of my native country. Two weeks out of four, I am away from home seeing the best of life and business, and scenery, and learning all I possibly can of the native wealth and advantages of the different States.

Among all my trips, I esteem with special pleasure, the short stay I had in California. It was an event of a lifetime, and our party were met with so many kind attentions from voluntary friends, that we all cherish the most agreeable memories of California hospitality.

I was pleased above all things with your climate. The glorious *sunshine*, so full, so free, so overwhelming in its brightness, and unchanging day after day. No clouds, or storms, or rain, or cold; it seemed almost a Paradise to our everchanging Eastern weather. Then

again, I admired the wonderful ease with which foreign plants, either from the tropics, or sub-tropics, or from China, Japan, or the East Indies, became adapted to your climate and soil, and grew with such amazing rapidity.

The Acacia with its numberless varieties, and beautiful foliage and habits of growth, was a constant astonishment to all of us. The Monterey Cypress was also interesting, more than equalling some of our finest Spruces here. The Eucalyptus was another novelty that excited our curiosity, while pages of well written foolscap cannot detail how we were captivated with the *flowers*. Bright gems of earth, which bloomed so profusely. Geranium climbing over fence after fence, bespangled with glorious crimson blossoms, and Wistarias, or honeysuckles, clambering up along piazza and balcony toward the upper stories of your houses, were one after another scenes of delight. I cannot use adjectives enough to express all the varying sensations which came across my mind, as I witnessed each new turn in the panorama, for in very truth I could only repeat the famous line,

“Lost in wonder and in praise,”

and then keep silent, feasting my eyes to fullest extent.

What a charming suburb your Oakland is, I admired its tasteful architecture, and the elegance of the surroundings of its many mansions, I could feel equally at home there, as at any of our own suburban towns, and we were doubly pleased at the evidences of such wealth and taste, and refinement, so unexpected to us.

The great Pacific Railroad, now brings the East and West so closely together, that California Horticulture must hereafter sympathize in some degree with our Eastern Horticulture.

We hope to be better acquainted with your best pomologists, your noble hearted gentlemen, always so kindly and genial in their attentions; we want an interchange of knowledge, our eastern horticulturists patronizing your journals, and *vice versa*, your Pacific friends taking an interest in our Eastern advantages.

I anticipate a return to California ere many years, and a better acquaintance with California and her public spirited citizens.

Two new Pacific Railroads are now reaching out their arms toward you. The Northern Pacific is already finished 250 miles; the Southern as much more, each progressing a mile a day, and soon racing at the rate of five miles a day toward the Pacific Ocean. We live in the hope that in less than five years we shall again take our Palace Car from Chicago and go through the fields of upper Mississippi, Minnesota, Nebraska and Oregon, down through the entire length of California, and home by the Southern Pacific through Arizona, New Mexico and Texas. Then we shall see you again and shake hands with all who so kindly ministered to our pleasure before.

Success to your enterprise, and may California help to sustain a journal so worthy as yours.

HENRY T. WILLIAMS,

Editor the “*Horticulturist*,”

N. Y.

P. S. The remarks of your contributor *Hortus* in his criticism of some botanical misspelling in the article on Woodward’s Gardens, copied from my journal, might have been tempered a little in charitableness had he known my difficulties when I wrote.

I visited the garden with the rest of the party, and was obliged to see everything and take my notes down in less than an hour. At the Occidental Hotel after my return, I rewrote the article with best facilities within my reach, and despatched it by mail to my printer. As type setters know very little of botany, I was gladly disappointed to see how few errors were made.

When *Hortus* becomes a *traveling horticultural editor* like myself, he will never again find fault with unintentional typographical errors. He must remember we came with kindness, to do justice to California institutions and appreciate her climate, soil and productions. If we were to be criticised for minor deficiencies, I am afraid you would never see the “*like of us again.*”

BAY DISTRICT HORTICULTURAL SOCIETY OF CALIFORNIA.

A regular meeting of this Society was held on Saturday, December 31st, 1870, and although it was the last day of the year, when people are engaged in the duties and pleasures consequent upon the birth of a New Year, still the number present was such as to prove the great interest taken by each member in the work of this Society.

After reading the minutes, and ordering the payment of a number of bills, eight new members were elected. On motion of Mr. Miller, (which motion was seconded by Mr. Bolander in a short speech,) F. Von Mueller, Director of the Botanical Gardens at Melbourne, Australia, was elected an honorary member. The action of the Society in this matter, is to be commended. Dr. Von Mueller, is noted for the great interest he has taken in matters of botany and horticulture, both in Australia and California.

On motion, the Society adjourned until Saturday, January 14th, 1871, when Prof. Bolander will continue his lecture on the Coniferæ of the Pacific Coast.

This Society, which is as yet in its infancy, has made good progress, and it is to be hoped that it will be liberally supported by all classes of our people. It is well to say here, that professional men first of all, should see the necessity of using their most strenuous efforts to make it a success; and in fact we believe, that the public reasonably expect that every man directly interested, or connected with horticulture, shall take an active part in the duties of this Society; by so doing, he furthers his own interests, and will help to bring about a better condition of things in the long neglected field of horticulture.

So far, the Society has been engaged in perfecting its organization; but we have no doubt, that its members will soon bring before the public, matters of general interest and importance.

We candidly believe that those of our horticulturists, who have now all sorts of excuses

in withholding their aid and co-operation, will regret in course of time, the neglect of their own interests, and that of a population who only need to be properly informed as to their true interests, in order to take hold and overcome existing difficulties.

We deem it our duty to remove a certain disregard for united action among professional men, and trust that nothing will remain undone to create harmony and good feeling among our horticulturists. Let intelligence and good judgment prevail in so important an institution as the Horticultural Society; the only enemies of which can be ignorance, selfishness and prejudice.

LANDS LYING IDLE.

Not long since we had occasion to visit the foothills at the back of Oakland, Brooklyn, and San Leandro, and were surprised to see the extent of land well adapted for the cultivation of almost every kind of produce. Hundreds of acres owned by rich men, and also hundreds of acres owned by a class who exhibit no disposition to do anything, save what is absolutely necessary to keep them from starvation. A spread of country capable of supporting numerous laborers, and of producing the necessaries of life for a large population, is here lying idle and unproductive. We also noticed that a good supply of water was obtainable for irrigating purposes, from natural springs.

Would it not be advisable for these land holders to consider the practicability of renting out, or leasing some of these lands to occupants who are willing and able to work, and thus make these lands productive. We have no doubt but that men with small capital can be found, who will cultivate these acres to the general advantage; and if such do not present themselves, would it not be a good investment if the owner would advance a few hundred dollars for teams, ploughs, seeds, etc. If reliable men will give their labor to such enterprise, surely the land owner can afford a few hundred dollars, (protected by a

lien on the crops) for tools, animals, etc., which remain his property—his land would thus be improved, and consequently advance in value—and being productive would at least pay the interest on the capital invested, while it would furnish labor to the now idle men, and help to advance the interests of the State. We cannot see how the owner could possibly be a loser.

We appeal to all thinking and intelligent land owners, to give this subject serious consideration, and they will find that on making their wishes public, many able, reliable, steady and energetic men, will be found ready to avail themselves of any legitimate and fair proposition.

Our Agricultural and Horticultural interests, have been neglected too long, let every one do his share towards improving the situation, and we will soon see more prosperous times.

GLADIOLUS IN BLOOM—A few days since we saw a scarlet Gladiolus in full bloom on Jackson street, near the top of the hill. This shows that we might have the Gladiolus in bloom all through the year, if consecutive planting was resorted to. The bulbs are cheap, and two dozen planted at the rate of two per month would furnish us with flowers, "all the year round."

ERRATA.—In our last number several errors occurred in the spelling of botanical names. On page 49 for *Araria pyonan*, read *Acacia pyenantha*; for *Araria Laphantha*, read *Acacia Lopantha*; for *Tetragnia*, read *Tetragynia*; for *Leptosporium*, read *Leptospermum*. On page 51 for *Iscoandria*, read *Icosandria*; and on page 59 for *P. Sabinana*, read *P. Sabiniana*.

CONES OF CONIFERÆ.—It has been asserted that certain seed collectors are roasting the cones of the Conifere in order to extract the seed more readily. It is not necessary to say that seeds under such treatment are worthless. S. W. Moore informs us that he receives his seeds in the cones, and that he lets nature have its course in extracting the seeds.

Editorial Portfolio.

It is only within the last few years, that the people of California have been willing to recognize this as their future home, and to inaugurate a class of improvements, which shall present an aspect of permanency. In former years, thousands of our population were continually drifting hither and thither, in search of some new *El Dorado*, in which to realize their dreams of a golden fortune. We are now becoming more constant, and beginning to see and understand the necessity of sober, patient industry.

Mining is naturally associated with many evils, not the least of which is excitement, and people in an excited state of mind will not be conscious of their folly, until loss of time and money, brings them to grief. Although excitement is a marked feature of a mining population, the evil is not confined to them alone. It has spread into other pursuits, and, where least expected, into that of Horticulture and Agriculture.

Since more attention has been paid to the cultivation of the soil among us, the producers have been attacked with a large number of special fevers, or excitements. Fruit raising, Bee culture, Hop vine, Sugar cane, Grape vine, Tobacco, Cotton, Silk, Castor oil, Rice, Ramie plant and Sugar beet, have each in turn, been the source of undue speculation. Whenever a plant of special interest is introduced upon the coast, the most flattering report is given by the introducer, and, before he has any particular knowledge of its probable success, he heralds his expectations as accomplished facts, and induces others to embark in the enterprise without inquiry on their part, as to its value or ultimate chance of success.

A few years ago the grape fever set in, and has continued, with more or less virulence, until the present time. We have a large number of vine-growers, but few that understand the making or keeping of wines. The great bulk of wines coming into market here, and at the East, are of an inferior quality, and act as an injury to the wine growing interest of

the State. Grape vines have been planted without regard to soil, aspect, climate, or variety; and although the wine interests of California look bright as far as exhibitions are concerned, yet many of our producers will be disappointed for years to come, unless they make themselves perfectly familiar with all the facts that can insure success. There must be less rage for new varieties, and a better cultivation and care of old favorites.

The silk, or rather cocoon fever, has been raging here for some years; but we fail to see great results of practical value, except some fine displays at our fairs and the drawing of premiums from the *State Treasury*. The same can be said in regard to the Sugar Cane, Hop Vine, Tobacco, Tea, Rice, Cotton, etc. Shall these new undertakings have the same fate? or have the introducers considered all the "pros" and "cons" in question, and are they determined to follow the thing up, until they have proved a practical success? It is true, that the introducer of a horticultural production new to the country, is to be considered an enthusiast, and he may over estimate the extent of his success; but, even should he fail in carrying the day, others are benefited by his labors, and have less obstacles to overcome.

This same evil of a temporary mania for new things, we find even in the ornamenting of our homes and gardens. A few years ago nurserymen could sell nothing but Acacias; now, the Acacia is a very good ornamental tree, but then there was no reason to plant it to the exclusion of all others. Soon after, Pines and Cypress became the most favored trees, and for a while nothing else could be sold. They are now on the decline, while the Gum trees, (Eucalyptus), are in increasing demand. The nurseryman and gardener are not consulted as to what would be the best tree to plant in a certain locality, for people want Pines and Cypress, or the Gum tree, just because every one else plants them. And so the nurseryman raises them by the hundreds, to supply the universal demand, to the neglect of many varieties better adapted to our wants.

The time has come, when the field of horticulture and agriculture should be cleared of this mania for something new, which seems to be the greatest drawback to our prosperity. Horticulture should not have its new fashion every year; but ought to take hold of facts, and adhere to them, until success is apparent.

We hear at times, complaints that capitalists do not aid new enterprises here, as in the Eastern States or Europe. We cannot see in what way capital could invest safely with us, while our minds are wandering from one thing to another. There is no doubt, but that Silk culture in California can be made a success; but we cannot expect capital to come to our aid, until we produce silk enough to make it an object. We sincerely believe, that the Ramie will also be a success; but unless enough is cultivated to supply manufactories, or to export in large quantities, we cannot expect capital to cooperate. The same can be said in regard to the sugar beet, tea and many other horticultural productions. The present condition of both horticulture and agriculture, demonstrates very clearly, that it is far easier to raise crops, than to turn them into cash. Producers must, we think, see the necessity of preparing a channel for their produce, and taking into consideration, (as a part of their occupation) how they shall present the fruits of their labors to the consumer in its best possible shape, and at as low rates as is compatible with profit to themselves.

Now we do not know of any other remedy for all these evils, except an united action on the part of the cultivators of the soil. There should be the best of feeling between our horticultural and agricultural men; all should work for the welfare of each other, and the country at large. Experiences should be laid before the public, and thus become a general benefit.

In the Eastern States, horticultural and agricultural societies have become necessary institutions; their labors have been, and still are of vast benefit to the country. Here in California, every class of business and industry has its society for cooperation and mutual protec-

tion, but horticulture, which needs a more attentive and watchful eye, constituting as it does the chief resource of our future prosperity, seems to be deficient in these essential points; its representatives doing less for mutual protection than almost any other class of people. It is not alone the cultivator who is to do all this work; all classes must give their aid.

When our people have once conceived the importance of properly developing our resources, and are willing to assist with material aid, as much as lies in their power, we shall have made a fair step towards success. If our agricultural and horticultural societies are compelled to rely solely upon those directly engaged in the cultivation of the soil, they cannot accomplish much. The objects of the societies must be to hold exhibitions, pay premiums, disseminate information, import and distribute seeds and plants, assist emigrants, etc. To do all this well requires funds, and the merchant, banker or lawyer is just as much expected to contribute his dollar towards the maintenance of these institutions—working as they do for the common good—as the farmer or gardener.

We have agricultural and horticultural papers and magazines, whose duty it is to lay before the public all the information and knowledge of importance in their field. They are necessary mediums for all concerned, but, unless these journals are liberally supported by the mass of intelligent people they cannot devote as much time and care to their enterprise as is desirable. California has been liberal in all things; now let her be liberal to herself, and make a united and determined effort for the advancement of her great agricultural interests.

OUR friend Chas. H. Hoffman at No. 423 Natoma Street, will always be ready to perform all kinds of garden work in good style. Parties who wish to have gardens laid out or renovated should give him a call.

C. L. KELLOGG, No. 427 Sansome Street, offers for sale a splendid lot of California and imported bulbs, and also seeds of all kinds.

BOOKS AND JOURNALS RECEIVED.—We have received from the house of Orange, Judd, & Co., of New York, The "Practical Floriculture" and "Gardening for Profit;" both of which are written by Peter Henderson. They are books which we can in every way commend to our readers. We have received from the same house, "Harris on the Pig." This work is a most valuable one to all those interested in "pork culture." The price of the above books is \$1.50 each, and they can be had at this office. We have also received "The Horticulturist," H. T. Williams, Editor, New York, the "Gardeners' Monthly," Thomas Meehan, Editor, Philadelphia, and the "American Agriculturist," published by Orange, Judd & Co. The above journals are the leading horticultural and agricultural publications of the Eastern States. They are full of interesting matter, relating to the cultivation of the soil, either for profit or pleasure.

AGRICULTURAL MEETING.—At the annual meeting of the Santa Clara Valley Agricultural Society, held in San Jose, the following gentlemen were elected to the respective offices for the ensuing year. President, H. C. Wilson; Vice-Presidents, C. Peebles and C. B. Polhemus; Treasurer, M. Schullenberger; Secretary, Tyler Beach; Directors, W. O'Donnell of San Jos , and J. P. Sargent of Gilroy. The Treasurer's Report, gave as a cash balance on hand the amount of \$39.38. It was ordered that the Secretary have 500 copies of the Constitution and By-Laws printed, and also a list of the life members.

DREER'S GARDEN CALENDAR FOR 1871.—This little work is before us. Besides the catalogue of seeds, new varieties of vegetables and flowers, it contains valuable information for their proper cultivation. It is well illustrated. See advertisement on another page.

ELLWANGER & BARRY, ROCHESTER, N. Y.—It is with pleasure that we refer to the advertisement of the above named firm in this number of our journal.

THE
CALIFORNIA HORTICULTURIST
AND FLORAL MAGAZINE.

VOL. 1.

FEBRUARY, 1871.

No. 4.

GERANIUMS. (*Pelargoniums*.)

If we were to say that Geraniums are not cultivated in our gardens and green houses, we would undoubtedly surprise many of our readers. Yet botanically speaking, this is nevertheless a fact. The class of plants cultivated, and known by florists and gardeners, as Geraniums, are really *Pelargoniums* according to botany, although Geraniums and *Pelargoniums* belong to the same order, that of Geraniaceæ, which order comprises also the *Erodium* and *Monsonia*.

However, the term "Geranium," is used so universally and we are all so familiar with the name, that it would be contrary to our policy, if we did not adhere to the same term, and we feel therefore, justified in heading this article as above, Geraniums.

Of the Geranium proper, we may as well state here, there are a number of varieties, some of which have been cultivated in the gardens of Europe, but we believe they have disappeared entirely from the catalogues. These Geraniums are natives of the northern temperate regions.

The Geraniums, known as such by all of us, are the results of floriculture, which by the art of hybridizing has brought our flora to its present perfection. We shall confine ourselves to this class of plants, as one of the most valuable in our gardens, conservatories, green houses and parlor windows, independent

of the botanical terms and classification. The native countries of the Geraniums, so-called, and from whence all the sorts in cultivation have had their origin, are the Cape of Good Hope, and Australia. The number of species is over sixty, and out of these so many varieties have been produced that it is difficult to classify them all.

All the Geraniums seem to thrive well in California, in the open air, and only in the extreme North do they need protection during winter. In San Francisco, and in localities of a similar climate, they form one of the chief attractions in the gardens, blooming in profusion throughout the year. Even after the unexpected heavy frosts we had during the latter part of December, we find them unharmed and flowering profusely at the present time.

The most popular distinction made by florists in the classification of Geraniums, is as follows:

1. Scarlet Geraniums, of which the original is probably *Pelargonium inquinans*; produce flowers from a pure white, to a brilliant scarlet, in all imaginable shades. There are over 150 varieties, of which the most frequent with us here is the common Scarlet, found in almost every yard, and therefore not considered a great ornament. However the more improved varieties are a most desirable class of flowering plants for pot culture, for the flower garden, or as bedding plants for the lawn.

2. Double flowering Geraniums, these really belong to the Scarlet Geraniums, but they form such an important and interesting acquisition, that they are generally treated as a class by themselves. With us here they are yet novelties and rarities; in Europe and the East they are now becoming plentiful. There are probably not over 25 specimens of Double Geraniums cultivated in California by private individuals, while the nurseries have also but a limited supply on hand. We hope that a few years will bring them into general cultivation. The immense and gorgeous heads of flowers, containing sometimes from 75 to 100 well developed and very double blossoms, are of long duration. Some of the best varieties are the Andrew Henderson, (not in cultivation here yet), of a deep scarlet lake; Gloire de Nancy, a beautiful scarlet, very double; Triomphe, Rose Queen, Conqueror, (full rich vermilion flowers, with conspicuous white eye); Victor, (bright orange scarlet with white stripes); Double White, (a pure white double, very beautiful); and many others equally as good.

3. Variegated leaf Geraniums (horse-shoe Geraniums), or *Pelargonium zonale*, (zonale Geraniums), very much esteemed for the peculiar coloring and shade of their leaves. Some of the new varieties are most exquisite, but they are rare with us yet. They are again divided into Golden, Bronze, Tri-color and Silver variegated.

4. Ivy leaf Geraniums, (*Pelargonium peltatum*), of a climbing habit. They are well adapted for Trellis work, Hanging baskets and Wire frames. The flowers are from a pure white to a purple crimson, and while the foliage of some is of a glossy green, others have golden variegated or silver edged leaves. They bloom luxuriantly with us during summer and winter, and form a most striking appearance in many of our gardens just now.

5. Pelargoniums, known by their large flowers, the upper petals of which are marked with dark blotches. They are generally subdivided into Show Geraniums, which are of a more robust growth and produce large showy flowers, and the Fancy Geraniums, of a more

dwarfing growth and producing smaller flowers. These also bloom with us freely during summer and winter in the open air. They are too well known to require recommendation; the number of varieties is almost endless.

6. Sweet-scented Geraniums, the most of which are well known for the fragrance of their foliage. The most popular varieties are the Nutmeg scented (*Pelargonium odoratissimum*;) Rose scented (*pel. graveolens*;) Mint Geranium (*pel. radula*;) Lemon scented (*pel. crispum*;) Peppermint scented (*pel. tomentosum*;) Oak leaved (*pel. quercifolium*;) Apple scented Geranium etc. While the flowers of these Geraniums are insignificant, a bouquet is hardly complete without some leaves of the Rose scented or other sweet-scented Geranium.

7. Bulbous-rooted Geraniums, from the Cape of Good Hope, which deserve a place in a collection for their peculiar colored flowers. We mention the *Pelargonium melanosthon* which produces flowers of a blackish color; *Pel. triste*, with flowers of a brownish green, etc. The flowers are fragrant towards the evenings only. To my knowledge there is but one plant of this kind here, it is cultivated by Mrs Bell, near the North Beach. It has flowered well for two years past and is rather a curiosity.

From year to year, new varieties are produced by Hybridizing, differing in character and habitus from the above named varieties, so that it is next to impossible to give even an approximate idea of the number existing.

As indicated before, the cultivation of Geraniums with us in California is so successful and easy, that it requires no particular instructions from the florists. They thrive best in a light sandy loam, and they require more sun and less moisture than the average of flowering plants. If cultivated in pots under glass, they should be watered sparingly during the winter season and be well drained; they should have plenty of fresh air and all the room possible, so as to obtain bushy and compact specimens; it is well to turn the plants from time to time so as to expose all sides to the strongest light and prevent the plant from

growing one-sided. As soon as the roots appear numerous on the outside of the ball of earth, they should be transplanted into a larger pot. Young plants are always preferable, in as much as they are raised without any trouble. We do not advise keeping Geraniums over two years old in pots; but if it suits convenience to keep them longer, turn them out of their pots, shake the earth off the roots, cut back branches and roots and plant again in a smaller pot. In this way the plant may be kept in a growing and continuously flowering condition.

Geraniums are well adapted for groups on the lawn, particularly the scarlet; yet we do not see much use made of them for that purpose. In England they are very extensively used in this way, although there the plants have to be taken up during winter; how much easier can we make use of them for the same purpose when the plants can remain out during the winter and when they flower as freely during this time as they do during summer.

A bed filled with scarlet Geraniums, the larger plants in the centre, enclosed by a belt of silver leaf Geraniums, and finished off by a border of Boxwood, would certainly produce a good effect. The more general cultivation of the choice varieties of Geraniums is very desirable.

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CALIFORNIA MILK WEED.—The idea of milk weed being made an article of commerce will be new to most of our readers. Nevertheless, it is one worthy of attention. A circular from a produce broker of Liverpool, under date of November 25th, says: "There can be no question that this article, now allowed to run wild and uncollected in the State of California, can readily be made a valuable article of commerce, competing with many other fibres now in use. With cotton so dear, our demand for fibrous material of any kind is almost unlimited, and I append the value of some of them, in American currency, in evidence of what milk weed would have to rival: Hemp, East Indian, per ton, 2,240 pounds, \$156 to \$390; Jute, East Indian, \$90 to \$135; Istle, or Mexican fibre, \$250 to \$300; Palmetto leaves of America, \$240 to \$250; China grass from Japan and Mexico, \$240 to \$300; Flax, \$167 to \$420. Now, if milk weed grows wild, and can be gathered in any quantity at discretion; if the fibre is as strong as hemp, or only equal to some of the others named; and if it can be mixed for the manufacture of linen, or spun in imitation of the Japanese silk, like the China grass, etc., it is indisputable—as the California papers state—that there is a fortune in the gathering of this weed and its exportation to this country, and the sooner it is begun the better. The value may even exceed any of the above."

THE OLIVE TREE (*Olea*).

Some time since we saw a letter in the *Alta California*, describing the usefulness of the Olive, which seems to thrive well in our California soil and climate. We extract from the letter the following:

"The olive tree has flourished from time immemorial, along the shores of the Mediterranean Sea, although at the present day it is chiefly cultivated in Italy, the south of France, and Spain. In these localities it commences to produce fruit at the second year, and arrives at maturity at about the sixth year. It is propagated from layers. These are cut from the parent tree in January or February, and planted in trenches about a foot apart, and transplanted the second year. The trees should then be planted about ten feet apart, and in the manner usually adopted in transplanting fruit trees in this country. They grow more rapidly in moist bottom lands, but the olives are said to be better which grow upon hillsides. In this State, the fruit ripens in January or February. The yield varies in different years, a full-grown tree producing, upon an average, from fifty to seventy-five gallons of olives. One tree in the old Mission gardens in San Luis Obispo, produced in 1868, one hundred and ten gallons of plump, ripe olives. In this State, a tree will generally produce olives in the seventh year. The writer has seen several trees, now in their fifth year, which, without any extra care, produced from six to ten gallons of olives each.

The old Franciscan friars, who founded the Missions in this State, planted a large number of olive trees in several of the southern counties, many of which, in San Luis Obispo, Santa Barbara, Los Angeles and San Diego counties, are still living. These have produced abundant crops for many years, and the fruit is said to equal in size and flavor that produced along the Mediterranean.

From these trees the friars obtained all the oil which they used in the church and for domestic purposes; but, after the secularization of the Missions by the Mexican Government, these orchards were neglected, many trees

were destroyed, and the manufacture of oil abandoned. A few olives were gathered each year by those who wished to preserve them for their own use, but the majority of the trees were suffered to decay. In San Luis Obispo and San Diego counties, however, at the present time, the olive orchards have been leased from the church, and oil is being produced in considerable quantities and at remunerative prices. The process used for obtaining the oil is of the simplest character; indeed, it is the same which was used a generation ago by the old friars. It consists of two circular stones, resembling in size and shape those used in flouring mills. One of these is placed horizontally on the ground; the other rests vertically upon it. A vertical beam revolves in an aperture in the centre of the lower, or horizontal stone, having two horizontal arms; to one of these the vertical stone is attached, which revolves upon the surface of the lower stone and upon its own axis. The other arm is used in propelling the machine. The ripe olives are thrown upon the surface of the lower stone, and are crushed by the weight of the upper one as it rolls over them. The pulp thus formed is placed in a press, and the oil and water together forced out. The water is drawn out from below and the pure oil remains behind. Some idea of the revenue to be derived from olive culture may be had by instancing the fact that in 1868, from 100 trees, young and old, in the Mission garden in San Luis Obispo county, upward of 3,000 gallons of olives were gathered. These, at the rate of ten gallons of fruit to one of oil, (the common rule,) produces 300 gallons of oil, which readily sold for \$4.00 per gallon, making the very comfortable sum of \$1,350 as the labor of three men for about six weeks. Olives fit for pickles, sell for 75 cents per gallon."

To the best of our knowledge there are four varieties known of the olive.

1. *Olea Americana*, (American Olive,) a native of South Carolina and Florida. The flowers are fragrant, of a white color, the fruit is round and of a beautiful purple hue.

2. *Olea Europæa*, (Common Olive,) is a native of the southern part of Europe and north-

ern Africa; it is undoubtedly the variety the correspondent of the *Alta* refers to.

3. *Olea capensis*, a variety of which we know but very little.

4. *Olea fragrans*, (fragrant Olive tree), a native of China and Japan. This tree is highly esteemed in its native country, for the extraordinary fragrance of the flowers, which are used to flavor tea.

The Olive tree thrives best in leaf mould, mixed with sand and loam, although they are known to do well, according to the above correspondent, in other soils. They are propagated by layers, cuttings, suckers and seeds. The cuttings should be planted in pure sand, under glass, and a little bottom heat may be advisable. The seed should be sown immediately after ripening, and may be sown under glass, the seed will not germinate before the following year.

The Olive is a beautiful ornamental tree, its foliage is of a dark green color above, and greyish white beneath. The tree grows, in its native country, to the height of twenty feet. We are in favor of cultivating the Olive tree more extensively in California, but as the tree does not seem to be remunerative here before the sixth or seventh year, it would not be advisable to depend on a plantation of Olive trees alone. However, where orchards or ornamental trees are planted, we see no good reason to neglect the setting out of a certain quantity of Olive trees in the same plantation.

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A WRITER in an English journal suggests the use of ordinary sulphuric acid or oil of vitriol, as an excellent agent for the destruction of weeds on lawns. The difficulty of eradicating such unsightly elements of the lawn is well understood, since to do so satisfactorily requires the removal of a large amount of dirt, producing a corresponding injury to the general appearance. By taking the acid in question and allowing a few drops to fall into the crown of any obnoxious weeds, it will turn them brown in an instant, and ultimately cause the death of the plant. Great care must of course be taken to prevent any of the acid from falling upon the skin or any article of clothing.

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AN orange tree in Carson City, Nevada, is bearing fruit.

GLIMPSSES INTO THE WORLD OF PLANTS.

TRANSLATED FROM THE GERMAN.

Continued.

Plants have instinct, which increases almost to an expression of passion. They have an aptitude for flourishing; they show vitality in combatting the elements; in one word, they have a decided will for life. They turn away from everything disagreeable, and all dangerous influences and neighbors, and show a longing desire for air and light, for water and substantial nourishment. They anticipate and scent these, and will send their foragers to them at long distances; never at random, but always direct to the desired point.

Why should this not astonish us, when similar acts in animals can scarcely be explained. We once bought a lot of crawfish; as usual, they were put into a wooden tub, and for the time being, covered with nettles, a habit which we could never understand; perhaps it is done to accustom them to death in the kettle. One of our prisoners must have escaped by a bold jump, and had started on a tour of discovery for water. At a distance of some thirty yards was a well, and some forty yards from that a pool of dirty water. Now instead of going to either of these, our sensible friend passed on towards a small clear lake some sixty yards further off; and had in a direct line almost reached this goal after a tiresome march of twenty-four hours, when he was found by some one, who of course now forwarded him much quicker.

If such instinct as to distance, such sagacity in selection, appears to us wonderful in an animal of a lower class, what shall we say to the instinct of plants.

We once found in the depth of a large forest, a pine tree on the edge of an erratic granite-block, about the size and height of a dining table for 8 or 10 persons. Entirely against the nature of the pine, the tree had grown a very thick tap root, which continued the trunk downward and entered into the ground. With this the subsistence of the tree was assured, but not the stability; nothing was done to resist the power of the storms.

The taller the tree grew, the more it was exposed to the wind, and the more necessity it had to secure itself. It now sent roots uncovered right across the stone in all directions, and these, looking like red snakes, lowered themselves perpendicularly to the ground, as soon as they reached the edge of the table-like stone. These roots, which in time radiated, could not yet give sufficient stability to the tree, it was necessary to send one, and that too the thickest, directly opposite to the main root, right across the granite table a distance of ten feet, and thence to the ground. By this the tree was perfectly secured, and had not only clasped the stone as we would use our five fingers to lift an object, but had the points of these fingers embedded in the ground, and thus firmly attached to the stone. But even this was not yet enough, for, although the subsistence and stability of the main plant, was thus provided for, its feeders, which had almost become air-feeders, now needed a different covering from that which they would have required in their ordinary condition as roots under ground. They had to be protected against the inclemency of the weather, against snow and ice, and this also the plant well understood how to do. All these roots, so far as they had come in contact with the air, were provided with a very thick red-brown rind. Thus we find here perfectly conscious acting.

Here is another example of the instinct of plants. A farmer noticed that some elm trees, growing by the roadside, sent their roots into his wheat field, and robbed it of its best fertility. To obviate this, he dug a deep trench between the elms and his field, and all the roots, found running in the latter, were chopped through. However in vain. The severed roots now struck downward on this side of the trench, reached the bottom, and undermining it, passed through the clay and came up on the other side of the loam, and had thus regained for themselves their former domain, the wheat field. Who taught them to take this tiresome circuitous path through hard and uncongenial layers of clay? Must we not look at this action with a feeling of awe and aston-

ishment? At any rate our farmer did not make a second attempt; the elm trees with their knowledge amazed him, and he resigned to them that strip of his wheat field.

With such demonstrations, shall we not ask: How, if the plant has after all a kind of soul, a feeling? How, if after all it *does* hurt the rose, when we pluck it. And are we assured, that the life of the plant ceases, when we sever it from the ground. In the timber, which cracks and creaks, in very cold weather, may not a continuance of life co-exist with the general nature, as with wine, which ferments again, when the vines bloom.

Goethe tells us of a case, which well may make us think and reflect. Two sisters had received as wedding presents, tables made of wood taken from the same tree. They lived at places, a few miles distant from each other. One day there was company with the elder one of the sisters, and refreshments were taken with open doors, when all at once the table in the corner cracked with a loud noise. After a few hours news came that they had had a fire in the house of the younger sister. The remark was made in fun, that the table had already announced it; and sure enough, particular inquiries being made, it was found that at that exact time the other table was burned. It is very easy to say, it was an accident, or Goethe is a wag, a story teller. Instead of saying so, or rejecting it entirely, it would be much more sensible to study into these things. If we accomplish nothing more, than the relinquishing the habit of thoughtlessly plucking or mischievously destroying plants, by endeavoring to substantiate a soul in them, something will have been gained. We have societies to prevent cruelty to animals; why of all plants are the garden flowers, and forests trees the only ones protected. This is from selfishness. We know of a Russian peasant, who was sent into the army, as a punishment, for having cut down two young maple trees in the park of his master. It is said that in Ireland, in ancient times, the cutting down of trees illegally was punished with death.

Instinct taught mankind the beneficial influence of trees, long before science proved it.

Indians consider old trees holy. It is senseless for them to destroy young trees, and at the same time reverence old trees.

The desire for light is alike in all plants, for the light is the means of change of nourishment; without light no plant will ever arrive at a perfect development. A seeming exception to this is the compass-flower, which, like the magnetic-needle always turns to the north. The sunlight is too powerful for her, and her pointing to the north has often been of service to lost wanderers. In the region of changeable weather, we well know, that each tree serves as a guide, as on its west side through the frequent rain, the moss grows more, than on the other. This circumstance also influences the texture of the wood, and a good carpenter can easily tell from which side of the tree his boards come. Here we may say, that the mechanic can often teach the professor. To workmen in foundries, it was long since known, that white heated liquid iron could be touched without danger to their hands. A carpenter's apprentice drew our attention to the fact, that wood bored from the end never breaks, but that it will, when the gimlet works at right angles to the fibres. Of a woman working in human hair we learned, by feeling alone, without microscope, to find the peripheral end of the hair; and of a dealer in quills we heard, that by knocking the quills against a table, we can arrange them in their original order, as they grew in the wing. Werner, an eminent geologist, in his wanderings, liked to converse with the peasantry: "Because one can always learn something of a peasant."

Above we stated, that the compass flower always turns away from the sun. The sunflower on the contrary, as if in love with the beautiful sun-god, invariably turns herself towards the sun. Besides this habit, the sunflower is remarkable for its influence on whole districts. Are these wet and marshy? an extensive planting of sun-flowers quickly dries them, and pays well, besides, by a large yield of oil.

Light we said is a necessity for the life of the plant. Who has not seen potatoes sprout? When these, being locked up in cellars, feel the

approach of spring, they send their shoots directly to the light, struggling for air and light, and freedom. The house-wife in bad humor, will, perhaps say—"The potatoes commence to sprout." She speaks very hard of these poor prisoners, and does not think of the wonders of this appearance.

With a feeling of curiosity, mingled with awe, we look at the Venus fly-trap, (*Dionaea muscipula*) how quickly she catches each thoughtless insect by folding her leaves, which she does not open again, until the animal is dead.

Can a human being be more sensitive, than the Mimosa, (*Mimosa sensitiva* or *Mimosa pudica*). A mere nothing makes her tremble; a small cloud hiding the sun disturbs her; the highest wind makes her uneasy, and quickly she folds herself up. She rolls up her leaves, when night comes on, and opens herself again with the first dawn of morning. In the tropics we find large plains covered by these sensitives, which, notwithstanding their numbers, do not show the least particle of courage. The gallop of a horse frightens them; the nearest flowers close themselves, and the rest warned by their sentinels, follow immediately. They hang their heads most anxiously, when a wanderer approaches them, and should he insult but a single flower by touching it, an electrical movement will go through the whole field; they all take alarm, and all feel the attack. They are as susceptible as we to the influence of narcotics; a few drops of tincture of opium scattered over them, is sufficient to quiet and make them go to sleep. We even succeed in making them trust us by instruction and habituation. The botanist, *Desfontaines*, had placed one of these sensitives in his wagon, it folded itself quickly. However, the wagon went on, and as nothing further was done to the plant, it became quiet in time. When the wagon however at last stopped, and the moving ceased, the plant once more got frightened, and carefully shut itself up.

The plant shows a singular life in her most splendid development, an approaching and rising up to that complexity of appearances, which in one word we call soul. To study

this soul of the plant, in fact to learn to respect this vegetative being, and to nurse it for itself, and not solely from selfish motives for the gratification of the eyes, or to while away the time—this it is, to which these hurried glimpses into the world of plants should invite us, and to this end we hope for success.

R. WEGENER.

SKETCH OF SOME OF THE TROPICAL FRUITS
LIKELY TO BE WORTH CULTIVATING
IN CALIFORNIA.

As it has been demonstrated lately by a nurseryman, residing near this city, that the Guava tree, of the strawberry variety, can be grown successfully in this State, some description of that tree and fruit, as well as some others of the tropical fruits, which can probably be made to succeed in this climate and soil, may be worthy of our consideration. Of the Guava there are two distinct species, both of which form in their growth rather small straggling trees; the one is called *Psidium piriferum*, or the Pear-shaped, and the other *Psidium pomiferum*, or the Apple-shaped Guava. They are common in both the East and West Indies, where they are cultivated for the sake of their fruit, which is eaten either raw or preserved. In the latter case the rind forms the Guava marmalade, and the entire fruit perhaps the finest jelly in the world. In the East Indies, however, they are not so much esteemed as in the West Indies; where they are ranked among the best fruits of the Islands.

In *Psidium piriferum*, the leaves are elliptical, and the flowers solitary. The fruit has the form and size of a middle-sized pear; when ripe it is of a light straw color, with a pale, soft, sweet pulp, containing a considerable number of small seeds. It is in perfection before it is quite ripe, and if gathered early in the morning, before the sun has shone upon it, the flavor is much brisker than when plucked at mid-day. It is frequently eaten with wine and sugar.

Psidium pomiferum differs from the *P. piriferum* in having square shoots, and more lanceolate leaves. The fruit has always a dark grass

green color, and, before maturity, is dashed with a tinge of red, which afterwards disappears, it is quite round, and not bigger than a large plum. On the outside it is a little rugose and tuberculated. Its flesh is very firm, and the skin thick; but the flavor is more grateful than that of *P. piriiferum*. The tree always grows in the worst soils. The pulp is sometimes mixed with cream by Europeans, to imitate strawberries.

In the West Indies, of each of the above kinds there are two varieties, the one with red, and the other with white fruit; those of the pear-shaped or perfumed species are the most highly esteemed.

Among the fruits of the West India Islands, are some which can bear a comparison with the most exquisite production of the Old or New Worlds. To those who are disposed to attempt the cultivation of these fruits, every inducement is offered if the plants can be procured, as specimen trees of the best of them, already exist in some of the tropical plant houses of Europe, and the East of this country, and in all probability in many locations in California, they would succeed, and bring a remunerative price for their cultivation.

Of these fruits stand highest in estimation after the Guava, the various species of *Anona*. The true Custard Apple, (*Anona reticulata*), is produced by a small weakly branching tree. The leaves are ovate-lanceolate, with a long point, and the flowers yellowish green. The fruit is as large as a tennis ball, or somewhat less, of a dull brown color, and divided on its outside, into numerous irregular spaces, or areolæ, from which its name is derived. The flesh is soft, sweet, yellowish, or reddish, of the consistence and flavor of a custard. The Sweetsop (*Anona squamosa*), is a smaller tree than the last. Its skin is half an inch thick, containing an abundance of thick, sweet, luscious pulp, which is said to be like clotted cream mixed with sugar. The Soursop (*Anona muricata*), is a moderate sized tree; the pulp of the fruit is of a soft pithy substance, as white as milk, and of a sweet taste, mixed with a most agreeable acid. All of these are

common in the collections of tropical houses in Europe.

The Avocado, or Alligator Pear (*Laurus Persea*), is borne by a tree of the size of an ordinary apple tree. The fruit is as large as a pear, and is considered one of the most delicious in the world. It has a delicate rich flavor, not unlike a peach, but much more grateful.

China and Japan possess some fine fruits, some of which would no doubt do well here. The Loquat- (*Eriobotrya Japonica*), a small sized tree, is sufficiently well-known to render any account of it unnecessary. The Longan or Long-yen, and the Li-tehi, two species of *Dimocarpus*, are held in high estimation in China and Japan, and would be well worthy of a trial in California. It is said that the trees bear fruit much more quickly when raised from cuttings, than they do if raised from seeds, requiring eight or nine years in the latter case, and only three or four in the former.

The Kaki (*Diosperos Kaki*); is another fruit from China, there is little doubt it would repay the trouble of cultivation. The fruit is the size and shape of an apple, with a reddish orange colored skin; the flesh is semi-transparent, brown, soft, and pulpy, with a most agreeable honey-like flavor. In the inside are several hard seeds. Of the varieties the chief are:

1. *Ono Kaki*, of which the fruits are like an orange; being dried in the sun, and mixed with sugar, they are preserved and sold as figs.
2. *Kimeri Kaki*, of which the fruit is not fit for drying, but must be eaten fresh.
3. *Ssibu Kaki*, which is not fit to eat.

E. J. H.

GALLED BACKS ON HORSES.—Relative to galled backs on horses, *Wilkes' Spirit* says: If the back is considerably swollen it should be well fomented for at least half an hour, and then bathed with a lotion composed of two drachms of Goulard's extract and one ounce of glycerine in one half a pint of water. The saddle should never be re-applied until the sore is healed and the skin is free from all inflammation, even if considerable inconvenience is thereby suffered. The best palliative we know of consists in placing a green cabbage leaf over the bruised part, and keeping the saddle on an hour or two after work.

THE PRIMROSE, (*Primula*.)

These beautiful and modest little flowering plants, have their home in the highlands of Europe and Asia. They put forth their blossoms in the earliest days of spring, and from this habit they derive their name; *primus* (first.) There are about forty varieties enumerated by botanists, of which but few are usually cultivated, but these few have been so much improved by cultivation, that the varieties now found in the gardens are very numerous.

It will answer every purpose here, to refer only to such varieties as deserve a place in every collection of flowering plants.

1. The *Primula veris*, of which the best varieties are the Cowslip, the English Primrose and the Polyanthus. The English Primrose is universally considered the finest in form; its flowers are of a pale yellow color. The Polyanthus is much more extensively cultivated, the flowers are either single or double and of various shades and colors. They do well under ordinary treatment; are well adapted for a border, and are propagated from seed or by division of the roots.

2. The *Primula auricula* bears a flower of great beauty. We are sorry to see them neglected in our gardens; but few plants are cultivated here, and we cannot assign any other reason for their absence from our gardens, except that they are not known by our flower loving people. The flowers are fragrant, of a velvety color, and beautifully shaded; their leaves are also beautiful, and of a pale green velvety color. They are well adapted for pot-culture, are hardy, and prefer a shady place with plenty of moisture. The soil should be a rich, light loam, mixed with old manure. They are natives of the Alpine region of Germany and Switzerland, and are propagated by seed, and from offsets which take root quickly if kept in the shade.

3. *Primula Chinensis* (*Sinensis*), Chinese Primrose. These are natives of China, and are not adapted to out-door culture. They bloom freely with us under glass, and are very desir-

able house plants. Unlike the other primroses, they require sun, and if properly managed flower all the year round, although their most flourishing season is from the present time until spring. All that is necessary for their cultivation is a moderately warm situation, close to the glass, medium moisture, and good drainage, which is secured by filling in the bottom of the pots with broken pieces. It is not well to sprinkle the plants with water, as the leaves and flowers will be speckled easily and soon decay. The leaves and flower stalks seldom grow higher than about six inches, and, if the plant grows top heavy it should be supported by a few little sticks placed near the collar of it. As the plants do not flower so well after the first year; it is therefore advisable to procure young plants every year, or to raise them from seed. This however, is not easy, the seeds being very fine, if carelessly watered, or allowed to dry out, they will be lost. In sowing the seeds, care must be taken to cover them lightly with the soil, or what is better not to cover them at all, but to press them gently into the surface of the soil with a smooth piece of wood. The watering should be done by saucers placed underneath the pots, or by very fine sprinklers, so as not to wash the soil, but even after the young plants have developed two or three leaves, they require careful watering; if the soil is permitted to get dry, the very tender roots may be dried up in a few hours. The propagation by offsets is not very practicable, unless bottom heat can be applied. Our way of treating the seeds is this, we water the lower body of earth in the pot by a saucer, and cover the surface from time to time with a wet cloth, so as to leave the seeds undisturbed.

Of the Chinese primroses, we have now some most beautiful varieties, double and single; the double white is certainly a beautiful plant, although it does not bloom so continuously as the others. The fringed flowers are considered the best, and we certainly concur.

For a neat flowering plant in the window, there is nothing which will repay so well for the space occupied, as one or two of the Chinese Primroses.

For out-door pot-culture, we know of nothing handsomer than the *auriculas* although their regular flowering season occurs but once a year. After they have finished flowering they are satisfied with any shady out of the way place.



ORNAMENTAL AND LANDSCAPE GARDENING.

SECTION IV.

Landscape and Ornamental Gardening is a peculiar art, (we say art because there is nothing in Horticulture which demands more refinement and taste), but it does not seem to be generally recognized as such. Almost every one who is about to lay out a garden, thinks that he knows all about it, and he considers that all that is necessary, is to employ some one who knows how to handle a shovel, and to set him to work under his own supervision. He pumps his neighbors, and reads a book on the subject; and so the work is carried on. There is another class of men who wish to employ a good gardener, and make use of his advice; not because they are ignorant in regard to the work, but because they either have no time, or they think it beneath their dignity to appear to know anything about it. And there is still another class who are perfectly honest about the matter, and see the urgent necessity for employing men of knowledge and good taste, but we are sorry to say these are but few.

To those who feel disposed to improve their grounds, whether small or extensive, in an artistic manner, and in accordance with their means, and who desire to have their work done well, we will endeavor to give such advice, as will aid them in the execution of their design. We are necessitated to differ to some extent from the rules of Gardening, adopted in other countries; as our soil requires peculiar treatment, and our climate admits much greater latitude.

In order to facilitate our work, and to be more easily understood, we will classify Ornamental grounds into first, second, third, and fourth rate gardens, of which the latter are of

the smallest dimensions, and are usually connected with city residences. Such a garden may be from 100 to 150 feet in length, and 50 to 100 feet in width. Unless the soil consists of loam, it will be necessary to add, if clayey, sufficient loam to work up well, or if sandy, sufficient to give it strength. In all cases a good quantity of old rotten manure should be added and well incorporated. All this should, if possible, be done in the earlier part of the rainy season.

Before laying out the ground, gas and water-pipes should be laid down and proper drainage provided, to carry off waste, and rain water; if there is any intention to use clothes-lines, posts should be made fitting into sockets, which should be secured in the ground, even with the surface, so that the posts may be inserted into these sockets when needed, and removed again afterwards. Never permit clothes lines to be fastened to trees, tree poles, fences etc. The proper place for these poles is in the rear of the house, and near the intended walks, so that the clothes lines may be reached by standing on the walks.

Outhouses should be so located, that they may be hidden by trees and shrubs.

The laying out and planting of a garden of this kind, is necessarily influenced materially by the position of a house, and other local circumstances. There will of course be sunny and shady places, exposed and sheltered spots, and on these circumstances will depend a great deal what plants are best adapted. Sun is required for the successful growth of most plants, particularly for flowering ones, we therefore object to high fences, or too many shade trees in these smaller gardens.

The next consideration is, whether the owner wishes a garden which requires but little labor to keep it in order, or whether he wants one which will afford him pleasure in spending a few hours, during the day or week among his flowers. He may want a large grass-plot for his children to play on, or he may prefer gravel for the same purpose, which requires less labor.

If a house is built to be rented out, all that the owner requires may be to give it a neat appearance, in order to obtain a tenant. In this case he will not do the work so thoroughly, and a few cheap plants may answer his purpose.

But where a garden of the above dimensions, is laid out and planted for the purpose of affording recreation to the owner and his family; when it is the desire to display shrubs, trees and flowers, or where a green-house or other embellishments are desired, the work must be done well, plants must be carefully selected, the advice of a good gardener is indispensable, and will invariably repay the owner for the outlay.

Now let us see what plants should be selected for the garden of a city residence, say of 100 feet in width, and 150 in depth. In this selection, we will confine ourselves to plants which can readily be obtained at our nurseries at reasonable rates. There are perhaps many equally good varieties to be obtained which we do not mention, but our readers must bear in mind that as only a limited number of plants are wanted for a place of this description, we only mention those which we consider best for present purposes.

Climbers are desirable for different uses, for instance we would recommend for training against the upper part of a house in a sunny exposure, the *Wistaria Sinensis*; *Passiflora*, (Passion Vine); *Tecoma*; Yellow and White Jasmine; *Solanum jasminoides*; *Maurandia*, etc., while for the lower part of the house we prefer Fuchsias, Heliotropes, *Sollya heterophylla*; *Tropaeolum peregrinum*, (Canary bird flower). To the shady side of the house, the Ivy, Virginia creeper, *Cobaea scandens*, etc., are better adapted. For training against fences, out-houses and covered seats, we are in favor of Honeysuckles, Clivanthus, *Lophospermum*, *Bignonia radicans*, Climbing Roses, Ivy leaf Geraniums, Australian pea vine, and others.

In the front garden, in the center of a larger bed, for instance, some display should be made of a few plants remarkable in their character. If a flowering shrub is desirable for this pur-

pose, we are in favor of the *Viburnum opulis*, (Snow-Ball); *Cydonia Japonica*, (Japanese Quince), *Philadelphus grandiflora*, (Mock Orange); *Syringa vulgaris*, (Lilac); the double-flowering Almond, the *Polygala*; *Plumbago*; *Crataegus*; *Mahonia*, (Berberis); or the *Laurustinus*, which, although common with us, is nevertheless very good. Some evergreens and ornamental foliage plants, are also well adapted for the same purpose, such as the *Aucuba Japonica*, English Holly, *Pittosporum nigra*, golden and silver leaf *Euonymus*; *Juniperus funebris*; *Cordyline*; *Dracaena* and *Fuca*. If the front garden should be unusually large, a *Brugmansia*, (*Datura*), Pampas-grass and *Tritoma uaria* may be desirable, although we are inclined to believe, that these last named plants are much better adapted for the lawns of more extensive grounds.

We do not approve of many shade trees in a garden of this kind, although in some instances, they may very appropriately be placed there. Care should be taken, however, to plant them, so that they will not obstruct the sun too much. In accordance with our objections, we shall mention but few, such as the *Acacias*, (different varieties), the Pepper tree (*Schinus molle*), *Laurus nobilis*, *Laburnum*, (Golden chain); *Cryptomeria* and *Cassia tomentosa*, (Mayo tree). A fair number of flowering shrubs may be planted out to great advantage, such as roses, of which all the leading varieties should be planted, we refer to our article on Roses, in No. 2 of our magazine, as a guide for the selection; *Veronica*, *Swainsonia*, *Punica*, (Pomegranate), Rosemary; *Pittosporum tobira*, *Nereyon* (Oleander), *Myrtle*, *Abrothamnus elegans*, *Fubiana imbricata*, *Escallonia rubra* and *alba*; *Eugenia myrtefolia*, *Diosma alba*, *Cytisus*, *Deutzia*, *scabra* and *gracilis*; *Spiraea*, of sorts, *Wiegelia rosea*, *Cercis*, *Calycanthus*, etc.

Some favorite plants which are treated in the greenhouses in the East and in Europe, are perfectly hardy with us, bloom both in summer and winter, and therefore add much to the attractiveness of our garden. The most popular and best adapted of these are the Geraniums, (see article headed Geraniums in this number) Fuchsias, which seem to be at

home here, Heliotrope, Bouvardia, Cuphea, Abutilon, Hydrangea, Lantana, Cestrum, Chorizema, Daphne, Eupatorium, Lagerstroemia, (Grape Myrtle)—only adapted for sunny exposures—Salvia, Calla, Lemon Verbena, and a host of others.

The owner of a garden cannot err in selecting any of the above named plants for his garden, yet he must bear in mind that he should select plants for his front garden which produce effect, while he should retain the more delicate and exquisite flowering plants for his rear grounds. It is there where he will desire to recreate himself unobserved by the passing multitude. But his front garden may be the only place adapted to the culture of flowers, and in that case he has no alternative.

POPULAR BOTANY.

CHAPTER IV.

Having laid before our readers the outward characteristic and development of a stem, we shall now take up the internal structure and show its method of increase.

All stems are composed of elementary tissues, viz: cells, woody fibre and vessels. In the early growth of a stem, the cellular tissue predominates, and in some plants, such as the *Mosses*, it is always in excess. But as the stem of the higher plants grows, woody fibre is mingled with the original cell tissue, and so the stem becomes strengthened so as to be able to resist destructive forces brought against it, and to perform its normal functions.

The cellular part of a stem grows in all directions; it may be either vertically, so increasing the stem in length; or horizontally to increase its diameter. The woody fibre generally runs through this cell tissue, vertically, and has from this reason been called the *vertical or perpendicular system*, and the cellular part, the *horizontal system* of the stem. There are two forms, or plans of distribution of the woody fibre through the cellular, and upon one or the other of these forms, the stems of all flowering plants are constructed. In the

first the woody fibre is deposited in *annual concentric layers*, having a central pith, and an *exterior bark*. A stem constructed upon this plan, presents on a cross section, a number of rings or circles of wood spreading out in all directions from a central point, within which is contained the pith, while on the outside of all is a separable covering called the bark. The Oak is an example of this form of structure, which, in fact, is common to all trees and shrubs of the temperate climates. The second form which is characteristic of nearly, if not quite, all tropical plants, has its woody fibre deposited in bundles or threads, running through the cellular system, without apparent order. On a cross section of this kind of a stem we find the woody fibre in the form of dots distributed through the whole, the stem containing no distinct pith, and no bark which is separable from the wood.

The diameter of the stem in the first class is increased by the yearly formation of new wood between the previous layers and the bark. Such stems are called *Exogenous* or outside growers. In the second class the new wood is deposited within the old, at the centre of the stem, and so its circumference is increased by a gradual distension from within. These are called *Endogenous* or inside growers.

As has been stated in a former chapter, the seed or embryo contains the undeveloped parts of a plant, and that even in that state we see the future form of the plant growth. Hence we are able to determine the class of stems by the seed-leaves. Endogens bear but one of these leaves, and are also called *Monocotyledonous plants*, while on the other hand the Exogens, bearing two leaves, are called *Dicotyledonous*.

The Exogenous is much the largest class, embracing as it does, all the trees and shrubs in the cooler zones of the world, and therefore commands our more particular attention. As we have before said, the embryo stem is composed of cell tissue only, but as soon as it commences to grow, woody fibre and vessels make their appearance, and in a short time the stem will be found to contain a number of bundles

of woody and vascular tissues, blending one with the other. This is the first stage of its woody system, and as the stem grows these increase in number, so that in the course of a season, a circle or ring is formed which divides the cellular system into two parts; a central portion, the pith and an outward one belonging to the bark. Outside of *all*, of course, is the skin or epidermis, which covers the entire plant.

An exogenous stem of the first season, consists of three parts. *First*, a central portion or pith; *Second*, a layer of wood, and *Third*, an outward cellular portion called the bark.

The pith is made up of soft cell tissues, which at first, are filled with the juices of the plant, after a time these become exhausted, the pith becoming old and dry, and no longer of use to the plant. Some stems grow so rapidly in diameter during their first year, that they become hollow, the pith forming a mere lining to the cavity.

Among the earliest forms of woody tissues in the stem are found several spiral vessels arranged somewhat in a circle around the pith. These make up what is called the *medullary sheath*, containing rays which pass from the pith, horizontally to the bark. The medullary sheath also sends off some of its spiral vessels to the stalks and veins of each leaf.

The *wood* is simply woody fibre, with which the vessels of the stem are more or less mingled.

The *bark* or outer covering of a stem in the first period of its growth is made up of cell tissues, in no way differing from the pith, except in assuming the green color, on exposure to light. But when the wood forms in the stem, a somewhat similar process takes place in the bark. This occurs on its inner side, and is called the *Liber*, resting directly upon the wood of the stem. The cellular portion lying between this *Liber* and the epidermis is also divided into two parts. *First*, the *green layer*, or cellular envelope, sometimes called the *mesophlæum*. This is the only part of the bark that has a green color, and is in composition the counterpart of the leaves. *Second*, the corky envelope, or *epiphlæum* which is between the epidermis and the cellular envelope.

FARMING ON SHERMAN ISLAND.

POTATO CROPS—COST OF LEVEE.

Editor Horticulturist:—My subject this time is potatoes. It may seem strange to many of your readers that I take up this subject, but I have done so that they may have an insight into what is being done on this island.

PLANTING POTATOES.

Much of the ground which has been cropped with potatoes during the past year, has been burnt land; land which was covered with a dense growth of grass too heavy to be ploughed, hence the necessity to burn it. In the latter part of the fall if the season is good, and fires are set to burn it, a careful watch being kept, it will burn to a depth of eight or ten inches, leaving the surface of the ground level, and a perfect bed of ashes. After lying in that state some six months, it is ready for planting; the ground being then settled, is in condition for plowing in the ashes; at every third furrow the seed is dropped, and so the work goes on. It is not necessary to cultivate, as in the ordinary way of raising a crop of this kind.

GATHERING IN THE CROP.

It will astonish our Eastern friends, when I tell them that at this season of the year, hundreds of acres of potato are being dug upon this island; teams are busy hauling them to the landings for shipment. This work is generally done by Chinese laborers, at a given price per sack, they assorting them ready for the market. The amount of potatoes that has been dug during the past season, has varied considerably according to circumstances; this was owing to the time of planting, many of our farmers being inexperienced as to the mode of cultivation necessary upon this place. The yield has, taking the early with the late varieties, averaged about 125 sacks to the acre, but experience teaches our people that some knowledge of new lands is requisite to them. Farming is like any other business; it has to be well understood to be carried on successfully.

I have spent some hours this week, in going over the potato district, and I was surprised to see how great a change had been made upon this island. Thousands of acres of land, that twelve months since, I could scarcely walk upon, have been put into cultivation. Here we can raise everything in the way of cereals, fruits and vegetables that can be grown.

OUR LEVEE.

The energy of the Board of Trustees who have taken upon themselves the duty of constructing, good strong levees, has been most praiseworthy; it is to this enterprise we are indebted for a feeling of safety in planting our crops. To build a levee of the size which is now about being finished, costs a great amount of labor and expense. When we retire to rest, we shall feel some assurance of security. Our present levee is the largest, and perhaps the strongest in the State; it has a base of twenty-four feet, and is eight feet in height. To build this, required a large amount of earth; along our front we have a ditch dug, eighteen feet wide by four feet deep, the earth from which has been used in constructing the embankment. Nearly four hundred Chinamen have been employed in the construction of this work. When completed, which will be about the 20th of February, we shall have fifty-four miles of levee of the above dimensions all around the island, the cost being about \$120,000.

WHAT WE ARE DOING.

Busy; man and horse are doing all they can, grain is being put in by the thousands of acres in every direction, and what may perhaps seem strange, many are at this time planting potatoes on their new lands; while at the back of this land, they are digging and hauling to the landings.

I never saw any land under water upon this island, although the papers speak of it. We are above the influence of tides at this place.

D. L. PERKINS.

PUBLIC PARKS.

In our last number we spoke briefly of some of the prominent Public Parks in the East and in Europe, and sought to demonstrate how important they are to the well-being of the population of large cities. The necessity for a Public Park in San Francisco does not need any argument, and there is no reason to doubt that the people would appreciate and eagerly avail themselves of all the advantages, comforts and pleasures, which such a Public Park would afford; and it is but consistent therefore, to conclude that our people would readily contribute the necessary funds for such enterprise, provided that they could feel assured of the proper, efficient and faithful engineering of such undertaking, and if the subject were advanced before our citizens in an able and business-like manner, we should soon learn how readily it would meet with the approval of the masses.

The establishing of a Public Park, offers certain considerations which it is our purpose to canvass. It is easy to demonstrate, and it will be at once admitted that a Park would be beneficial to, and indeed is necessary for such a population as San Francisco now possesses, and we feel justified in considering this point fairly settled. The next consideration is the practicability of the thing. Objections have been raised to our soil and our heavy winds; we admit that in some localities, where nothing but drift sand is found to a considerable depth, a high state of cultivation could not be attained without the expenditure of a very large amount of money; but we cannot see any necessity for selecting such a locality for a Public Park. Here as well as elsewhere, the soil, exposure, etc., etc., differ very materially, and we are justified in expecting that for Park purposes, the most advantageous and practicable locality would be selected. We have no doubt in our own mind, that a site can be found in San Francisco which would answer that purpose. We have as good soil here as is desirable for a Park of the greatest magnitude, and this fact should settle the question as to soil. It is also true that we have very strong winds, which may necessitate the planting of screens, and belts

THE Stockton *Independent* says Mr. Montgomery has nine miles square or eighty-one square miles, making 51,840 acres fenced as a pasture for his stock. How is that for fencing and stock by one "free and enlightened" citizen of California?

of trees, to protect the more favorite and frequented portions of a park, and the more delicate trees and shrubs, but this cannot be considered a very serious objection, when we consider the extreme cold and other difficulties, which make the planting and keeping of parks in the East and in Europe, far more laborious and expensive. When we view the improvements which adorn our private residences, we must certainly arrive at the conclusion, that plants and trees under proper management do as well here as anywhere else, and that our climate admits of the introduction of a much larger variety of trees and plants, from almost every climate, than could be cultivated anywhere else. That which meets our eyes every day in San Francisco, is sufficient evidence of the practicability of establishing a noble Park in or near the city of San Francisco.

The Supervisors of the past, moved this park question, and even went so far as to secure a site for a Park, but we doubt very much whether they had the interests of the city at heart, when they accomplished the deed. The land selected for the purpose is situated near the Central Road, and is bounded on the west by the Pacific Ocean. Three-fourths of the ground consists of hills of drifting sand, destitute of any vegetation, while a small portion near the city is better adapted to park purposes, and is at present partly overgrown with live-oak and other native shrubs. Our last legislature also did something towards inaugurating work on the park by passing a law appointing three Park Commissioners, who were authorized to issue bonds and sell them at par, in order to raise funds for prosecuting the work. Unfortunately the interest offered on the bonds, was too low to induce our capitalists to invest, and only about \$15,000 in cash were realized: this amount was expended in payment of a survey and office expenses, and the probabilities are now, that nothing more will be done until our next legislature meets. We think the selection of the ground for the park, an injudicious one, although it is capable of improvement, yet far better land could have been selected. The area of the park ground

is far more extensive than San Francisco requires, the location is not central, and the land is very much exposed; however, that portion which is situated nearest to the city, is available for a park, and the area between this portion and the ocean might be covered with vegetation and trees, to protect the portion nearest the city, and also, to make the ground more valuable. Sooner or later, the sand hills between the city and the ocean will have to be covered with vegetation of some kind, as a sanitary measure; also to economise by checking the drifting sands, in grading and cleaning streets; and to increase the value of the property itself. If our Park Commissioners will demonstrate that these sand hills can be covered with vegetation, property owners will soon follow, stimulated thereto by the necessity of protecting their own interests. In the city of New York, the Park Commissioners enjoy the full confidence of the people, and their power has been increased from time to time, until now they manage not only the Central Park, but also the city squares, and other improvements calculated to increase the attractions of the city.

By the injudicious selection of ground for our park, the movement for the contemplated improvement was checked, and the public were justified in looking upon the affair with suspicion. We do not say that the projectors of the scheme have acted in bad faith towards the city; but, although that may not have been the case, they certainly depended too much upon their insufficient judgment, and should be severely censured for not consulting the public, and such men as are qualified to give an opinion as to the practicability of the scheme. Such waste of public funds, whether made intentionally or from ignorance, obstructs public improvements, and discourages those men out of whose pockets the money has to come; however if we fail to have a park before long, the delay must be attributed not so much to the Park Commissioners, as to the indifference of our public. Whatever may be done in regard to the park, we hope will be done openly, so that the public may know the exact position

of affairs, and more interest will be taken in the matter, and if properly agitated, new ideas may be suggested by which our park interests may be greatly advanced.

The judgment of our former supervisors was equally injudicious in the planting of our public squares. San Francisco has paid good round sums of money for the few trees and shrubs now growing in those enclosures; but we see no corresponding value. The object of a public square was either not understood, or willfully set aside, the trees offer no protection, and present a sameness and regularity of appearance which kills the effect of contrast so desirable in a city, where nothing but uniformity and straight architectural lines prevail. Deciduous trees have the advantage of reminding us of the continual changes of season; it is refreshing to see new leaves and flowers bursting forth in spring, and the spreading branches protect us from the hot sun and the unpleasant winds, the birds are protected among the leaves, and help to enliven the scene; and when autumn tinges the foliage with its peculiar tints, we are pleasurably reminded of many a long cherished scene with its tender associations. We hope, however, that the new order of things in the city will effect a change for the better, and that nothing will be left undone which will please the taste and gratify the wishes of our people, and which will tend to improve our city, and render it more healthy, attractive and comfortable.

In connection with this subject, we must remark, that on recently visiting the University Grounds at Berkeley, near Oakland, we met with considerable disappointment; we expected that a large variety of trees and shrubs would have adorned the precincts of this our central seat of learning; but we found that the plantation consisted of gum-trees, pines, cypress, and a few acacias. The Eucalypti are lively enough in appearance in their youth, when their leaves are large and abundant, but present a very sombre appearance in their native forests where the sparseness of their foliage will not even, in their wildest depths, protect the wanderer from the scorching rays

of the sun. Of the pines and cypress we have at various times spoken as undesirable, and only to be used sparingly. Our climate is peculiarly adapted for the growth of trees, deciduous as well as evergreen, from nearly every part of the world. What a glorious opportunity is afforded for the display of taste and extended forethought in laying out this area; what a chance for making a provision and a name for the future, when the ornamental grounds of the University of California, eventually merging into one of the finest botanical gardens in the world, shielded, protected, adorned by magnificent specimens of grand old forest trees, selected when young from every part of the world, monuments of the enlarged, patriotic and tasteful views of the first Board of Regents, shall foster within this favored area, and present to the study of the young and aspiring botanist, such a numerous, and varied selection of rare and choice plants as will not be found in any other part of the United States. We know a large majority of the Regents to be high-minded liberal gentlemen, of extended views, who are anxiously seeking the welfare in the future of this State; but we fear they have permitted their judgment to be warped in this matter by the machinations of some narrow-minded, mean-spirited speculator, who in his breakneck pursuit of the almighty dollar, has imposed his heavy and almost unsaleable stock of evergreens upon them; however we hope it is not too late, and that some deciduous trees may yet be planted out. But more of this anon.

EGGS IN WINTER.—Deitz, in his *Experimental Journal*, says: To have hens lay in winter, feed the following kinds of food: Boiled meat chopped fine, or Chandler's cracklings chopped fine and soaked in hot water, to cause it to swell before feeding; bread crumbs soaked in ale; oatmeal mixed with milk. The above feed is stimulating, and tends to make fowls lay. They at the same time should be fed regularly with corn, wheat screenings and barley. By feeding the above regularly, and keeping the fowls dry and warm through the winter, the largest amount of eggs will be had.

LECTURE ON THE CONIFERÆ, BY PROFESSOR BOLANDER.

CONTINUED.

Of the pines already described, the following also occur on the Sierras: *P. Sabiniiana*, in the foot-hills from 300 to 4000 feet altitude; *P. ponderosa*, (Yellow Pine), from 1500 to 9000 feet; *P. turberculata*, from 2000 to 3000 feet. *P. Lambertiana*, (Sugar Pine), from 4000 to 9000 feet; and *P. contorta*, from 4500 to 11,000 feet.

I shall now proceed to describe those which have not been detected, thus far, growing on any of the coast ranges.

Pinus monticola, (the Little Sugar Pine).—This species attains a height of nearly two hundred feet, and a thickness of two to four feet. Its outline is cylindrical. The branches are short, flexile and densely set. A characteristic exception is made by the terminal or top-most branches, which resemble greatly, in irregularity, the cone-bearing branches of the Sugar Pine, and which bear the pendulent cones from two to four in a cluster. The cones while closed, are of a narrow cylindrical form, from six to eight inches long, and about one and a half or two inches in diameter. They are generally sprinkled with numerous patches of white resin. In September they open their scales widely to emit their seeds, and then fall during winter to the ground. The leaves are rather short, much like those of the Sugar Pine, and five in a cluster. The bark is quite different from that of the Sugar Pine; it is of a grayish white color. This species is said to yield excellent timber, even better than that of the noble Sugar Pine. But the fact that it occurs only in the high inaccessible mountain recesses, and that it is rather scattered in its manner of growth, reduces its usefulness to those functions only, which trees generally perform in nature. In Mariposa county it sets in at about 7500 feet, and rises to 10,000 feet. On the Mono trail, east of little Yosemite Valley, it associates largely with *Picea amabilis*, forming an extensive grove. The finest specimens of this remarkable tree are perhaps seen near

Sonora Pass; nowhere have I seen this species more beautiful and more accessible. Trees belonging to this species, seen on the hills and mountains adjacent to the Pacific railroad from Cisco to the summit, are but poor representatives and give no idea of its beauty and size. Its distribution over the western mountains is not fully known. If I remember rightly, it has been seen as far north as Mount Rainier. Its southern limit cannot be even approximatively given. It bears great resemblance to the Eastern White Pine, (*P. Strobus*.) In our gardens it has not yet made its appearance.

Pinus flexilis, (Mountain White-Pine).—This species occupies the sub-alpine belts of the Rocky Mountains and the Sierras. It differs very much in size. At 10,000 feet altitude, it is a tree of one hundred and thirty feet high, and is from two to three feet in diameter; but on the high exposed crests of the Sierras and Mount Shasta, it is reduced to a mere straggling shrub, creeping on the ground. The cones in consequence vary considerably in size. Where the tree has obtained a stately size, as is the case on the mountains of an elevation of 10,000 feet a little east of Little Yosemite Valley, its cones measure from four to five inches; but where it is reduced to a mere shrub, they are scarcely from one to two inches long. It is a fine tree, with tapering trunk and conical outline, branching almost from the base, the lower branches are horizontal, the upper ones ascending. The wood is white and soft; the annual rings from one-eighth to one-half line, on an average one-fourth line wide. The leaves five in a sheath, are crowded towards the end of the very flexible branches, persistent from five to six years, usually one and a half to two and a half, very rarely one or three inches long. The cones are sub-cylindric, tapering to the end, four to five inches long, and two inches in the largest diameter, resting on short peduncles, the scales are wide and squarrose; the lowest sterile ones recurved; the fertile ones with deep impressions for the reception of the seeds, both on the upper, inner side, and on the back. The wing is minute, reduced to a persistent keel on the upper

end, and outer edge of the seed. The embryo has eight or rarely nine cotyledons. In our gardens, it has not yet made its appearance. It is possible that it would do well in gardens, exposed to our cold summer breezes.

In the Rocky Mountains it occurs from New Mexico to the forty-ninth parallel, never forming entire forests. There it associates with *P. contorta* and *P. aristata*, Engelm. On the high crests of the Sierras it is found growing with *P. contorta*, and *Abies Pattoniana*.

The species described under the name *P. albicaulis*, Engelm. and *P. cembroides*, Newb. is our *P. flexilis*, just now discussed. It was already made known 50 years ago.

Pinus aristata, Engelm.—The pine known under this name has not yet been introduced into gardens. In fact, it is but very little known, though widely distributed over our highest mountains. It is a small or middle sized tree, with a dense and crowded foliage, the leaflets are about from one inch to one and a half long, five in a sheath, and for many years persistent, the cones are from two to three inches long, tapering abruptly from a broad base.

It was first discovered on alpine heights between 9200 and 12000 feet, on Pike's Peak, and on the high mountains of the Snowy Range, by Dr. C. C. Parry in 1861, who gives the following description: "On sheltered slopes, a tree 40 to 50 feet high, and one to two feet in diameter; it becomes a straggling bush, prostrate, and almost creeping, on the bleak summits of the high ridges. The bark is thin and scaly, even in older trees not more than three to four lines thick, of a light grayish-brown color; that of younger branches smooth, with many large vesicles containing a clear fluid balsam, which remains between the layers of the old bark. Wood white, tough, not very resinous; of extremely slow growth, so that a small smooth barked stem of 13 lines diameter, exhibited about 50 annual rings, all between 1-6th and 1-60th of a line wide. Branches spreading, very often many of them twisted, stunted or dead; the larger branches of the stem itself frequently covered with young branches or shoots, which seem to keep

life in the old trunk. Leaves crowded from the axils of ovate, acuminate, brittle, at first light-brown scales, which, persisting longer than the leaves themselves, cover the branches with their rough blackish remains; leaves light-green on both sides without white dots, mostly with numerous exudations of white resin, usually curved upwards, entire on edges and keel, abruptly acutish, stouter in fruit bearing, more slender in such trees as produce principally male flowers, in very robust specimens $1\frac{1}{4}$ and rarely $1\frac{1}{2}$, usually about one inch long. Cones oval, obtuse; $2\frac{1}{4}$ to $2\frac{1}{2}$ inches long, about half as much in diameter, often covered with resin as if varnished. Seed nearly 3 lines long, with the obovate wing six to seven lines long; embryo in all the seeds examined with seven short cotyledons."

Prof. Wm. H. Brewer, of the Cal. State Geological Survey, found this interesting species on the highest parts of the Sierras opposite Visalia. Prof. Gabb collected it on the White Mountains, south of Mono Lake.

Pinus monophylla, Torr. (*P. Fremontiana*, Endl.—This odd species inhabits the eastern slopes and hillsides of the Sierras; it belongs in fact, to the vegetation of the Great Basin. It attains a height from 20 to 35 feet, and a thickness of two to three feet. Its outline is oval, resembling very much that of our common live-oak (*Qu. agrifolia*) in the vicinity of the bay of San Francisco. It is of a glaucous color, quite in harmony with the color of the dry hillsides, and the drab colored vegetation of the sandy undulating plains of those regions. Forming groves on the hillsides, and scattering along the slopes of ravines, it affects the landscape in a similar manner to our live-oak. Its wood is highly prized as fuel by the settlers, who consider it equally as good as hickory. It is evidently of a slow and stunted growth, with a light, glaucous and airy foliage. There is generally but one leaf in a sheath; but sometimes two. What appears to be one round needle-shaped leaf, seems to consist of two leaves agglutinated; for in a dry state, they become actually separated into two. All parts of the tree exhale an offensive odor, and are quite

resinous. The cones are of a light drab color, almost top-shaped, two to three inches long, and contain numerous large wingless seeds, eagerly collected by the Indians for food. Its distribution is quite unsettled: it appears, however, that it extends south from Mono Lake on the eastern slope of the Sierras. Differing as it does in size and form, several varieties have been described and even considered as distinct species (*P. edulis*.)

I have seen but one specimen in our gardens, which obtained in five years the remarkable growth of fourteen inches. It is not likely that it will be looked upon as anything more than a curiosity. Concluding my remarks on the thirteen species of pines, growing in this State, allow me to enumerate them once more in the order we meet with them from the coast to the great valley of the interior. *Pinus insignis*, *muricata*, *contorta* and *Torreyana* on the immediate coast; next, *Pinus ponderosa*, *tuberculata* and *Lambertiana* on the highest portions of the coast ranges, and finally *Pinus Coulteri* and *Sabiniana* on their eastern slopes, bordering Sacramento Valley. Crossing this valley and ascending the Sierras, we meet the same pines, except four, in the same order, but inversed, namely; *Pinus Sabiniana*, *ponderosa*, *tuberculata*, *Lambertiana* and *contorta*.

Adding now the rest, not occurring on the coast ranges, we have: *P. monticola*, *flexilis*, *aristata* to the highest crests; and *P. monophylla* on the eastern foot-hills, bordering the Great Basin. Or, if we take the Sacramento Valley as our stand, looking west and east, we have the following arrangement:

COAST RANGES.	SIERRAS.
<i>P. Sabiniana</i>	<i>P. Sabiniana</i>
<i>P. Coulteri</i>	wanting
<i>P. Ponderosa</i>	<i>P. Ponderosa</i>
<i>P. Tuberculata</i>	<i>P. Tuberculata</i>
<i>P. Lambertiana</i>	<i>P. Lambertiana</i>
<i>P. Muricata</i>	wanting
<i>P. Insignis</i>	"
<i>P. Torreyana</i>	"
<i>P. Contorta</i>	<i>P. Contorta</i>
wanting	<i>P. Monticola</i>
"	<i>P. Flexilis</i>
"	<i>P. Aristata</i>
"	<i>P. Monophylla</i>

AGRICULTURAL AND HORTICULTURAL WORK FOR FEBRUARY.

During the past month we have had some good warm rains, and we have no excuse for delaying the preparation of the soil of our gardens and fields for the next crops. The days are lengthening and assist our efforts to make up for lost time, and yet the evenings are long enough to consult with our neighbors, exchange information, learn by each others' experience, and gather facts. "A good talk is the most healthy and nourishing food for the mind."

The pruning of orchards will have been finished, and the ground of course has been plowed. February is a good time for destroying insects in the orchard, where they have proved troublesome. Many of these have their hiding places in the rough bark of the trunk; with a proper scraper it is easy and quick work to remove the rough outer bark, which operation will do no harm to the tree and will destroy, or at least remove the insects on to the ground. To prevent them from re-ascending the tree by the trunk, we advise to adjust around the lower part of it a rag dipped in coal tar, to which the insects will stick in ascending the tree. Besides scraping the bark, a good washing of the trunk with lime will be beneficial. This operation will also be beneficial to ornamental trees and grape vines.

The planting of trees and vines must not be delayed any longer, or else our dry summer months will prove fatal to the young plantation.

Prepare the soil for the kitchen garden by adding plenty of manure; purchase your garden seeds and select the best, not the cheapest. Change your crop and do not endeavor to raise the same varieties of vegetables on the same ground. All hardy varieties of vegetables may be planted; but such as beans, tomatoes, cucumbers, melons, etc., may be delayed another month. In localities where no frost is anticipated, tomato plants may be removed from the frame and planted in the open ground. If a small quantity of early tomatoes or early

cucumbers for family use are required and a frame or hot-bed is at hand, some tomato plants or cucumber seeds may be planted into pots and advanced in growth under cover so that when the cold weather is over, they can be taken from the pots with the ball of earth and planted in the open ground, without being set back by the operation; these well advanced plants will soon come into bearing. While in the frame, the plants should receive plenty of fresh air to keep them in healthy and thrifty condition.

In the flower garden much can be done to improve the condition of things. A general overhauling should be resorted to; pruning, training and trimming should be done at once, if not already finished. Seed of Mignonette, Sweet Alyssum, Candytuft, Pansies, Larkspur, Sweet Peas, Sweet William, Canterbury Bell, Lychnis, Hollyhock, Pinks and other hardy annuals and perennials may be sown in newly prepared ground. Cuttings of roses, honeysuckles and other deciduous flowering shrubs should be planted. Continue to plant out hardy bulbs, such as Hyacinths, Tulips, Crocus, Narcissus, Pæonies, Gladiolus, Anemones, etc.

In the green-house and conservatory, the flowers of the Camellia, form the chief attraction. Azaleas, Cinerarias, Primulas, Heliotropes, Ericas, Bignonia Grandiflora, Cyclamen, etc., have come into flowering, and give the house a more cheerful appearance. Continue to water Camellias well; many plants which have out-grown their pots, want re-potting, as they commence to push their new growth for spring-flowering; pinch off the tops of young plants, so as to make them bushy; give fresh air during the earlier part of the day; roses and other woody flowering shrubs may be forced for the early spring trade. Insects should be destroyed by fumigating the house with burning tobacco, before they overrun the plants. Gather up all decayed leaves and keep the house clean; your plants will profit by it, and you much improve the general appearance.

In the grapery, the buds now begin to swell; as soon as they have started, tie up your vines, keep the air moist by evaporating water or by sprinkling; the temperature should not be kept below fifty degrees during the day, thirty-five during the night.

Plants in the parlor-window should receive frequent airing, and a sunny exposure.

ASPARAGUS.

The first consignments of Asparagus have made their appearance in our markets, and are selling at high prices. In a few weeks the markets will be well supplied, yet the demand will exceed the supply, although the bulk of this highly appreciated vegetable is of a very inferior quality. It is not unusual to see Asparagus offered for sale in our markets which is absolutely unfit for use. The reason for this is the bad management of the soil by those who know very little about the cultivation, or who do not care what they furnish, so long as they can sell the article at a good price. Asparagus raising we consider a most profitable business, and any one who will enter into the enterprise aright, will find that one acre well planted with Asparagus, will afford a good living for a family. The Asparagus has hitherto been planted in soil not adapted for it, it has not been prepared deep enough, and where it was adapted, it has been exhausted without making the least effort to re-fertilize it. Much has been said for and against the blanching process; we are inclined to believe that blanching is unnecessary when the ground has been prepared deep enough and where the young roots have not been planted near to the surface.

If any of our readers are partial to Asparagus, and have not already lost their love for it by purchasing the inferior shoots offered in our markets, we would advise them to prepare a bed at once in the following manner:

Stake off a bed of the dimensions required (a border five feet wide by twenty feet long will be sufficient for a small family) in a sunny exposure, and where no irrigation is employed

during summer; dig out the soil to the depth of three feet; if the natural soil is loam, you may fill in your top soil, which is always the best, first to the depth of one foot, cover well with old rotten manure and mix the whole thoroughly; then fill in another layer of good loam and mix with manure as before. This will bring the bed to within one foot of the surface. Then plant your Asparagus roots, which may be one, two or three years old, (two years old are the best), twelve inches apart in the rows, and from fifteen to eighteen inches between the rows; but plant the outside rows six inches distant from the edge of the bed. In planting, spread the roots in all directions and fill in between them well with soil so as to leave no vacant space. (We used to form little hills four or five inches high on which we set the plants, allowing the roots to spread evenly over the inclined sides). You may then fill in and cover with what was formerly the subsoil, raise the bed to two inches above the surface, so as to make allowance for settling, and cover the whole with a good top-dressing of manure.

The second year, you may cut a very few shoots, if you used strong and vigorous plants in setting out the bed; care must be taken not to exhaust the plants by cutting too much. In the third year, the crops will be larger, and after that you may cut almost without reserve.

From year to year, the Asparagus bed should have a good top-dressing of manure at the commencement of our rainy season; no irrigation is necessary, and too much of it is injurious. The summer is a season of rest for the Asparagus. The shoots should be cut as soon as they make their appearance; it is therefore necessary to inspect the plantation every morning, and if enough of them are not found in one day to make a dish, cut, and keep them in a cool place, wrapped in a damp (but not wet,) cloth, they will keep well for one, two, and even three days.

As all our readers know, only the upper part of the the young shoots is eaten, and how much of that portion is palatable, depends on the proper mode of cultivation, and the time of cutting.

ANIMAL LIFE.

From the lowest depths of the mighty ocean, to the cloud-capped snow peaks of the mountain top, in the clear water of the crystal spring, in the air we breathe, in the ground beneath our feet, on the vegetation springing from the soil, and in the sparkling dew drops that befringe it, in the misty drops distilled from nature's clouds, and in the dust which is drifted by the wind; animal organisms are to be found adapted to their location. Every place, and nearly all space is occupied by animal life:—

“Above, how high progressive life may go,
Around how wide, how deep, extend below.”

How mysterious and wonderful is that creation of the Almighty “*Life*,” how beautiful to contemplate, to study and investigate, bearing in mind that we are the great final link, the “*Caput*” in the chain of all animal creation. Yet man who in his exalted station, can call down from the thunder clouds the vivid lightning flash and confine it in a Leyden jar, cannot explain the organism contained within the seed germ of the acorn, from which springs the future noble oak, nor the living principle of the animal. Nature persistently and obstinately refuses to have her sanctum invaded, and to show to him in what the life-giving principal consists, but the active and never resting-brain of man is continually prying into her secrets, and not satisfied with the wonders displayed to his unassisted eye, he calls to his aid the microscope, bringing into view thousands of objects till then invisible. Place a drop of clear water on a piece of glass, and to the naked eye it appears transparent and free from all organic life, but place the same on the field of the microscope and we behold a world of animal life within it. Take from the same water a glassful, and by chance you may see with the naked eye one or two of the larger animalculæ, but should you fail, come with me to the sparkling brook, fringed and bordered with vegetation, where the pearly sided, crimson speckled trout loves to dwell, and from its cool, refreshing waters, pluck the stalk of some aquatic plant, say a cress, and

you will see adhering to it some few of the animals of which we are in search, and large enough to be examined by the unassisted eye. The larger ones sustaining themselves by devouring their lesser brethren, they again being fated to be eaten by animals of greater magnitude. Thus in animal life one devours the other, while from the smallest animalcule to the largest vertebrate, they exercise a choice in the kind they eat, and are ever searching for that food which is most pleasing to their taste and best sustaining to their systems. From the sponge, the connecting link between the animal and the vegetable kingdom, and the lowest mollusk, to the highest mammal we find each eating and sustaining himself on the other, and every animal devouring that which is most palatable to it. To withdraw some favorites from this peril, and to shelter them somewhat from this wholesale and indiscriminating slaughter, amounting almost to a war of extermination, especially in their extreme youth, we shall seek to enlist the sympathies and invoke the aid of the reader ere we close this article. The Brook Trout, (*Salmo fontanis*), live on aquatic insects, and diligently search for those kinds most agreeable to their natures, they again are eagerly sought after by man, their flesh being pleasant to the taste, and well suited nourishment for the development of the nervo-muscular force. The devices, snares, traps, nets and hooks, invented for the capture of trout, and their various enemies, in the shape of cold-blooded animals, have nearly exterminated them from all creeks and rivers within miles of large cities, and it is wonderful that they are able to reproduce their species at all.

The ova of trout are food for numerous animals, and it is estimated by those competent to know, that less than one-eighth come to maturity. To obviate this great destruction of fish eggs, artificial hatching was proposed and has been successfully carried out, by placing the spawn in such position as to be protected from all animals large enough to devour it. By this process seven-eighths of the eggs can be hatched; thus art surpasses nature.

The Ornithological and Piscatorial Society of California is now importing the choicest fish eggs for artificial hatching, with the intention of stocking the streams and lakes of this State, thus conducing to the health and amusement of the lovers of the gentle art, the disciples of Isaac Walton.

W. A. N.

HOW TO SWEEP THE FLOOR.—In the days of our Puritan grandmothers, no girl was considered fit to receive proposals of marriage till she could make a good hemlock broom; to know how to make a broom in those old days, we presume, was always preceded by the knowledge of its use. But in these later times, many a young lady not only offers herself in the matrimonial market, but absolutely gets married and undertakes to manage her house without knowing how to use a broom that some one else has made. We have seen a broom used so unskilfully, that one would almost think the person engaged in using it was endeavouring to change the place of the dust from the floor to the furniture. It requires some science, or at least some skill, to use a broom well, as it does to do anything else.

To use a broom skilfully, the handle should incline forward and not backward, as is often the case. If the top of the broom inclines forward beyond the part next the floor, it will prevent much of the dust from rising into the air, and will carry it along by a gently sliding motion towards the place where it is to be disposed of.

If, on the other hand, the handle of the broom inclines backwards, the dust is sent into the air by a kind of a jerk, to the great annoyance of those who occupy the room, and to the great detriment of everything the apartment contains. More than this, it wears off the threads of the carpet quicker, injures the paint more, if the room is uncarpeted, and destroys the broom sooner, than if the sweeping was done in a more rational way.

A brush of bristles is always better to sweep a carpet, as it is less liable "to kick up a dust," or to injure the texture of the carpet. Moistened tea leaves thrown over a carpet before sweeping, will help to prevent the dust from rising, and on account of the peculiar property of the tea infusion, they will not injure the color of the cloth. After the first snowfall, carpets may be cleaned of dust by throwing a little hard snow on them when the room is cold, and quickly sweeping it off.

THE *Prairie Farmer*, in an article on Prizes at Fairs, suggests that premiums be offered for plans for saving the produce of the farm and for making the farmer's home pleasant and comfortable. It further says it should be the aim to offer prizes "for things that will encourage research and investigation, bring forth new facts, and reward patient industry."

BEEF SUGAR.—The total product of sugar in the world is estimated to be 2,800,000 tons, in the following proportions: sugar cane, 2,000,000 tons; beet, 630,000 tons; palms, 140,000 tons; maple, 30,000 tons. Beets furnish one quarter the sugar product of the world.

Editorial Portfolio.

It is a conceded fact in agriculture, which no one will dispute, that manures are necessary to the fertility of the soil; and the farmer cannot expect his fields to yield, year after year, an abundant harvest, unless he replaces the organic and saline substances, which his growing crops draw from them, by some kind of fertilizing material.

Agriculture has made rapid strides in progression during the past fifty years, and must perforce make as much more in the fifty to come. Not only must the lands of the farmer be kept from falling off in productiveness, but must be made to yield a greater abundance to meet the ever increasing wants of mankind. To do all this, we have improved machinery for working the soil, and to gather the crops with as little loss as possible. Man has gone to the four corners of the world, in search of fertilizers to renew the former wealth of agricultural lands, and even the chemist has been called into requisition to furnish his quota to the general good. Yet with all these efforts to increase the vegetable productions of the world, there has been one important means overlooked, or it at least has commanded but little attention; and that is irrigation.

In ancient times, this aid to agriculture was well understood, and systems for general irrigation prevailed to a large extent. The Chinese have had, from their earliest records, an extensive system of irrigation. They not only divided their fields by numerous water channels, but even extended the system, so as to embrace large tracts of country. In Hindostan even to the present day, the whole of the *rubbee*, or small grain crop, is artificially watered. In every part of Asia, more especially in the Mysore country, water is retained or preserved, for the purpose of irrigation. The Sultan Tippoo, caused banks to be made between the bases of the hills, thus intercepting the streams, which during the rainy season flow from the hill country, and instead of being lost, are collected into vast reservoirs for agricultural use. Italy is the only country in

Europe that shows anything like a system of general irrigation. There we find a network of noble aqueducts and canals, ramifying in all directions over the country. Many of them, have been in existence upwards of eight centuries. The great canal known as "Vecchiab-bia," was in a flourishing condition in the eleventh century. In 1220 the "Adda," which waters the plains of Lodi, was completed, and in 1460, the canal of "Martesano," extending for a distance of 32 miles, with many side branches, was finished. In England, and on the continent, this subject of irrigation is now receiving its full consideration, and is looked upon as one of the most valuable adjuncts to a high state of cultivation. If the matter is one of so much importance in those countries, favored as they are by nature with a copious rain fall, of how much more importance is it to California, with her peculiar climates and seasons.

At present we are dependent for our agricultural supply of water upon Nature alone; which, when she is kindly disposed, is perhaps all sufficient, but there are seasons when the supply from this source is altogether inadequate to the demand. Again, in some portions of the State, agriculture languishes, no matter how much or how little rain falls, because of the influence of winds, causing a rapid evaporation at the close of the rainy season, so that often in but a few weeks the soil is dry and parched; the crops losing their main source of nourishment at a period when most needed. All this can be remedied, and the State converted into a vast field of productiveness by a system of general irrigation.

There is constantly a large volume of water pouring down the slopes of the Sierra Nevadas, passing down along the channel-ways of our rivers, and so into the ocean, a portion of which might be utilized, serving as a vivifying influence to the soil, and enriching our State a thousand-fold. At first-sight, this might seem to be a utopian scheme, and one not likely to be carried out with any degree of success. However, a company has been formed for this very purpose, and also to supply this and interior

cities with water. It is purposed to draw their main supply from Lake Tahoe, using the beds of creeks and rivers, as their channel ways. They propose to supply water for mining and agricultural purposes, and when the work is completed, a large belt running directly across the State, will have ample means for irrigation. This system, which is but the plan of the Sultan Tippoo, on a large scale, is equally applicable to all parts of the State. The Sierra Nevadas furnish a water-shed, extending the whole length of California, and offer numerous points for the establishment of reservoirs, from whence water can be distributed over the length and breadth of the State.

There are also local means of irrigation which the farmer should make use of. These are wells, springs, and brooks; and each, and all of them, can be utilized by the farmer, to increase the yield of his fields. There is no sense in letting a stream flow across a field, without making it pay toll for entrance and exit; and he who does so, is not consulting his best interests.

Besides the benefits conferred upon the soil in keeping it moist, irrigation is really a manuring process, and adds to its fertility in many ways. It carries off matters that are deleterious to the crops; deposits organic and saline materials useful to plant growth; allows a more general mingling of atmospheric air in the interstices of the soil; and further, by keeping all parts of the plant moist, it stimulates them to grow in a more vigorous and thrifty manner.

It is to be hoped that our farmers will see the importance of this subject, and endeavor to make a good use of all their irrigating facilities. Large tracts of country now lying idle, will then be brought under a state of cultivation, and add immeasurably to the wealth of the country.

DREER'S GARDEN CALENDAR.—We have received the third edition of this small but valuable work, and also a package of new and choice vegetable seeds, for which we return friend Dreer our thanks.

THE ORNITHOLOGICAL AND PISCATORIAL ACCLIMATIZING SOCIETY.

This Society was organized at the commencement of last year for the purpose of importing the best varieties of foreign game birds and fish to this State, and for the protection and propagation of them here; also to strictly enforce the game laws, and endeavor to procure the enactment of a law to prohibit the trapping of Quail altogether, except for scientific and propagating purposes.

The Society endeavored to prevent trapping before the commencement of last season, by posting notices all through Contra Costa, Marin Co., San Mateo, part of Alameda, and most of the towns throughout the State, offering fifty dollars reward for information leading to the conviction of any person found killing or trapping Quail before the 15th of September. They also sent men throughout the country, to discover those who were in the habit of trapping, and by these means induced the police of Oakland and Brooklyn to interest themselves, and they detected some five or six persons in the act, who were heavily fined.

The Society is in communication with gentlemen in New York, Buffalo, London, Australia and elsewhere, with a view to the purchase or exchange of game birds.

The Society is also the sole agents on the Pacific Coast for the sale of trout and other ova from the fish farm of Seth Green and A. S. Collins, Caledonia, New York.

Several thousands of Eastern trout eggs, have already been received, and are now in the troughs at the hatching house of the Society, at the corner of Fulton and Gough Streets, San Francisco. Another consignment of eggs is expected shortly.

The monthly subscription to this Society is fifty cents, and any person can become a life member by the payment of twenty dollars.

Seth Green's book on Pisciculture, can be obtained at the office of the Society, 632 Mission Street.

The Society is also agent for A. S. Collin's patent spawning boxes. Any information concerning the Society can be had by applying to the Secretary, 632 Mission Street.

BAY DISTRICT HORTICULTURAL SOCIETY OF CALIFORNIA.

An adjourned meeting of this Society was held on the 14th of January, for the purpose of listening to Prof. Bolander's lecture on the Coniferæ of the Pacific Coast; a complete report of which will be found in another part of this journal. The meeting was well attended.

The fifth regular meeting was held, January the 28th, 1871. After reading the minutes, the Committee on Rules and Regulations for Exhibitions, submitted their report, and were discharged. The Rules and Regulations, as submitted by the Committee, were, after a few slight alterations, adopted. (We shall publish these Rules in our next No.)

Mr. Wm. Robertson, of San Francisco, and Mr. John Rock, of San Jose, were proposed for regular membership. The following named gentlemen were proposed as honorary members. H. P. Williams, Esq., Editor of the "Horticulturist," N. Y.; Hon. Marshal P. Wilder, Dorchester, Mass.; Chas. Downing, Esq., Newburgh, N. Y.; P. Barry, Esq., and — Ellwanger, Esq., of Rochester, N. Y.

On motion, a committee was appointed to make inquiries as to a suitable locality for the exhibition, which the Society proposes to hold next September, and also to obtain estimates as to the probable cost of said exhibition. A committee was also appointed to frame a premium list for exhibitors. A resolution was passed, requesting all members of the Society, to visit the different nurserymen, gardeners, horticulturists, and all others who are interested in the development of our horticultural and agricultural interests; and to induce them to become members of this Society.

[We would state here, that the meetings of the Bay District Horticultural Society of California, are held on the last Saturday of each month, at the rooms of the Academy of Science, No. 622 Clay street, at 8 P. M. Any person who wishes to become a member, can receive all the necessary information in relation to the Society, by applying at the Secretary's office, No. 418 Kearny street].

NEW AND RARE PLANTS.

Parson's New White Mignonette, Reseda Odorata maxima.—This new and lovely Mignonette will be an universal favorite; it is so much superior in odor, habit and color—being nearly pure white—it cannot fail to be grown in preference to the other variety; the spikes are large and beautifully shaped, and one pot of it will perfume a whole house. There are many plants advertised, eulogized, and sent out to the public as something very superior, when they are no better than existing varieties.

Cotoneaster Simondsii.—This is a beautiful hardy, evergreen shrub, with glossy dark green leaves, and bearing a large quantity of scarlet berries, which ripen later than the *Berberis Darwini*, and will hang all winter.

Hydrangea Otaska.—A bold shrub bearing globose cymes of pale or sky blue flowers. Specimens have developed compound flower-heads of 42 inches in circumference. The flowers themselves are somewhat smaller than those of the common *Hydrangea*. It is a native of Japan, and is highly ornamental.

Hydrangea paniculata grandiflora.—Is another remarkable ornamental plant. Its flowers are white. It is a hardy deciduous flowering shrub, blooming in August.

ORNITHOLOGICAL AND PISCATORIAL ACCLIMATIZING SOCIETY OF CALIFORNIA.—This Society held a meeting Feb. 9th, 1871, in the rooms of the Academy of Sciences, No. 622 Clay Street. The following named gentlemen were elected officers for the ensuing year: President, W. A. Newell, M. D.; Secretary, John Williamson Esq.; Treasurer, James Rolph Esq.

BOOKS RECEIVED.—As will be seen by our advertisement page—, we have received from the House of Orange, Judd & Co., N. Y., a number of valuable and instructive works for the Horticulturist, Agriculturist and Stock-raiser. These works are of standard authority, and contain matters of interest to all.

AGRICULTURAL DEPARTMENT.—We have received from the Agricultural Department at Washington, the monthly report on agriculture, and also a quantity of "*White Schonen Oats*," a new variety imported from Hamburg. Parties who are engaged in grain culture and who desire samples of these oats for experimental cultivation, can be supplied with them on application at this office. The only condition required, is that the persons so receiving them, shall report the result to us, and so enable us to report to the Commissioner at Washington.

CABBAGE DISEASE.—The Albany, New York newspapers report that the farmers in that vicinity, having large cabbage patches, are losing their crops by the ravages of small worms that swarm upon each plant and eat out the entire heart in a few hours. A gentleman from Ione Valley stated to us the other day, that all the cabbages in that locality had been destroyed by the ravages of a small insect. From his description we should judge it to be an *Aphis*. On inquiring, we found that all parts of the State had been more or less overrun by this insect. In the next number of this journal we shall endeavor to give a more detailed account of this *Aphis*, and also means for its destruction.

THE POULTRY HOUSE.—As everything connected with poultry now-a-days has a peculiar interest, we give the following sensible remark from an English paper. First, of the roost and nest house. The floor should be sprinkled with ashes or loam or pulverized peat or fine charcoal, and the floor should be cleaned off every week :

The yard should contain a grass plat, some fine gravel, slacked lime, dry ashes, and pure water. The nests should be lined with moss, heath or straw. Evidently the Dorkings are the best breed; they will lay an average of 185 eggs each per annum. Fowls with black legs are best for roasting, while those with white legs are best for boiling. If you want them to sit early leave the eggs under them. Fowls in their native habits never lay more eggs than they can hatch. Remember that no success can be expected from poultry-keeping if their houses be damp, cold, unclean, or badly ventilated; if their food does not approximate to that which they get in a state of nature, viz., a mixture of animal and vegetable food; if the water they drink be stagnant, the drainage of the manure heap etc., or if the strongest and handsomest be not bred from.

Editorial Cleanings.

OUR PUBLIC PARKS.

On Monday evening, Jan. 16th, the report of the Park Commissioners was sent in to the Board of Supervisors, and was read by the Secretary. Following is the report :

OFFICE OF THE PARK COMMISSIONERS, }
SAN FRANCISCO, January 9, 1871. }

To the Honorable Board of Supervisors: Gentlemen:—The undersigned Park Commissioners, under and by virtue of the authority of an Act of the Legislature of the State of California, entitled "An Act to provide for the improvement of the Public Parks of the City of San Francisco," approved April 4th, 1870, have the honor to submit herewith a report of their proceedings and a statement of the receipts and expenditures, as required by Section 6th of said Act.

The Commissioners organized on the 3d of May, 1870, by the election of S. F. Butterworth, as President, and Andrew J. Moulder, as Secretary. The salary of the Secretary was fixed at seventy-five dollars per month.

SALE OF BONDS.

On the 6th of May, the Commissioners advertised, in accordance with law, for bids for Park bonds to the amount of \$100,000, bearing interest at the rate of six per cent. per annum, with a notification that no bid under par would be accepted.

Sixty days afterwards, to-wit, on the 5th of July, 1870, bonds to the amount of \$15,000 were awarded to A. Seligman at par—his being the only bid received; and on the 1st of August, 1870, fifteen bonds of \$1,000 each, dated August 1st, 1870, and bearing interest at the rate of six per cent. per annum, payable semi-annually—the principal payable in fifty years from date—were issued to said A. Seligman, and in return therefor the sum of \$15,000 in gold coin was received by the Commissioners. Abraham Seligman was appointed Treasurer, and his offer of one per cent. per annum on monthly balances in his hands was accepted.

THE GOLDEN GATE PARK.

Specifications for a minute topographical survey of the "Avenue" and "Golden Gate Park" and their connections with the adjacent city surveys were prepared, and a number of competent engineers and surveyors were invited to put in sealed bids, stating for what sum in gross they would execute the work, in accordance with said specifications. On the 8th of August, 1870, the bids were opened, and the contract was awarded to Mr. Wm. Hammond Hall, for the sum of \$860, his being the lowest bid. Mr. Hall entered the field shortly afterward with a corps of assistants, and completed a very careful and accurate survey early in December. He is now engaged in the preparation of maps on a large scale, embracing all desirable information as a basis for the laying out and improvement of the Park and Avenues. It is expected these maps will be completed by the middle of January 1871.

APPOINTMENT OF A KEEPER.

On the 17th of November, 1870, the Commissioners appointed P. Owens, Keeper of the Grounds of the Avenue and Parks, at a salary of \$75 per month. This appointment was necessary to protect the trees and shrubbery from waste by trespass, and to prevent unauthorized parties from intruding upon the premises.

A GREEN-HOUSE.

The Commissioners have taken steps towards the establishment of a green-house, on an economical scale, for the rearing of suitable evergreens and other trees and shrubs, to be set out on the Park grounds. By this means many thousand valuable trees will be obtained from the seeds at a comparatively small cost.

IMPROVEMENT OF THE AVENUES.

As soon as the maps of the surveys made are completed, the Commissioners propose to adopt the best plan attainable by competition for the laying out and improvement of the Avenue and Parks, and to proceed as rapidly as the means placed at their disposal will permit to carry the said plan into execution.

Appended hereto please find a statement of the receipts and expenditures of the Commissioners from the date of their organization up to the present time. We are,

Very respectfully,

S. F. BUTTERWORTH,
D. W. CONNELLY,
C. F. MACDERMOT.

RECEIPTS.

August 1st, 1870—From the sale of Park Bonds to the amount of \$15,000 at par.....\$15,000.00

EXPENDITURES.

Rent of office, nine months.....	\$ 225.00
Advertising bids, sixty days.....	168.00
Lithographing, printing, etc.....	316.50
On account of Survey of Avenue and Parks.....	3,500.00
Salary of Secretary, eight months....	600.00
Salary of Park Keeper, one month...	75.00
Engraving seal.....	15.00
Horse hire for Commissioners visiting the Park.....	21.00
Office expenses, carpets, etc.....	63.05
Construction of green-house.....	356.05
Seeds.....	45.05

Total expenditures.....\$ 5,384.65

Leaving a cash balance on hand, January 9th, 1871, \$9,615.35.

THE PRESIDIO RESERVATIONS.

On the same evening, A. B. Forbes, Supervisor from the Seventh Ward, presented the following preamble and resolutions, which were unanimously adopted :

WHEREAS, The Legislature of the State of California did, on the 22d of March last, pass the following concurrent preamble and resolution namely :

" *Whereas*, The Presidio Reservation is the property of the United States, and only a small portion of which is used for military purposes; and whereas, it consists of about seven-teen hundred acres of land, lying immediately north of the city and county of San Francisco, and less than three miles from the centre of the business part of said city, and is the most attractive spot for a public park on the peninsula, skirting as it does the great Bay of San Francisco on the west, and comprising the

whole of the land sloping to the east, from the Golden Gate to the city; and whereas, much of said land is well watered and capable of cultivation, while a large portion of the remaining lands of the said city and county of San Francisco, which is not built upon, is drifting sand; therefore,

“*Resolved*, by the Senate, the Assembly concurring, That our Senators in Congress be instructed and our Representatives requested to use all means in their power, to secure the passage of an Act of Congress, dedicating the lands above described for the purposes of a public park.”

Now, it is hereby resolved, That the Board of Supervisors of the City and County of San Francisco fully concur in the sentiments expressed in the foregoing resolution, and add their request to that of the Legislature, to their Representatives in the United States Senate and House of Representatives, to give to the bill now pending before Congress, which grants to the people of San Francisco the use of said lands for the purposes of a public park, their most energetic support.

THE AMERICAN SWEET CHESTNUT.

Once our magnificent forests in their native beauty and grandeur called forth the admiration and astonishment of European travelers and the early settlers and pioneers of this country; but over a large part of the older states, the glory and beauty have long since passed away. Only a few of the old monarchs of the forests of centuries growth yet remain—and although we are comparatively but a young nation, yet such has been our prodigality and wastefulness, that we already seriously feel the want of timber for fuel, building and fencing, and with the certainty of an ever increasing demand in the future. Our agriculturists justly feel alarmed at the prospects, and inquire, what can be done to supply our own need, and the wants of those that are to come after us? We answer first, practice the most rigid economy in the use of timber for any purpose; protect what remains of the native

forest from the depredations of cattle, so that the young seedlings may have a chance to grow and supply the place of the older trees.

2nd. Plant a portion of the cleared land with forest trees, such as are best adapted to the soil and climate, and promise the most value for future use.

Over a very wide extent of country, embracing several degrees of latitude, the American Chestnut grows naturally, a most useful and valuable tree. After much inquiry and thought upon the subject, we do most heartily commend its cultivation wherever it can be grown.

First. Because it is hardy, grows rapidly from seed or the shoots, from stumps of parent trees, and affords the most valuable timber for building and finishing lumber, as well as for posts and rails for fencing.

Second. It is a beautiful tree, covered in early summer with its long pendent tassel like blossoms and rich luxuriant foliage, and in autumn with choicest nuts.

Third. It is adapted to a great variety of soils, thriving equally well on sandy, clayey, loamy, gravelly and rocky land, if not wet.

Fourth. When grown from seed in the nursery it can be transplanted with perfect safety and success.

Fifth. We have no native tree that equals the Chestnut for rapidity of growth and durability of its timber. Usually the more rapid the growth, the sooner the decay. To this general rule the Chestnut is a remarkable exception. While it grows more rapidly than almost any other tree, the timber when cut and exposed to the atmosphere will last longer than almost any other, as the posts and rails of very old fences can testify.

Sixth. The Chestnut possesses one great advantage over most other forest trees in reproducing itself. After having been cut down for timber, young shoots will start from the stump and grow with wonderful rapidity, in a short time reproducing more wood than was in the parent tree. Sometimes these shoots are numerous, but are always under the control of the owner to thin out as his judgment may direct, for his future use.

When grown especially for fruit, the trees should be set as much as forty feet apart, so that each may have room to form a wide spreading head. They will bear fruit in favorable localities from five to nine years from planting, and the fruit always brings a good price and is constantly increasing in value.

For timber, large quantities are grown in England, planted closely together, sometimes as near as five feet each way; planted in this manner they produce long straight poles for hurdles, hop poles, etc. In this country, where we require so much timber for fences, stakes and posts for grape growing, what would be more convenient on a farm than a fine large chestnut grove, where the farmer could at any time resort for timber with the assurance that from the apparent worthless stump left in the ground, where would another season spring up a growth, Phœnix-like, more vigorous and numerous than the trees removed. In this manner they may be cut, not only once or twice, but may be cut and renewed every few years for centuries, as the chestnut groves and forests in England fully demonstrate. With all the superior excellence of this tree, we wonder that its propagation has been so much neglected. Then we say plant the Chestnut, that you may enjoy its beauty and shade, its fruit and timber; and that you may leave a rich inheritance to your children; plant it on the broad prairies of the West, plant it on the thin worn out soils of the East, plant it in lawns and streets, plant it in orchards and groves. Some species with fragrant blossoms should be set among them to make the job complete. Say the various species of Lilacs, and Calycanthus.—*Gardener's Monthly*.

THE Kern County *Courier* says: "We learn that Messrs. Beale and Baker having recently made a purchase of three thousand sheep, sheared and turned them into their range. A storm came up, and the next night about twenty-five hundred perished with cold." Perhaps this costly experience will teach others, besides these losing sheep owners, to have shelter, and proper root food besides grass, for sheep in the winter season. It is a pitiable lack of forethought only which originates such loss.

STEAM CULTIVATION.

We have now in California one of the Thompson's celebrated Steam Road-Wagons adapted to ploughing land by britching on gang-plows. The Standish Locomotive Steam Land Dresser, is soon expected from Boston. It is a California invention, very much improved, and now in the hands of Eastern capital for exploitation. Before sending one here, it is on trial on the prairies of the West, with a view to studying improvements. This is not a plough, because it does not cut a slice and turn it bottom upward. It does better; it cuts up the ground into powder, after the fashion of an inclined screw, puts in the seed and covers it, at the rate of two acres an hour, all in one operation. The depth of the cut can be regulated to twelve inches. Our wheat lands, by unremitting abuse, are notably losing strength. The scratch-depth of our culture averages three inches. Three inches deeper would renew the force of production for another decade. Now we are entering into the culture of ramie and sugar-beets, and deeper land-dressing becomes a necessity. The roots of ramie must have moisture to sustain two crops a year; and sugar-beets lose half their value by growing above ground, instead of below. When the beet has loose soil, it prefers to go downward; when the ground is impenetrable, it grows mostly above the surface, where it becomes green and unsugary. It gets abnormally large and lubberly—a big head and nothing in it. All such beets are rejected at the sugary. Deep land-dressing stands in place of summer irrigation. If we fill a deep sponge with winter rain, there will be summer irrigation from below.

British agricultural journals give us wonderful illustration of the increased product of farms that have adopted steam-plowing. There, locomotive-plowing is not attempted. The gang-plow is drawn with wire ropes across the field, by an engine that stands on a temporary railway at the head of the field. They object to locomotives traversing the ground, because the weight tends to pack the soil,

which should be as porous as possible. On the same grounds, horse-plowing is condemned.

At North Park farm near London, three fields on the same ridge, (the soils being alike and treated in the same way, except in plowing,) were tested in wheat. The first was plowed the usual way, and yielded twenty bushels per acre and a good crop of straw. The second had a sub-soil-plow to follow the furrow, and it yielded thirty bushels and thirty per cent. more straw of better quality. The third field was plowed by steam, twelve inches deep; and the crop was forty-five bushels per acre, with a proportionate increase in the straw.

Steam-plowing is becoming general in England. A farm of three hundred acres affords to keep its own machine; and for smaller farms, subscription plows do the work for hire. Land rents at much higher rates, when there is steam-plowing to be had. Our large landholders would serve their interests by introducing steam-cultivation here. The cost of horse-culture leaves small profit to our farmers who pay current prices for land. Sales droop; but steam-plowing would quickly work a favorable revolution in farming profits, and therefore also in the value of agricultural lands.—*Alta California.*

CULTIVATING TOMATOES.—The San Jose *Patriot* thinks a fortune can be made in the foothills on the eastern slope of that valley, by producing one single kind of vegetable, the tomato, before it can be brought to market from the Sacramento Valley. That paper says that although the more equable temperature of this latter region produces vegetables a month or six weeks earlier than they can be raised in the Santa Clara Valley, there is a belt of country between the lower foothills and the summit of the mountain range, where frost seldom falls, and there is but little change in the temperature. In this locality the tomato can be raised with perfect success, and the man who can bring it into the market at San Jose by the first of July can make a fortune the first year, as the vegetable commands a most liberal price when it first makes its appearance.—*Call.*

BANANAS IN BRAZIL.

A correspondent of the St. Louis *Republican* writes from Brazil: "The most wonderful production of this and all tropical countries, in my estimation, is the banana and its synonyme, the plantain. We have a dozen varieties—each with peculiar flavor and qualities. Some grow only eight or ten feet high—others twenty. The stalks are from six to twelve inches thick, but almost as soft and succulent as celery. Each of them bears one bunch of bananas, and one only, when it is cut down with a stroke of the *espada* to secure the fruit and give place to other stalks. And thus they grow and ripen perpetually all the year round. A great traveler has calculated that the plantain, on one acre of ground, will produce as much food as one hundred and thirty-three acres of wheat or forty-four acres of potatoes. The fruit constitutes the principal reliance of the poor, and is a luxury for all. It is good raw, roasted, baked, and indeed in every form, and equally relished by all domestic fowls and animals, which devour fruit, leaves, stalks and all, with the greatest avidity.

"The banana requires but a single planting for a lifetime—putting in the ground a single sprout or shoot from the banana patches, at a distance of twenty or thirty feet from each other, and on ground that it is always calculated to spare for that purpose, because it is impossible to extirpate the root. The one stalk gives more—springing out from the sides in the ground perpetually—and in a few years covering the intervening spaces, till the whole surface becomes a forest of fruit and foliage, with scarcely room to pass through the cool, overhanging arches. A banana or a banana patch is a beautiful sight, with the stalks and their produce in all stages of perfection, the broad leaves waving in the breeze and fanning in lazy repose, while the bodies of the trees bend under their luscious burdens, and would often break down with the weight, except from neighboring support.

"There are a hundred or two of bananas on a bunch, like grapes, and the bunches are gener-

ally as much as a stout man can carry. They should always be cut as soon as the fruit is matured—but always while the skin is yet green—and hung up in the shade to turn yellow, which improves the flavor. It takes about a year for stock and fruit to mature from the first planting, but there is never any more trouble with the crop, scarcely any hoeing or weeding, no culture, only 'slay and eat.' Certainly it is the greatest boon ever bestowed on the indolent tropics. A native, swinging in his hammock, with a bunch of ripe bananas hanging in reach on the one side, and a smouldering fire on the other, by which he may light his little cigar without getting up, is a most perfect picture of contentment."

* PEAT AS FUEL.

California, Oregon, Washington Territory, and the Islands of the Gulf of Georgia, are all bountifully supplied with timber. In the Sierras, along the foothills, and throughout the entire coast range of California, the pine, the fir, the redwood, the live oak, the laurel, and many other less valuable kinds of timber, are to be found. Still, the abundance is by no means too great. In all the localities accessible to railroad and river navigation, the trees are being rapidly thinned out. This fact is ascertained by the advance in the prices of wood for fuel from year to year. The interminable forests of the islands and the coasts are required to furnish masts and spars for our shipping. Their remoteness from the market, and their value for the purposes named, must for years to come, if not forever, debar them from contributing to any great extent to the current fuel demand. The scarcity and inferior quality of our indigenous coals, prevent them from being generally used for domestic purposes, while the imported articles rule at costly rates.

In view of these facts, the subject of utilizing our other natural resources to obtain cheap fuel, becomes a matter of vast importance. Peat has been looked to, in this emergency, as offering the best substitute for the articles

named. The supply in this State is literally inexhaustible. San Joaquin County, along its navigable water-courses, could furnish countless millions of tons of the crude material. Wisconsin and Illinois have tried the experiment of its use with entire success, and it is said Connecticut has enough peat-beds to keep all her railroads and factories in operation for hundreds of years. The question then arises, can we make it available, as an article of consumption in California? A Canadian named Napoleon Aubin has patented a process for the manufacture of peat, and a Connecticut Company has put his invention to a practical test in that State. The cost of manufacture is said to be \$2 per ton; and it is sold for \$6 per ton to the Hartford and New Haven Railroad, which has agreed to take 15,000 tons annually. Heretofore their coal has cost them \$9 a ton delivered at the stations.

A company for the manufacture of peat fuel was organized in this State nearly two years ago. They then claimed that they could put the article down in the city at such prices that it might be sold from second hands at \$3 per ton. The lowest retail price of wood is \$11 per cord, and of coal \$12 per ton; so that at the above figures the saving to the consumers would be immense. The machinery imported by this company is now undergoing experimental trial on the "Floral Isles" of the San Joaquin River. Should it give satisfaction, the time will not be far distant, we hope, when peat, at less than half the cost of wood and coal, will form the staple of our daily fuel consumption. It is cleaner, clearer, and better than coal, and will burn to ashes without a flame. It is said, also, that a lump as large as a man's head furnishes sufficient heat to keep a vessel of water boiling for over an hour and a quarter. Whether this machinery serves or not, the Aubin invention has been proved, and will find its way to this coast so soon as capital discovers that it is to its advantage to bring it here.—"*Daily Morning Call.*"

Young poultry need soft, rich food. Coarse, raw meal for the first two or three days is not much more fit for them than for a baby. Milk made into curd, a boiled egg chopped up; and after a little, mush made of flour and meal is recommended.

CULTIVATING FOREST TREES.—A recent settler in Nebraska, who has apparently learned how to "labor and to wait," is planting a hundred acres of land with walnuts. He estimates that each acre will have at least six hundred and fifty trees, or sixty-five thousand in all. He calculates that in twenty years each tree will certainly be worth three dollars for lumber, ties, fence-posts or fuel—making nearly two hundred thousand dollars as the value of the whole. Admitting these figures to be within the mark, which we are hardly prepared to do, it must be confessed that if the proprietor's logic be true, nothing else that could be planted on the same land would pay so large a return. And then all the labor required is breaking up the land and planting. The planter thinks pine trees could be cultivated with similar satisfactory pecuniary success.—*Call*.

THE PRODUCTS OF CALIFORNIA.—The San Francisco correspondent of the Chicago *Land Owner* gives the following figures of the products of this State for the last year: With a population of 600,000, we are told there were produced last year, 20,000,000 bushels of wheat, 3,000,000 bushels of barley, 1,200,000 bushels of oats, 1,000,000 bushels of corn, 4,000,000 gallons of wine, 300,000 gallons of brandy, 220,000,000 feet of sawed lumber, 5,000,000 pounds of butter and 18,000,000 pounds of wool. Of the metals there were produced, 3,000,000 pounds of quicksilver, all the rest of the world producing but 3,500,000 pounds; \$1,000,000 of silver and \$21,057,851 of gold. Manufactures yielded \$74,000,000, and the total value of industrial products was \$182,000,000. When we consider that California is as yet only upon the threshold of her history, we may well hesitate to assign any limit to her future prosperity.

ANOTHER MULBERRY PLANTATION.—The Lower Lake *Bulletin* says Messrs. C. Hallin and G. Ammery have purchased a tract of land near the Pike County House, in Napa County, where they will immediately set out 10,000 mulberry trees, preparatory to entering largely upon the business of sericulture.

HORTICULTURE IN COMMON SCHOOLS.—The *Country Gentleman* says the culture of flowers, the planting of ornamental trees, with brief instructions as to their growth, might be introduced into every school as a recreative study—if the teachers have the taste and knowledge necessary. It gives an instance where a teacher, on his own motion, interested his pupils in the culture of ornamental plants, with the happiest results.

WHEN SHOULD PIGS BE WEANED?—Eight weeks old is the best age. Seven will do. They should become accustomed to food such as is ordinarily given to hogs before weaning, and then there will be no need of any loss in growth by the loss of the mother's milk. If they are at all inclined to scour, one of the best preventives is an occasional day's feed of whole corn, or a few kernels with their other food each day. They should have all they will eat, and even if the farmer is under the necessity of buying corn to keep them along till his own harvest is ready in the fall, the growth will generally pay at least fifty per cent. over and above the cost.—*Hearth and Home*.

ORANGES AND CORK OAK.—The Visalia *Delta* of December 7th has the following:

"We have had extraordinary heavy frosts lately, but we notice that it seems to have no effect upon our orange trees; those that are in bearing look perfectly healthy and will undoubtedly mature the crop. There is a region along the margin of the foothills much more free from frost than the valley around Visalia, and there can be no doubt but that this region is as well adapted to the production of the orange as any portion of the State. We notice also that the few specimens of cork oak, that have been planted here are healthy, and have made a growth quite equal to that of our native live oak.

PRUNING TREES.—A very great error is made in pruning fruit trees, by cutting away the small branches in the heart of the tree; all this wood should be left except the water-shoots or suckers; the fruit-spurs should never be cut away, for the best fruit is grown near the heart of the tree.

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THE PINK. (*Dianthus*).

The Pink is one of our most popular flowers, and second only to the Rose in beauty as well as in fragrance; cultivated for hundreds of years, it will continue at all times to form one of the chief attractions in the flower garden. It is easily cultivated, and the soil and climate of California are calculated to grow it in perfection. The varieties are numerous and continually increasing from seeds. Although only the single flowers bear seed, yet double flowers are frequently obtained; the best varieties are propagated from cuttings and layers.

The classification of the pinks among the florists is not clearly understood, many are cultivated, but still more are known to the botanist, which we will at present omit. It will better serve our purpose to enumerate only the most prominent classes, the most important of which is

Dianthus Caryophyllus or Carnation Pink, the beauty and fragrance of which cannot be surpassed. The Carnations are again divided into several classes, and it is here where the florists differ and are puzzled; in order to cover the whole ground, we will make the following subdivisions: Picotees, Flakes, Bizarres and Carnations proper. Some contend that the Picotees are not Carnations, while we insist that they belong to the *Dianthus Caryophyllus*, and necessarily must be Carnations. It is true there is a marked difference between

the Picotee and other Carnations in the outline of the flowers; but not so much so, but that it is entitled to be considered one of the subdivisions.

The Picotees have a white or pale-yellow ground, spotted with scarlet, purple, crimson or similar color. The shape of a perfect flower is round, the petals should be flat, and the centre should be well filled; the edges of the petals are smooth and not fringed, the flower-stock will grow three feet in height, on this account the Picotee is sometimes called the tree pink. By cutting the flower-stocks back, while young, bushier and stouter plants are obtained.

The Flakes differ from the Picotees, as they produce flowers with only two distinct colors which are in well-marked stripes through the entire length of the petals.

The Bizarres are irregularly striped and spotted, and have three or more colors, which are variegated in their disposition.

The Monthly Carnations (*Caryophyllus semperflorens*;) are an improvement on the older varieties; they flower with us during winter as well as summer, and are therefore much more desirable.

The art of propagating and cultivating the Carnation is very simple; cuttings may be made from September, and even earlier, to February in this country, and they may be planted with perfect safety in the open ground in a light deep sandy soil; if they can be

shaded for a few days after planting it is well to do so. Some of our florists plant them under glass, but we see no occasion for anything of the kind here, and consider it an unnecessary precaution.

There is a difference of opinion about cutting back the upper leaves; some advocating and others opposing. Our own experience justifies the cutting back before planting; roots will soon be formed, and the young plants will flower during the coming year. Wet soil is very injurious to the *Dianthus* tribe, while very dry soil and excessive heat are death to them. Carnations are also well adapted to pot-culture, but should be kept in the open air as much as possible.

Next in order is the Clove Pink—it is probably the parent of the Carnation. Its fragrance is powerful, the flowers are of one color and the petals fringed. It is a very desirable plant for the border.

We shall also mention the Feather Pink, (*Dianthus plumarius*) a very deserving class of pinks. Many of our readers undoubtedly have heard of the Scotch Feather Pinks which formed such an important feature in the English gardens. They are now neglected, but without just cause.

The Garden Pink (*Dianthus Hortensis*) is a very popular class of pinks. It blooms later than the Carnation. Its foliage is more grass like and its flower stem seldom grows over six inches in height. It is usually cultivated by division of the old root. The ground color is pure white or rose color with a dark velvet crimson or purple eye; sometimes almost black. If the petals have a delicate margin of the same color as the eye, it highly improves the beauty of the flower.

The China Pink (*Dianthus Chinensis*) deserves more attention than is generally given it. Both the double and single varieties are beautiful, flowering profusely during the entire summer, but they lack fragrance. They are easily cultivated from seed and flower during the first year. The double, as well as the single China Pink, produces seeds, and if the seed is taken from the double, it will yield a large proportion of double flowers.

The Sweet William (*Dianthus barbatus*) is an old and much esteemed class of pinks. It is raised from seed, and after the first year the best varieties may be propagated by division of the roots.

If a good collection of pinks is desired, we would advise acquiring the best varieties of Carnations by purchase and propagating them by cuttings. The others may be raised from seed to greater advantage.

We frequently hear complaints that the calyx of the double flowering pink splits open on one side, spoiling the beauty of the flower. It has been suggested that this may be prevented by cultivating the pinks in poor soil. We cannot agree with this proposition, as poor soil will certainly furnish poor flowers, but with a very little extra labor a small piece of string may be tied around the upper end of the calyx, which will keep the petals together, or an india rubber ring may be placed around the calyx which will prevent its irregular splitting.

INDOOR CULTIVATION OF HYACINTHS.

Editor California Horticulturist:—In a recent number of your very readable magazine, I was much interested with your article on flowering bulbs, particularly with your remarks on the Hyacinth, a favorite flower of mine. What you say in reference to the general neglect of bulbs, is too true, and almost unaccountable considering their ease of cultivation, but I have myself met with disappointment, on two occasions when I purchased bulbs. Some were not true to name, and others inferior in quality, being spongy and the trusses of flowers weakly and very poor, although I paid the dealer all he asked; this man although he has obtained some notoriety as a dealer in seeds, is a mean man and a mean looking one, and deserves to have his name mentioned, but I prefer treating him with contempt. My object in writing to you is to request the insertion of a few remarks on the indoor cultivation of my favorite bulb, the Hyacinth, the only objection to which is its over-

powering but delicious perfume when in bloom, but this affects only a few persons unpleasantly.

Hyacinths of course should have long since been in the glass, the flower-pot, or in the garden; if any one has been so neglectful as to retain them until now in some out of the way drawer or on some dry shelf, let them immediately plant them in some warm corner in the garden, and give them a season's rest, they may thus save them for next season. I always select the roundest, fullest and finest bulbs for the glasses, having due regard to the assortment of colors I anticipate when in bloom, the remainder of my stock I plant in pots and place aside. The Hyacinths in glasses should be kept in the dark till the roots are well developed, and the foliage begins to make progress, after which the closer they are brought to the light the better. The chief care they require is the change of water about once a fortnight. It should be poured away without disturbing the bulbs, then the glass and bulbs together should be plunged into a tub nearly filled with rain water, the bulb should be retained in position with the thumb and fore-finger of the left hand, a little water should be admitted into the glass and gently agitated so as to wash the roots and remove any impurity from the sides of the glass, which should then be refilled to within half an inch of the bottom of the bulbs, this bath is healthful to the bulb, foliage and roots, by removing any dust and impurities accumulated from the room, as well as sediment from the water; it is desirable that the water used should be as near as convenient to the temperature of that removed.

When the bulbs at first placed in the glasses have bloomed and lost the freshness of their beauty, they may be carefully removed, and planted about four inches deep in light sandy soil where they will complete their growth. If the Hyacinth grower has adopted my mode of treatment, and will now inspect those in pots, she will find a good assortment to supply the places of those removed from the glasses, these she will take from the pots one

by one, carefully wash away the soil and tenderly coax the roots into the glasses. We have some now treated in this way, that look stronger and finer than those which were grown altogether in water; this process may be repeated if sufficient bulbs were potted in the commencement of the season, and have been kept in a cool and shady place.

Hyacinths forced in water cannot be expected to produce good flowers the next year, yet with careful treatment they will make a valuable addition to the borders. One singular advantage in bulb culture is, that provided the roots are tenderly treated they will bear any amount of removal, and thus the windows may be amply supplied with a long succession and a good assortment of Crocuses, Hyacinths Tulips, etc., etc.

HORTUS.

HYBRIDS.

Many of our readers are probably uninformed how new varieties of flowering plants are raised. The process is called "Hybridizing," and is effected by intermingling the pollen of the flowers of different plants.

In order to describe this process properly it is necessary first to give a description of the flower itself. In the centre of a perfect flower we notice the stamens, which differ in number. These stamens consist of two parts: the filament and the anther; the filament is the stem of the stamen, and the anther is a somewhat round or oblong body attached to the top of it. Within the circle of stamens, and in the very centre of the flower, are the pistil and ovary; the latter of which contains the seed when fertilized by the pollen, which is a yellowish powder contained in the anther during the development of the flower. The anther sheds some of this pollen on to the pistil, fertilizing it and giving life to the seed in the ovary.

Now Hybridizing consists in removing the stamens from a flower before they have fertilized the pistil, and in carrying the pollen of a flower of another variety to the first one, by

which means the pistil is fertilized. The consequence is that the seed so produced will develop into a plant, the flowers of which will be unlike those of either of the flowers operated on, and yet in some features resemble both. This process, however, can only be carried out effectually between flowers of the same species.

The *modus operandi* is simple and very interesting, but must be executed with care, and at the proper time. New varieties raised in this manner are called "Hybrids."

DESTRUCTIVE INSECTS.

We hear many complaints of the increased damage done to flowers and vegetables by various kinds of insects, as the mealy bug, the green-fly in green-houses, and the brown and white scale insects.

The green-fly is found on young shoots and buds, and is easily got rid of by fumigating the house with tobacco smoke, which does not in the least injure the plants. The mealy bug is found in the axils of leaves and stems, and is very injurious to grape-vines. Various cures have been suggested, some of which have proved very successful, not only in destroying the insects, but also in arresting the young growth of the plants. Some time since the Horticultural Society of Boston, offered a special premium for an effective remedy for the injury inflicted by plant-insects, and the result was that the application of a diluted solution of whale oil soap was recommended, and has proved to have the desired effect. The whale oil soap is dissolved at the rate of two pounds to fifteen gallons of water; the solution should be applied with a syringe, and should first be strained through cloth so as to remove all impurities which may stop the syringe. A very important feature in this remedy is that the solution which accidentally drops on the soil will kill any insect which may have its hiding place there, and that it is also an excellent fertilizer. The above solution will not in any way injure the plants, it also destroys the rose slug which has been very annoying during the last year in various localities.

The cabbage patches have suffered very much from the so-called Cabbage louse, so much so as in many instances to discourage the raising of that vegetable. The above solution can be applied here also, with an equally pleasing result. An objection may be raised that it consumes too much time, but we are inclined to believe that if the cabbage field is frequently sprinkled with the solution above described instead of syringing each plant, which would certainly take up a great deal of time, the effect will also be gratifying and satisfactory. The remedy is cheap and simple, and we can in very good faith recommend its general application. Try it, and inform us of the result.

PLANT LICE. (*Aphides*.)

These pests to the gardener are exceedingly numerous, they are subdivided by Entomologists into several sub-families which it is not our purpose to recapitulate, we shall content ourselves with a general description.

The body is short, soft, oval in form, about the 1-16th of an inch in length and usually of a light-green color, the legs are exceedingly slender and hair-like as is also the proboscis; they subsist by suction on the juices of the plant which they infest; they attack in great numbers the soft shoots and young leaves, frequently completely covering them, exhausting and frequently killing the plant. At the hind extremity of the body are two small tubes or pores from which exude minute drops of a very sweet fluid; of this the ants are very fond, they do not injure the *Aphides* but the most friendly relations appear to exist between these two kinds of insects.

The Lady-Bug (*coccinellida*), of several species, both in its larva and perfect state appears to be its most determined insect antagonist, devouring it voraciously, indeed in the hop-gardens of England, when the curse of the *Aphides* is upon them, the advent of the lady bugs is prayed for as no farmer ever yet prayed for rain, and it is a curious circumstance that in those seasons when the plant lice swarm,

their antagonists are also in countless myriads, although at other times only in moderate numbers.

The female of the *Aphides* is apterous, (wingless), while the male is provided with two pair of wings, the upper ones being much longer than the body and about twice as large as the lower ones; they are nearly triangular in shape, and when at rest are held almost vertical.

The young are hatched in the spring, and soon attain maturity, this brood consists entirely of wingless females, which bring forth living young each producing from fifteen to twenty in a day; these young are also wingless females, and at maturity they also bring forth living young, which are also wingless females, and they in their turn bring forth living young of the same sex, in this way brood after brood is produced even to the fourteenth generation in a single season, and this without the appearance of a single male. The last brood in autumn consists of both males and females, the latter also having wings, these pair, stock the plants with eggs and then perish. Reaumur has proved that a single aphid in five generations may become the progenitor of about six thousand millions of descendants.

In the green-house the plague of plant lice is readily abated by fumigation with tobacco smoke; a chafing dish should be about half filled with red hot charcoal, all doors and windows should be closed, and refuse tobacco in a damp state should be thrown on, when, unless the operator is a most inveterate smoker, he had better retire; this should be done in the evening, it will not injure the plants and on opening the house in the morning, the insects will be found to have dropped from the plants; sprinkling with pulverized sulphur, or washing or syringing with soapsuds is advised by some. For the green-house we prefer the first remedy; for out door applications, as on rose trees, we adopt the syringing with soapsuds made by pouring boiling water on coarse soap, soft soap for instance, stirring it well, allowing it to cool, and then straining it before using. This process would be efficacious in clearing the cab-

bage tribe (*brassicæ*) of the pests, if perseveringly carried out, but it is almost sure to be relinquished as too troublesome to syringe every plant individually, especially when the plantation is large. We have adopted the plan of dipping the young plants before setting them out, in the cold soapsuds as prepared above, taking about a dozen at a time by the stems and stirring them around in it, then planting them. We believe in this.

A successful florist and gardener resident in the neighborhood of this city, informs us that he has found a very efficacious remedy in planting his plants of the cabbage tribe in alternate rows with camomile, (*Anthemis*), and similar herbs which seem obnoxious to these insects, this remedy may be further utilized, as the flowers of the camomile when properly harvested are of commercial value. In those districts where large crops of the cabbage family have been cultivated, and which have suffered from the pest, it appears to us that the safest plan is to gather as much stubble and other vegetable refuse as convenient on to the land during the dry season, and burn it over, this will destroy the eggs both on the rubbish and in the land, which should afterwards be well ploughed and cropped with some cereal on the rotation system, which will be beneficial in other ways besides in destroying the insects.



EXPERIENCE WITH HENS.—“P.” writes: My experience with hens during several years has led me to the following conclusions:

1st, Hens well fed and cared for, usually lay the first season daily, small or medium eggs, until they take a notion to set, which is generally when they laid two or three dozen eggs. If not permitted to set, they will begin to lay again in two three or weeks. Some hens, however, do not incline to set very often—these, of course, will not lay so constantly as those which are more ambitious to realize the fruit of their labor.

2nd, The second season, hens lay large eggs, quite too large to sell by the dozen, but seldom or never oftener than every other day.

3rd, Pullets hatched from eggs laid by hens more than twelve or fifteen months old, are apt to be like their mothers—to lay large eggs, but not daily.

Therefore, I would never keep a hen through the second winter, and never set eggs of hens after they have moulted, or of those that are more than a year and a half old.

LECTURES ON THE CONIFERÆ OF CALIFORNIA, BY PROFESSOR H. N. BOLANDER.

(CONTINUED).

Firs, (*Piceas*). Of these we have four species growing on the Pacific Coast.

1. *Picea grandis*, very generally distributed over California and the Rocky Mountains. It grows nearest to the ocean and in the gulches of the Sierra Nevadas at from 2,000 to 7,000 feet altitude. It is again found on the Eastern slope of the Sierras but in limited numbers.

The tree is cylindrical in form, its foliage dark green above and silvery glaucous beneath, the cones are five inches in length and rather narrow, it grows from 200 to 250 feet in height, the wood is inferior and it is not cultivated here.

2. *Picea amabilis* grows in the Sierra Nevadas, 7000 feet above the level of the sea. The cones are large and covered with a woolly-like substance. It is a tree of great beauty and should be extensively cultivated. Its timber is valuable. The tree has been neglected by our nurserymen. The seed of the *Picea amabilis* is generally destroyed by insects. Apparently good and healthy seeds have been sent to England and New Zealand, but on their arrival they were found alive with insects. The best way of introducing this fir into cultivation would be to obtain young plants from three to four inches in height, which would transplant readily. These can be found in very large quantities near the summit of the Sierras. If carefully packed there, these might be conveyed with safety to a great distance.

3. *Picea bracteata*, is confined to a small locality in San Luis Obispo and Monterey counties. Almost all of the trees have been cut down for the seeds. This tree is one of the most beautiful of Conifers. It is slender and the branches are well divided. The cones are four inches in length and two inches in diameter. Bracts are developed from between the scales of from one to two inches in length and are reflexed. The seed has been sold as high

as seventy-five dollars per pound. It is a rather dangerous enterprise to obtain the seed, as the country is infested by grizzly bears and over-run by the lawless greasers. There are now some cone-bearing trees of the *Picea bracteata* in England.

4. *Picea nobilis*. This tree is found from Mount Shasta to the Columbia River; the bracts extending from between the scales are three parted. The tree was first discovered by Douglass and sent to England, where it is also now cone bearing. This tree is not cultivated here.

The cones of the *Piceas* do not drop, they open and discharge their seeds with the scales, leaving the spindle on the tree for several years. The *Piceas* have their leaves single on the sides of the branches, while the leaves of the *Abies*, which are also single, grow all around the stem.

Spruce Firs (*Abies*), of these we have also four varieties growing in California.

1. *Abies Douglasii* which is generally associated with the *Pinus ponderosa* in the gulches and on the banks of rivers and creeks in the Sierras; on the Coast Range it is generally most plentiful on the outskirts of thick forests of redwood. There is nothing more beautiful than a group of the California chestnut oak and the *Abies Douglasii* when growing together. This variety is also found rather plentifully in the Rocky Mountains. Trees have been seen of thirteen feet in circumference, the bark is of a greyish color, the branches drooping, the tree is very picturesque, the timber is valuable for lumber, the seeds ripen early in September. Marin county and Belmont, San Mateo County, furnish excellent seed. This tree is cultivated rather extensively in California.

2. *Abies Menziesii*, is found all the way from Mendocino to Humboldt Bay and Alaska, the foliage is of a bluish-green, the trunk is from six to ten feet in diameter, and the bark smooth and black; the timber is used for ship-knees, and is therefore of a tough nature. The *Abies Menziesii* is also found in the Rocky Mountains, but not in the Sierras, it is sometimes called the Black Spruce, (*Abies nigra*).

3. *Abies Mertensiana*. This is not the *Abies Canadensis* or Hemlock spruce of the East, which is of a greyish color while the *Mertensiana* is of a cinnamon shade—this is one of the most beautiful trees for lawns and gardens, its branches are slender and graceful, and it deserves extensive cultivation.

4. *Abies Pattoniana* (*Pattonii*). This is recorded by the railroad survey as *A. Williamsonii*; it grows on the Sierras of California and Oregon, at a level of not less than 8,000 feet, the trunk is from six to eight feet in diameter, and it grows two hundred and fifty feet in height; the tree is conical, and the branches drooping. This is also known as *A. Hookeriana*, cone-bearing specimens are growing in England under this latter name. It is difficult to obtain seeds in good condition, and the best mode of propagating would doubtless be to procure the young plants, which can be obtained in large quantities in the Sierras.

We come now to the *Libocedrus decurrens*, which is doubtless a different tree from the *Thuja gigantea*. It has a rough bark, and the foliage is spiny; the cones are like a pea-nut with two wings, bearing two seeds in each wing; it seldom attains the height of one hundred feet, the trunk is thick below, and rapidly decreases in size. This tree is found to grow exclusively on very dry hillsides, in volcanic soil. The seeds are shed about the 1st of September.

Thuja gigantea, which is also called *Thuja Craigiana*, has a smooth bark, and the foliage is also smooth. The cones are scaly; it grows from one hundred and fifty to two hundred feet in height and is rather slender. The *Thuja gigantea* is not found in very dry soil; it is covered with a dense foliage and is of a graceful habit.

Next in order are the *Sequoias*, of which there are two growing in California.

1. *Sequoia gigantea*, (*Wellingtonia gigantea*—*Washingtonia gigantea*), called also the Big-Trees of Calaveras. It was formerly believed that there were only a few of the *Sequoia gigantea* growing in this State, but it has been found in large quantities, both small and large trees, in

the Sierras, at from 4,500 to 8,000 feet above the level of the sea. It has been found in a silicified state, in large quantities, both in the Baltic Sea, in Switzerland, in Greenland, and in England, where at one time it must have covered the ground. The leaves are sharp-pointed and scattered around the branches, the foliage is of a light green, the cones are ovate and from two to three inches in length, with prickled scales.

2. *Sequoia sempervirens* (redwood). This peculiar tree is found from San Luis Obispo up to Mendocino, close to the ocean. North of Mendocino it makes room for the *Abies Douglasii* and the Chesnut oak. It occurs once more higher north, on this side of the line of Oregon, where it is found in large quantities. A few have also been found in Oregon. It grows in foggy regions and on sandstone formations. There is nothing more grand than to contemplate the ocean of redwood trees when the fogs roll in over the woods. The amount of rain is larger wherever redwood forests are found, and it is a fact that moist and springy lands, known to be such while the redwoods covered the ground, have dried up and shown no signs of water after the redwood trees have been removed. An example of this is furnished in the hills at the back of Oakland, where redwoods covered certain localities at one time. This tree grows to the height of 300 feet, and is found at from ten to fifteen feet in diameter. The timber is valuable.

The redwood was found in England and described as the *Sequoia Langsdorffii*.

Redwood forests are not destroyed by fire, which may burn up all the leaves and branches, but the tree will send forth new shoots from its charred trunk and limbs. Trees which have been cut down and allowed to remain on the ground, have formed, after a few years, new growths of young trees which have grown into forests; anything left of a redwood tree will sprout again, it therefore is a difficult task to clear land overgrown with this timber.

This tree is now largely cultivated by the Italian Government on account of its many good qualities.

POPULAR BOTANY.

CHAPTER V.

In our last chapter we gave the several parts that go to make up an exogenous stem of one years growth. To simplify, and show the relation that one portion bears to another, we shall refer to them again in the order met with, in passing from the centre to the outside of the stem.

First, the *pith*, which belongs to the cellular or horizontal system.

Second, the *medullary sheath*. Third, the *layer of wood*, both of which belong to the woody or vertical system.

Fourth, the *medullary rays*, a part of the cellular system which passes through the wood horizontally, and serves to connect the central pith with the bark.

Fifth, the *liber*, which is the inner portion of the bark, but belongs to the woody or vertical system. The medullary rays pass through this liber to the outer bark.

Sixth, the *outer bark*, which is included in the cellular system, and is divided into two parts: First the *green or cellular layer*; Second, the *corky layer*.

Last of all the *epidermis* or skin, which covers the entire plant.

Herbaceous plants develop no further than this, and at the close of their season of growth, perish. Trees and shrubs are constantly adding to this growth, year after year, and this is the next point to command our attention.

As the season of new growth arrives, a kind of mucilage makes its appearance between the separable bark and wood. This is called *Cambrium*, and is supposed by some to be the source of nourishment to the forming wood. All we can say is, that in it, or by it, new cells and vessels are formed, and thus a new layer of wood comes into existence as the previous layer had done. At the same time the liber has also a new layer added to it, but only on its inner side. Each year this action goes on, producing at regular intervals new layers of wood and bark. These layers, always like the first, are intersected by the medullary rays.

On the examination then of an exogenous stem by a cross section, we find the wood in concentric layers, with the bark as an outer ring, and the pith as a central point. As each year adds but one of these layers to the stem, we are enabled by this means to determine the age of that stem with positive accuracy.

In the case of some stems, these rings or layers are not so plainly marked, and this is more likely to occur in the tropics or even in sub-tropical countries where the growth is not stopped by the severity of winter, but continues more or less all the year. Still in these places there is a period of rest for the plant, which is generally during the dry season.

The layers of newly made wood, of which we have spoken, form a number of tubes which reach from the roots to the extremity of the stem, and serve to conduct the sap upwards to the leaves. For this reason the new wood is called the *sap wood*. The roots absorb from the soil the required amount of salts, such as potash, lime, etc., which are conveyed by this system of tubes to all parts of the plant. A portion of these salts are deposited in the woody tubes, and so in the course of time their size becomes lessened, and at last completely closed. Thus the wood grows hard and dense as it advances in age, and it is then called *heart wood*. After a time the heart wood is not required in promoting the growth of a stem, and may decay without injury to the plant.

The woody layers, when once deposited, remain forever afterwards unchanged, (with the exception of this action of the earthy salts), in position and character, and are only effected by decay. On the other hand the bark is constantly undergoing change, both from age and the manner of its formation. The liber or inner bark is increased in the same way as the wood, by annual layers, the new layer being formed next to the wood, pushes the older bark outward. The tubes of this liber are used as the medium of the return circulation of the plant, and they like the heart wood, are solidified in time by the deposits of earthy salts, which have undergone certain changes in the leaves of the plant.

Soon the outer or old bark becomes useless and dies. Unable to adjust itself to the growing wood within it, it becomes torn and split and even finally decays. The tissues of the bark are composed of fibres which from their character are often used as materials for ropes, etc. The juices of a plant when elaborated in the leaves, return through the bark, and in their passage leave behind them certain qualities. Thus medicinal and certain other principles are found only in the bark.

As the old bark and the heart wood of a stem may decay and die without detriment to the growing properties of a plant, we see at once that the sap wood and liber are the only parts of the stem by which the steady action is carried on year after year, and to them is due the permanent existence of the plant.

SEEDLING FRUIT TREES.

Much has been lately written in the Eastern States, about new varieties of seedling fruits, we feel that this matter is entitled to our serious attention. It is generally understood, and our own experience is corroborating, that stone fruits will reproduce themselves more truly to their original qualities than other fruits, with the exception perhaps of the cherry.

It has frequently occurred, that when the seeds taken from very fine peaches have been planted, the young trees produced have yielded as good fruit if not better, than the parent tree, although they have been neither grafted nor budded; and we say no more than we can vouch for, when we state that a large majority of the peach trees raised from seeds of excellent fruit, have produced, under proper treatment, fruits equally as good as the trees from which the seed was obtained.

In Germany the well known German prune is almost exclusively propagated from the seed. Some others are also raised in this manner. Very many new and valuable varieties in fruits are annually produced from seeds, but we believe that many of our fruit growers are over

anxious to produce something new, and very often what is claimed as a new variety is but a peculiarity of the fruit, entirely due to local circumstances. However if one new and deserving variety is produced out of 50 claimed as such, it is a matter of importance. We advise therefore the persistent cultivation of a certain quantity of seedlings from seed of superior fruit. And particularly in California should this matter receive universal attention, as only in this way shall we obtain standard varieties of fruits adapted to our climate. In fact it should be the ambition of our fruit growers to raise representatives of all the fruits, from the grape to the blackberry, from the apple and pear to the currant, for only thus will they become thoroughly acclimatized, and then only will the flavor be equal to the appearance. California has done well, so far, in fruit growing, but we believe there are many opportunities for improvement.

In this connection we refer with pleasure to a report in the *California Farmer* on six varieties of pears raised by Mr. B. S. Fox of San Jose, on seedling trees.

Fox No. 7.—A dark russet pear, size of the Seckel, super excellent, rich and luscious, a melting pear, ripe in December.

Fox No. 8.—A medium sized pear, melting, very high flavor, a most valuable pear worthy of extensive cultivation.

Fox No. 68.—A medium size pear with a remarkably high aromatic flavor, melting and juicy, a great acquisition.

Fox No. 150.—A small sized pear, but of very extraordinary flavor, like a delicious melon, melting and very juicy.

Fox No. 172.—A handsome formed pear like the St. Michael, and of same size, sweet and juicy in the extreme; high aromatic flavor; a most admirable fruit.

Fox No. 185.—A medium pear, light color, handsome form; size of the Seckel; a late keeper; not superior in quality, but will prove a grand market pear, as it will keep to January or February.

AGRICULTURAL DEVELOPMENTS.

At a recent meeting of agricultural men in the south, the Hon. Horace Capron, Commissioner of Agriculture, was present by invitation,—and as he delivered a most interesting address before this convention, we shall repeat some of his well considered remarks, which can be applied with equal force to California. In alluding to the slow progress in developing resources, he cites the following as prominent reasons for this untoward state of affairs.

First.—A wasteful and slovenly system of agriculture, which is the curse of our whole country, has been practiced in our cotton-states.

Second.—The multiplication and utilization of the raw products of agriculture by manufacture has been ignored or discouraged. Culture has been restricted to a few crops, and the policy of buying nearly every thing needed to eat, drink or wear has been encouraged.

Third.—Labor has been mainly restricted to a servile class, thus becoming a badge of dishonor, rather than a crown of glory which it is; a large portion of the people formerly lived (and are living now—Ed. Hort.) in comparative idleness or unproductive employment, and the intellect and ambition of the influential or ruling class has been expended upon politics, to the neglect of material development."

"The business of agriculture should be an industry, and not a speculation. The insane pursuit of specialties has long been a curse to American agriculture. A whole community runs wild upon hops, when they are selling at fifty cents per pound, and in two years they are scarcely worth the price of picking. Extravagance begotten of high expectations is forthwith followed by bankruptcy. Wheat brings two dollars per bushel, and whole states become wheat-fields, while every other interest languishes, until the bread crop becomes so abundant as to be fed to swine in preference to shipment for human food."

Again he says, "There is no reason why we should send abroad for a pound of sugar, though our home production last year was but ten per cent. Your fruits in wonderful variety, including those of the tropics, should annually add millions of dollars to the wealth of the country. Scores of new and useful plants should be added to the list of those already in cultivation."

In regard to our manufacturing interests he says "If England, by the magic of her labor can make a dollar's worth of your cotton produce two dollars, and if France can make it yield three, why should not your people with willing hands to work and abundant water and fuel for power, manufacture a large portion of your crops, at least into yarns and coarse fabrics, and thus add to the annual value of your industries a hundred millions more?"

In his closing remarks he adds, "Look not for additional labor to the coolies of China, or to the people of Europe, until all your people of whatever color, condition or capacity have full employment for mind and muscle in developing the wonderful capabilities under your control. The practical question of the day is not, Where shall we procure more labor? but rather, How can we utilize and profitably employ the varied capacities, tastes and inventive powers of every individual of our present population? What can each accomplish with the best results? What can be done for the employment of men practiced in no skillful employment? What can be done for indigent women and even for children dependent on their own exertions for subsistence, for education and for advanced social positions?"

"I am satisfied that a new era is dawning, that the rule of one idea is weakening and that the diversification of production has already commenced opening a career of activity and a vista of beauty hitherto unwitnessed in the brightest days of this nation.

ANAHEIM will probably make over a million gallons of wine this year, for shipment. Grasshoppers have made great devastation in the Cucamungo vineyards, fully one-third of the vines having been destroyed by them.—*Call.*

SORGO (*SORGHUM SACCHARATUM*) AS A FORAGE PLANT.

This plant is a native of the north of China, where it is cultivated to a limited extent. Its height is from 12 to eighteen feet; the stalks decreasing in diameter very gradually. Tapering and drooping leaves spring from the nodes which are eight to twelve inches apart. When the seed ripens the stem becomes smooth, with a siliceous deposit, and it hardens as the starchy substances are converted into woody fibre.—*Gardeners' Chronicle, Eng.*

In 1854, Mr. Browne sent from France some seeds which were distributed by the Agricultural Department of the Patent Office. For a time it received but little attention, being cultivated to but a slight extent. Since 1855, however, its cultivation has been on the increase, and it is now one of the great crops of the country. In the North Western States, where it is principally grown, there was in 1864, 366,670 acres of Sorgo under cultivation. For sugar, the plant has turned out a failure, and at present its chief recommendation is as a forage plant. For this purpose it promises to be a valuable acquisition, and farmers in California would do well to devote a share of their lands and attention to it. Grass yields a ton to a ton and a half of hay to the acre, while Sorgo will yield from two tons to nine tons of dry fodder on the same area. It is grown with success on all lands where corn can be grown. Deep, loose, warm soil, even of poor quality produces the sweetest and most juicy stalks. Its growth is increased very much by irrigation. The seeds should (previous to planting) be soaked in warm water until they show signs of germination, which will occur in about six days. If the planting is done in rows, they should be about four feet apart; and if in drills, from four to six inches between each seed. Its subsequent culture is much the same as that for corn.

As yet we can give but little as to its cultivation in this State, but we hope in a short time to be able to record some observations on this plant, and its adaptability to our climate, with its true value as a forage plant.

ORNAMENTAL AND LANDSCAPE GARDENING.

SECTION V.

In our last number we gave a selection of plants for a small garden, which require either training upon the house, over the verandah, the out-buildings or the covered seats; also, such as may be supported by stakes until by proper cultivation they are able to support themselves. These are denominated shrubby plants, they make more or less woody growth, and will do well under ordinary treatment. All of the plants particularized are well adapted for the front garden, and should they be neglected for some little time they will not perish for want of attention; although they cannot be expected to flower or flourish as well as when properly treated.

But there is another class of plants which are equally as well entitled to our admiration and care, and without which the flower garden looks bare and unfinished, these are the herbaceous plants, or border flowers. Who would be without the Pink, the Pansy, the Verbena, the Petunia, the Violet, the Primrose, the Wallflower, many of the bulbous rooted plants, and some of our most exquisite annuals? But it must be admitted that this class of plants require more care than the former, their roots are not as strong nor do they penetrate the soil as deeply, their nourishment is derived from the surface soil and surface moisture, and as these resources are quickly exhausted, a fresh supply of manure must be added and incorporated with the soil every year, and in California frequent watering (at least every other day) is indispensable, particularly where the soil is light and sandy; frequent stirring of the surface of the soil around these plants is also very beneficial. We say therefore that unless the owner of a flower garden is inclined to bestow a little additional labor on the cultivation of these herbaceous plants, it will be better to do entirely without them.

After having decided how much time and care can be devoted to the flower garden, and having made the selections accordingly, it is advisable to consult the gardener on the ar-

range of walks and flower-beds, also on the proper disposition of shrubs. A proper place for the Evergreens, is in the centre of larger beds, a small irregular belt of evergreen and flowering shrubs may also be planted near the front fence. Roses, Geraniums, Fuchsias, and other flowering shrubs should be planted in the borders, at least eighteen inches to two feet from the walks, and from five to six feet apart. If herbaceous plants are desired, they should be planted between these, and those of low and dwarf growth should be set out near the walks. Petunias, Pansys, Verbenas, bulbs, &c., may be planted in groups, or in beds by themselves, or they may be scattered throughout the borders. Where there is a great deal of room, the planting in groups or beds is preferable.

In planting, all deciduous shrubs, particularly roses, should be cut back extensively. When plants are taken from pots and the roots are found to cover the ball of earth, it is advisable to loosen the outer roots before planting, it is also beneficial to well incorporate a shovel-full of old rotten manure, with the soil where the new plant is to be set out; and we think that in all cases a plant may be set one inch deeper into the soil than its former position.

We consider it an important rule in the general arrangement of shrubs around a garden, that the taller growing varieties, should occupy the outskirts, while the smaller kinds, should be placed nearer to the house; in regard to the disposition of plants in beds, the taller varieties should be placed near the centre, and the dwarfish growing kinds, nearer to the edge.

If it is desired to have a grass-plot in a garden of this grade, it should be rather free from flowering shrubs and plants; no plant will thrive well if surrounded by the sod, and if this difficulty is to be overcome by digging up the soil around the plants, the grass-plot will lose a great deal of its effect, it will be much better to cut out a bed of an appropriate form, and cultivate it entirely with flowers, so as to have it surrounded by the grass, this has a good effect which will be increased by filling the bed with one certain class of plants only.

The best grass-plot is formed by sowing a mixture of two parts of Kentucky blue grass (*Poa pratensis*), sometimes also called the June grass, and one part of red-top grass, (*Agrostis vulgaris*), mixed with a small quantity of white clover. The clover is valuable in quickly producing a close sod. After sowing, the ground should be well and evenly rolled or pressed down; we must here call the attention of gardeners, particularly to the necessity for sowing thickly, in order to produce a good sod. The many disappointments endured by those seeking a grass-plot, are attributable to too much economy, in the quantity of seed used.

PUBLIC IMPROVEMENTS.

After the article "Public Parks," which appeared in our last number had been handed to the printer, our Park Commissioners submitted a report of their proceedings and a statement of their receipts and expenditures to our honorable Board of Supervisors, which report was also published in full in our last number. This statement shows a larger cash balance on hand than we anticipated, over \$9,000 is still unexpended. We have met with many persons who complain that this amount is not immediately expended, but we see no reason why any one should find fault with the Commission in this respect. We believe the Commissioners are justified in their action.

There are but three things that could be undertaken by them at present with the amount of money on hand.

One is to advertise for plans, taking as a basis the topographical survey lately furnished, and to invite competition by offering premiums for the best. This we believe the Commissioners propose to do as soon as possible, and we consider this an important step.

Another is the covering the sand hills with some kind of vegetation, so as to prevent the continual shifting of the sand; we think that some experiments in this direction would be very desirable, and would not require much money. The sand hills over which the strong winds from the ocean now sweep so mercilessly,

continually changing their topographical configuration, must sooner or later be covered with some vegetation, and the sooner these experiments are made, so as to arrive at some conclusion as to how it can be done best and cheapest, the better it will be both for the park and for the whole community. If the first or second experiment should prove successful, we know that many of our capitalists and land-owners will avail themselves of the experience, and in a few years we may succeed in covering these almost unapproachable sand regions, sufficiently to make them available for further improvements. We are inclined to believe, that had \$1,000 been expended by the Commissioners in experimenting in this direction, they would have had by this time some very satisfactory data on which to work. No time should now be lost in inaugurating such a series of experiments and doubtless some important results, and an immense amount of good will follow, which but few of us can at present foresee.

A third step towards active work will be the providing of a stock of trees for planting. This, the Commissioners expect to do by raising them on the ground as far as practicable. We understand that some parties offered to transfer their whole nursery stock, glass and all, to the Park grounds at a reasonable figure. If we are correctly informed, the offer was reasonable. The Commissioners did not accept it, we believe, for some good reasons. We must take into consideration that after paying for the plans which must be had, probably not more than \$6,000 will be left, and unless some one is ready to purchase more bonds, which we can hardly expect, no more money can be obtained by the Commissioners until the next Legislature meets, who may feel disposed to facilitate the selling of the Park bonds, or may open some other resources for the increase of the funds of the Park Commissioners. It would be an easy matter to purchase eight or nine thousand dollars worth of stock and thus expend all the money on hand, but we must bear in mind that after the trees and shrubs have been acquired, they must also

be taken care of. We think that the course pursued by the Commissioners is correct so far, excepting that no effort has been made to arrest the sand-drifting alluded to above, and, providing that the raising of trees on the ground is carried on by a competent person. The Commissioners should bear in mind that nothing should be cultivated there at present excepting such as it is known will answer the purpose. All other work for improving the Park grounds must be subject to the grades, levels and conditions of the plan adopted and therefore the Commissioners should confine themselves to the three points defined above.

In obtaining a proper plan for the Park, we apprehend some difficulties will occur. The draughtsman who projects a plan or design is almost entirely controlled by the amount of money proposed to be expended in its execution. The man for instance who furnishes a design, upon the completion of which one million of dollars must be expended, will be very likely to produce a far superior, or at least more attractive plan, than one who bases his design on a suggested expenditure of \$300,000. In order to do justice to all parties who may compete, the amount of money proposed to be expended should be stated approximately at least. Furthermore, parties from the East may come into competition, and may produce plans which might answer every purpose there, but may mislead those who are to judge upon the merits of all plans presented in regard to their adaptability to our peculiar climate and local circumstances. It seems to us, that it will take some experts, men of local and climatic experience, to decide upon a plan best adapted to our special wants.

We have something yet to say respecting the Presidio Reservation, which has been prominent lately in connection with Parks. But we must postpone our remarks for want of space.

A MAN on King's River, Fresno County, has raised two crops on one piece of land last season—the first being a fine yield of barley, after which the land was ploughed and corn planted, which has produced one of the finest crops on the river.—*Call.*

AGRICULTURAL AND HORTICULTURAL
WORK FOR MARCH AND APRIL.

Our publication day being on the 15th of each month, one-half of the time for the work requisite during that month has passed before our readers are in possession of the magazine, we therefore propose, to keep them posted a week or two in advance, regarding the work necessary to be done during the coming month, our remarks therefore in this chapter are applicable to the latter half of March, and the month of April.

The planting of Evergreens and deciduous ornamental trees, as well as fruit trees, should have received special attention during the past two months, yet a great many people have neglected to do so, and consequently as many if not more trees will be planted during the next sixty days, as have been set out since the 1st of January. But very few persons appreciate the necessity for early planting, although the advantages of so doing have been so often demonstrated. Trees which are planted after this month, (March) should be set out with especial care, the ground should be deeply ploughed, and the holes should be deeper and wider than when planted earlier. After planting, the ground around the trees should be mulched with fresh manure, hay or straw.

In the kitchen garden all those varieties of vegetable seeds which have been delayed on account of the cold weather, may now be planted. Beans may now be set about two inches deep, and at the rate of six or seven in a hill, which latter should be from two to three feet apart. For bush beans, good varieties, are the early Valentine as a strong bean, and the butter bean as a stringless one. Early China and white marrowfat are good for shelling. For running beans which require to be supported by poles or brush, the best is the large Lima.

Cucumbers may be planted in the early part of April in hills about six feet apart, which should have two to three shovelfuls of old rotten manure well incorporated; from eight to ten seeds should be set in each hill, and then should be covered about $\frac{1}{2}$ an inch deep. When

the plants are well up they should be thinned out to three or four of the strongest; good varieties are the Long green, and the Early frame.

Cucumbers for pickling, should be planted later.

Mush Melons, Water Melons and Squashes, may also be planted.

Cabbage and Cauliflower plants should now be transplanted from the seed beds, and should be set out about two feet apart in the row.

Tomatoes and Peppers may be transplanted to the open air during April.

Okra is a southern vegetable which may be raised with success in California, the young plants should be raised in frames, and transplanted in April about two feet apart.

The Egg plant is a tender vegetable, and should be treated in the same manner as the Tomato, but it requires more care in transplanting, as if once set back or chilled it hardly ever recovers, it is well therefore to cover it up after transplanting.

The flower garden now begins to present a more cheerful appearance, and the young growth is everywhere pushing forth rapidly. All kinds of tender bulbs may now be planted, such as Dahlias, Tuber-roses, Amaryllis, &c., &c., also the more tender flower seeds, the Asters, Balsams, Phloxes, Immortelles, &c.

Hyacinths and Narcissus are now in full bloom, and here and there we see a display of fine collections. These bulbs should be more popular. Tulips are also developing their first flowers, but hitherto we have not noticed any good specimens here, except some grown by Mr. Seitz on Ellis St., who, however, keeps them under glass, we repeat that the later varieties will present a far better appearance. Primulas, Pansies, Wall-flowers, Snow-drops, Crocus, Daffodils, are now some of the chief ornaments of the flower garden, and will continue to be so for a month longer; these in connection with the continuous blooming of Geraniums, Roses, Fuchsias, Heliotropes, Pinks, Verbenas, Laurustinus, Polygalla, Japanese Quince, Mesembryanthemum, and others, give to our California gardens a lively appearance at this time of the year.

All herbaceous plants should now have a frequent hoeing of the ground around them; in clayey and shaded places snails may be troublesome, but a strong application of lime will drive them away or kill them.

Young plants of Pansies which have developed three or four strong leaves, may now be transplanted, and if a shovelful of old rotten manure is incorporated with the soil where you intend to set out the young plants, they will be much benefited.

We will now direct the attention of our readers to a very erroneous practice, that of planting seeds too deeply, particularly of annuals, these should never be covered more than $\frac{1}{4}$ of an inch deep in the soil. Another bad practice is to sow flower seeds broadcast over the garden, when the different kinds should be set in patches by themselves that they may be better taken care of while young, and also to be more effective while in flower.

Parlor and green-house plants should receive extensive airing and a little more frequent watering as they advance in growth. If fresh cow manure dissolved in water can be moderately applied once a week, it will prove very beneficial.



SWEDISH COFFEE.—A correspondent of the *Independent*, traveling in Sweden, was immensely delighted with the coffee served on the steamboats and in the hotels. "At Upsala," he writes, "we determined to find out how they made such perfect coffee as we had just drank, and stepped into the neat kitchen of the little hotel; and this was the report: Take any kind of coffee pot or urn, and suspend a bag made of felt or very heavy flannel, so long that it reaches the bottom, bound on a wire just fitting the top; put in the fresh ground pure coffee, and pour on freshly boiled water. The fluid filters through the bag, and may be used at once; needs no settling, and retains all its aroma. The advantage of this over the ordinary filter is its economy, as the coffee stands and soaks out its strength instead of merely letting the water pass through it. 'Do you boil it?' inquired the learner. 'Na-a-a-ay,' said the maid, in simple astonishment that any one should be so wasteful as to send the precious aroma away in steam; should rob that prince of food of that evanescent something which constitutes his nobility, and reduce him to mere aliment. As soon would one think of throwing away that drop of sunshine, charged with all the summer's gold which lies at the throat of a bottle of Johannisberger."

A SUGGESTION.

We noticed a few days since in a wool circular a suggestion which we considered valuable to our farming friends, and we reprint it believing that if adopted the results will be beneficial.

"We consider it advisable to appeal to the good sense of our farmers to add a few head of sheep to their general farming stock, as is done in Canada. These sheep will be a benefit to their farm in eating the grass which other stock do not consume, and giving the best manure in return. These small herds can be better cared for than large ones, they are more easily kept clean and their wool will always fetch a higher price than others."

We know that it is usual in England to have a flock of sheep on most farms, in fact it is considered one of the main sources of profit; in many instances they are bred on the farm, in others they are purchased in a lean condition; in the latter case the farmer procures them after he has gathered the bulk of his root crops; the sheep are folded by means of hurdles over the fields on which these crops have been grown, the hurdles are shifted so as to pass the flock regularly over every part of the field, and by the time the farmer has thus got rid of the refuse of his root crops, and any other fodder he does not wish to harvest, his fields have been well and evenly manured (sheep droppings and urine are considered very fertilizing) and his sheep are in prime condition for the market; if his root crops do not find a ready sale he retains his flock and thus utilizes both and watches the market.

Frequently in the spring of the year when a grain crop looks thin and weakly, a flock of sheep is turned on to it, and they by cropping it down, setting the soil to the roots with their small feet, and manuring it, will restore it to vigor and the produce is almost always abundant. Sometimes when a farmer has not a flock of sheep of his own, he will borrow one from a neighbor for this purpose.

Sheep kept on a farm become very tame, and are very prolific, the ewes usually dropping twins, in some few instances triplets.

Their fleece is much heavier than when kept in a half wild condition in large flocks, and their carcasses are also of a greater weight and much fatter; and it is a great convenience to the farmer to be able to occasionally change his diet from pork and bacon when he would not kill an ox. This is especially the case in Australia, where small flocks are becoming utilized in this manner as the farming interest increases.

There are some few hints also in the same circular (of Messrs. McLennan, Whelan and Grisar,) which we highly approve, relating to the breed of sheep to be thus utilized, these we also add hoping our friends will avail themselves of the suggestion.

“Most of the flocks at present in this country would doubtless be much improved by the infusion of a little blood of long-wooled sheep. The introduction of the Cotswold and Leicester breeds of sheep into this State has proved a success in most instances. Undoubtedly, the length of staple and adaptability of the fleece thus raised has rendered California wool desirable for many purposes for which they heretofore were not suitable. With the increasing demand for long wool, together with the well established fact that other countries can grow short fine wools cheaper than California, it would certainly seem to be the most profitable course for sheep farmers here to produce long, sound wool.”

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LINOLEUM.—A substance is now manufacturing from flax-seed called linoleum. It is said that it will supersede India rubber—which it very much resembles, and of which it possesses most of the properties—in the various manufactures in which it is used. Like India rubber, it can be dissolved into a cement and used in the manufacture of clothing. It can be used for the coating of iron or wood, or for coating ships' bottoms. It is as good as common cement, having properties similar to the marine glue made from India rubber and shellac. It is readily vulcanized by exposure to heat, and by this means becomes as hard as the hardest wood, and capable of fine polish. The variety of uses to which it can be applied in this form will at once suggest themselves to the reader. Hitherto it has been made solely to produce floor cloth, for which it is well adapted.

SHERMAN ISLAND.

Editors Horticulturist.—My theme this time is “Quality versus Quantity.” It is well known that this State as compared with the others in the Union, stands unsurpassed in her climates, soils and productions, yet how little is really known of her actual capabilities.

My object in taking up this subject is to instill into the minds of our agricultural and horticultural people the necessity of growing nothing but the best of everything in all their various departments; let us instance vegetables. As a general rule, our market is not as well supplied with choice vegetables as the Eastern cities are; to remedy this defect our gardeners must make a different selection of seeds and varieties; different from those with which they are now furnishing the table. In times past, *Quantity* was all that was thought of, the larger the vegetable the easier to serve up, but a different class of people have arisen among us, a different element, and their taste is different. Now, *Quality* is indispensable, size is a matter of indifference; all that is required is good vegetables. We will instance the cabbage, cauliflower, tomato, celery and the potato. For the past two or three years, gardeners and seedsmen have been earnestly endeavoring to obtain new and valuable varieties of these and other vegetables; thus *Quality* is beginning to find its way into our markets, and the table will now be graced with choice vegetables, which will impart to the taste a luxury heretofore unknown.

In my experience in growing seeds for the market during a number of years, this has been fully illustrated; what was called good ten years since, is now cast aside as worthless, good vegetables at a dinner are like good wine, they give life and tone to the feast. It is the same with fruit. There are a great many varieties of all kinds of fruit that could well be dispensed with, 10 varieties of choice apples are all that are needed in our market, and if these are a standard selection, then, as in the East no others will be sought after, and their value will be established.

What is richer to the taste, or more agreeable to the palate than a delicious pear, say the Bartlett, the Seckel, and three or four other varieties in their season. These would suffice us instead of a list of twenty or more sorts as is now the case. Good fruit, of all kinds is like unto gold well refined, it always brings its true value.

The Peach, the Cherry, and the luscious Grape when raised for the table, of choice select varieties, are like a choice flower garden, indispensable to a well regulated home or farm: good qualities of everything are far better than bad qualities of any kind.

D. L. PERKINS.

LILIES AND THEIR KIND.

A small garden should be filled with floral gems, but it should also be a *multum in parvo*, a collection of specimens of varied beauty, representatives of all the great families, both of flowering and flowerless plants, which are cultivable in the open ground. In their selection, novelty has much to do, fashion more, and individual taste and researches something. I would here like to suggest the adoption, with flowers, of the system now pursued by ladies and their advisers with regard to dress, namely, a revival of the old in combination with the new: Louis XV. skirts and draperies, dyed with hues supplied by recent chemical discoveries, produce effects which most men pronounce to be charming. We thus convert Watteau's pictures into *tableaux vivans* with the improvement of new colors, fabrics, and faces. Our parterres admit of a similar kind of renovation.

Amongst old-fashioned flowers, let me speak up for the Lilies; the newly-arrived strangers of that noble family will speak up for themselves. No small garden should be without a collection of Lilies, even if restricted to one single bulb of each leading species or variety, as an economical beginning; for they obey the law of increase and multiplication. Two lancifolium rubrums, bought in pots last summer, are now nine, great and small. Lilies do not require, like the Gladioli, to be taken up and stored away from frost every autumn. Indeed

they seem to prefer to be left quiet in their sites for two, three, and four years at a time, at the end of which period they require to be lifted and separated to prevent overcrowding by their own progeny of offsets. Although they do not like to be kept very long out of the ground, and will not bear tossing about like Tulips and Hyacinths, their period of rest is quite sufficient for the purpose of sale or interchange. While growing they require only ordinary care, and are not attacked by many enemies. He must be a slovenly gardener who would let them be ravaged by slugs and snails. Less obvious at first, and less suspected in their origin, are the injuries committed by a pretty small scarlet beetle, found crawling amongst Lily leaves, mostly in pairs, in April and May. These spoilers, conspicuous to the eye, are easily caught, and should be destroyed relentlessly, for their eggs give birth to an ill-favored larva, which simply looks like a lump of dirt, being hidden beneath its own excrement. Knowing what they are, nothing is easier than to get rid of them as fast as they appear. Both the filthy grubs, and the smart perfect insects disfigure the plants by gnawing their stems and leaves.

Another recommendation is, that a parterre of Lilies is quite within the reach of a moderate purse. The only species which can be called at all expensive (I quote Louis Van Houtte's Catalogue of Bulbs, &c., No. 128—F., 1869; the prices charged by other nurserymen will not be widely different) are giganteum, 16s.; anatum, from 4s. to 8s.; and Brownii, from 3s. 3d. to 5s. But the first of these may be provisionally omitted, because its hardness has not been ascertained, except in certain favored localities, while the great beauty of the remaining two makes them well worth the money they cost, especially remembering that they are hardy perennials gaining strength and blooming more profusely with age, not to mention the probability of their giving offsets and seeds. The merits of auratum are already well known. Von Houtte's description of Brownii is, "Magnificent hardy species, with noble foliage; flowers three

times as large as the White Lily, interior creamy white, exterior rusty purple. The stamens are of a rich chocolate, a distinctive characteristic with this species." But compare these reasonable figures with the prices asked for Orchids, and for almost every new introduction, as well as for almost every newly-raised variety of flower.

Other beautiful Lilies are so cheap, that it is not worth while depriving oneself of them. *Lancifolium speciosum album* is 5s. the dozen; *lancifolium rubrum* (still handsomer), 4s. the dozen; *longiflorum* (white, large, and long, tube-shaped flowers, with petals slightly turned back, and yellow stamens), 2s. per dozen; *Thunbergianum aureum nigro-maculatum* (of a beautiful nankeen spotted with black), 6s. 6d. per dozen; while that good old favorite, *tigrinum*, the Tiger Lily, now pushed out of most gardens by upstart intruders, is to be had for 1s. 3d. the dozen. Van Houtte does it the justice to call it "a well-known but ever beautiful variety, attaining four feet in height, reddish orange flowers spotted with black, petals much re-curved;" but he patronizes a new variety (8s. to 16s.), *tigrinum splendens*, "taller in habit, with flowers marked with larger spots, and altogether finer than the old sort." It is certainly a striking improvement, but does not, I think, whip its parent into nowhere. For half-a-crown a dozen you have *Lilium umbellatum*, in mixture, superb varieties, with very large cup-shaped flowers of divers shades, dazzling red, etc., suitable for the formation of masses on lawns, which are exceedingly effective when seen from a distance. These varieties, amongst the hardiest known, attain a height of from two-and-a-half to three feet. The White Lily (a stately plant, if ever there was one, and which would be puffed up to the clouds if it was new or rare), is 1s. 8d. per dozen; the doubled-flowered White Lily, 6d. a-piece.

So much for inexpensiveness. To give an idea of their variety would require the enumeration of their qualities item by item; I cannot, however, help noting *pyrenaicum*, lemon-yellow, with scarlet anthers, besides others

with petals of a similar hue; *grandiflorum*, magnificent deep blood-red, star-shaped flowers; and the well known (to our grandmothers) scarlet Turk's-cap.

Many Lilies do well in any ordinary garden ground; they, all thrive in light soils with a liberal admixture of leaf-mould. This, being especially suited to the Japan Lilies, may be advantageously employed for all. It ensures good drainage, is less penetrable by frost than soils that retain moisture, and also admits of deep planting—another preservative against frost. Some gardeners take up their Japans every year, at the beginning of October, replanting them immediately after having removed the offsets and the old roots. Lilies grown in pots make showy ornaments, and will even rise to the dignity of specimen plants; but their most appropriate place is the open ground, whether border or bed; because many of them emit a perfume which, though sweet, is so powerful as to be unbearable in a closed apartment by any but the hardest heads and the robustest nerves. Outdoors they brightly fill up the considerable gap between the blaze of spring flowers, and the glowing hues of autumn.

I would not have my own Lily bed consist entirely of these plants alone, but would help it out with a succession of bloom obtained from near relations, and even from utter strangers. True, there is the pleasure of expectation as well as of actual enjoyment; but there is no reason why we should not, while watching the growth of the lilies, be gratified by something more than hope. A Lily parterre may stand alone, or there may be two planted exactly alike; or correspondent pendants, with a reversed arrangement, in great number, may answer to each other. Suppose there is but one, whether regular or irregular in shape, I would have its outer edge bordered, according to the size of the garden, either with Box or with Irish Ivy; inside of which I would plant a fringe, either of Snowdrops or Crocuses—yellow, purple, or white. Within those, a ribbon of single Anemones (mixed), eighteen inches or two feet broad. Sown (for economy) in May, they

would begin flowering in the following October, and afterwards bloom at the regular season. The whole of the interior should then be assigned to liliaceous bulbs, planting a few Crown Imperials (in two varieties, orange and yellow) at symmetrical stations, and making the outer rank to consist either of Dog's-tooth Violets or Fritillarias, or both. The centre is the place for the tallest Lilies (giganteum sends up a famous shaft), advancing the places of different sorts towards the outside, in proportion to their diminished stature; and when the Lilies are over, the bed need not be bloomless, so long as there are Colchicums and autumnal Crocuses to be had.—*The Gardeners' Chronicle and Agricultural Gazette, London.*

THE SUGAR BEET IN ENGLAND.

As beet sugar and its manufacture is at present commanding considerable attention in this State, we have thought it not inappropriate to make the following extract from the monthly report of the agricultural department at Washington, and thus show what is being done in the same line in England.

"Mr. Caird, in an account of the progress of the English beet-root sugar manufacture, states that the sugar made by Mr. Duncan, at Lavenham, in Suffolk, from beets grown by the farmers of that neighborhood, has brought the highest price in the market for sugar in crystals. Mr. Duncan is now converting into sugar about 400 tons of roots per week. This is the third year of the Lavenham factory and of the growth and manufacture of English beet-root sugar on a scale equal in extent to that of continental sugar factories. The analysis of the roots in the first two years showed the quality to be satisfactory, but chemical and mechanical means for extracting the sugar proved defective. There have been many other difficulties inseparable from a new undertaking, inexperienced hands not being the least, but perseverance and the exercise of great intelligence have triumphed, and the successful introduction of a new and profitable agricultural industry into England has been

accomplished. Mr. Duncan has satisfied himself that the growth and manufacture of beet-root sugar can be carried on in Suffolk with quite as much success as in the north of France.

"The total value of the syrup produced last year is £960. The expenditures, including cost of roots, government duty, and working expenses, do not exceed £660. So that there is a handsome balance for interest on capital and for profit, besides the value of the refuse pulp sold for cattle feed, and thus returned to the land. The roots are richer in sugar this year than usual, but, on the other hand, sugar is very cheap. The conversion of the roots into sugar has more than doubled their value, though purchased at a price more remunerative to the farmer than any other article he produces. The land is not impoverished, as nearly all the feeding properties of the beet are returned to it by being fed to cattle. The whole available surplus labor of an agricultural parish receives indoor employment in the sugar factory during three or four months of the slackest season, and at good wages. Capital is profitably employed, and trade of all kinds is benefited, while the general supply of sugar is augmented.

"Mr. Campbell, of Busecot Park, Berkshire, is conducting a similar experiment on a large scale, so far as the growth of the beet is concerned, but with the intention of being able to convert the root either into sugar or spirit, as may at the time be most profitable. The weight and quality of the sugar beet grown on his estate this season cannot be surpassed. Thus, in Berkshire as in Suffolk, the soil and climate have proved equally suitable. There is no appreciable difference in the climate of the counties adjoining, and it is assumed that on all soils on which mangolds are now advantageously grown in the counties from the Wash to the English Channel, the sugar beet may be gradually introduced.

"While Mr. Caird feels great confidence in the future profitable extension of this industry, he offers a word of warning. It did not pay Mr. Duncan the first or the second year. But the business is quite new in the country, and

men are not yet educated to it. Enough has been done, however, to show that success may be anticipated by those who can bring to it a like command of capital, skill, and perseverance."

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FUNGI AND ITS STRUCTURE.

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BY JOSIAH HOOPES.

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From an Essay Read Before the Penna. Fruit Growers' Society.

Gentlemen, we will now pass to another source of disease in our fruit trees, and one which is making terrible depredations in most sections of our country,—it is no less than that of *Fungi*, the lowest forms of vegetation.

The minute parasitic species are so insidious in their approach, so infinitesimal in size, and increase with such fearful rapidity, that they prove no mean enemy indeed to contend against.

And now some remarks on their general structure and mode of propagation.

Of the larger species, including *Puff-balls* of various kinds, *Mushrooms* both edible and poisonous; the delicious *Truffle* (*Tuber cinbarium*) and the highly nutritious *Morel* (*Morchella esculenta*), I shall have nothing to say, although exceedingly interesting in their structure and classification. I merely propose to inquire into the microscopic members of the family,—those parasites which cause the pomologist so much vexation and loss in various ways. Our notification of their existence, is mainly visible in the form of *Mould*, *rust*, *mildew*, *smut*, etc., and wherever these are detected, disease will surely follow. The reproductive fragments of fungoid plants, known as spores, are not unlike the seeds of flowering plants, inasmuch as they germinate and produce a new generation after their kind. They are unlike, because the spores contain no embryo as in the higher orders. As the manner of reproduction in these cryptogamic plants is not altogether fully known, my remarks on this subject will have to be somewhat speculative, although founded on scientific facts. It is often questioned among horticulturists, how the spores of one season can contaminate or find their way

to the young plant of a succeeding season's growth. The prevailing theory is as follows: When we closely examine the spores, we find they are not unfrequently larger than the stomates or breathing pores in the cuticle of the leaf, which it is destined to destroy; thus admittance in this direction is rendered impossible. The next plausible suggestion is, can they not penetrate into the roots? But here another barrier is interposed, the spores being as large as the root cells. We now call to our aid a mycological fact, which will assist us in our inquiries: Spores undergo a primary change before forming young plants, as after falling to the ground, and coming in contact with moisture, they throw out slender hair-like fibres, which enter the apertures in the roots, and thus work their way into the tree itself. Or, as is sometimes the case, changed into a fluid state, become absorbed, and thus enter into the vessels of the plants. Some species are reproduced in the same manner on the external portions of trees.

It has also been surmised on reliable grounds, that seeds of plants not unfrequently become inoculated with the poisonous virus, and during germination and growth, carry with them the destroying power, which, not until maturity shows its baneful presence. The first process of development of fungi, is from the spore or seed-like fragment, to the *mycelium*; the latter corresponding to the roots of plants. This is in the form, either of fine silky threads, or, more or less closely compacted cells. Says Berkeley, the eminent English Mycologist, "there can be neither a perfectly free mycelium, nor free organs of reproduction, except in aquatic aerial species, which are of very rare occurrence; even if floating, there will be something in the shape of roots, and the spores will always spring directly from the threads at the expense of the endochrome."

By some naturalists, Fungi have been considered capable of spontaneous generation; but I firmly believe this view to be diametrically opposed to those beautiful and unchanging laws that Nature has so plainly shown in all the higher orders of creation, and which are, at the same time, so essential to vitality.

"That Fungi," according to Berkeley, "should spring up everywhere under fitting conditions, is readily explained by the enormous quantity of fruit which they produce."

"Multitudes of spores find at once a proper nidus, and throw out their mycelium, which in some cases, may exist for years without producing fruit, and in other instances, are essentially perennial, yielding an annual crop for almost an indefinite period." "Other spores are wafted about in the air, where they may remain for a greater or less period, till, obeying the natural laws of gravity, they descend in some distant region." It is said the Trade winds carry spores of Fungi thousands of miles before they are deposited.

The reproduction and dissemination of most fungoid plants, depends very materially upon the condition of the atmosphere; hence we find that many of the diseases caused by their presence, have been attributed to atmospheric changes. The terrible Potato disease is the result of a very destructive mould, which, during warm and moist weather, luxuriates in a wonderfully rapid manner; but, on the contrary, soon perishes, should a drought set in. It has been proven that this disease is caused by a mould, but it is not necessary for me to enter into its history at this time. Some species of Fungi, however, grow as readily during a dry season, as if it were rainy, but as a rule, they are far more numerous in wet weather. "A moist autumn, after a genial summer, is most conducive to their growth, but cold wet summers seldom are productive." Again, quoting from Berkeley, "The localities they affect, are as various as their forms."

Wherever there is moisture combined with a proper degree of temperature, together with organic matter, Fungi are capable of existence. The spores of the *Penicillium*, which infested the bread some years ago in Paris, to such an alarming extent, were capable of sustaining a heat equal to that of boiling water, without losing their power of germination, and it is certain that they can bear many degrees of frost without injury. Some species at least are to be found in a growing state, wherever

the soil is actually free from frost, and many seem to flourish most vigorously at a low temperature. Sweden with its various soil, large mixed forests, and warm summer temperature, seems to produce more species than any part of the known world; and next perhaps in order is the United States, as far as South Carolina, where they absolutely swarm." As a general rule, they decrease in numbers as we approach the colder regions, and increase toward the temperate. In Torrid climates they are prevalent, but much less frequent than further north. Several species of fungoid plants present two distinct and dissimilar states, before arriving at maturity, and what were formerly considered different plants, are at present known to be one and the same. This is termed *dimorphism*. An excellent illustration of this change, is presented in the Fungus familiarly known as the Barberry Mildew, and at the same time affords a useful hint to the practical observer. English farmers for many years have contended that this disease was contagious, and liable to be introduced into their wheat fields from the Barberry, when growing in near proximity. The Cryptogamic botanists endeavored to prove, that the mildews affecting each, were two entirely distinct plants, nowise related, and therefore the contagion was simply impossible, and the farmers were voted by unanimous consent, ignorant and superstitious. Unfortunately for the assertions of the scientific gentlemen, what were formerly considered two distinct plants, are now *known* to be only forms of one and the same species, and able to disseminate the disease from Barberry to Wheat. This same character is often illustrated on the leaf of the Rose: the under side being covered with a complete net work of mildew, whilst above are seen numerous spherical yellow bodies, producing spores. Both states belong to the same plant. The mildew is merely a primary condition, which afterward develops into beaded bodies bearing spores. Fungi, when in the form of mildew or mould, although but in the earlier stages of growth, produce disease and death by appropriating the juices of the plant upon which

they are found, as in the case of all parasites. They also impede a free circulation, by destroying the respiratory organs in the epidermis, known as the stomata. In regard to the very small size of the seed-like bodies produced by Fungi, an English Mycologist has recorded, that "a single spore of the *Polyporous cæsius*, measures one 10,000th of an inch in extreme length, and in width, one 20,000th of an inch, thus taking the inconceivable number of 200,000,000 of spores to cover one inch superficial." M. C. Cook, in his interesting little work on Fungi, says: "On the *Goatsbeard*, (*Tragopogon pratensis*) the leaves have the appearance as if sprinkled with gold-dust, and each speck of dust is a little cup containing spores, or more properly *protospores*.

Each of these bodies is doubtless capable of reproducing its species, and if we compute 2000 cluster-cups as occurring on each leaf, and we have found half as many more on an ordinary sized leaf, and suppose each cup to contain 250,000 spores, which again is below the actual number, then we shall have not less than 500,000,000 of reproductive bodies, on one leaf of the Goatsbeard, to furnish a crop of parasites for the plants of the succeeding year. We must reckon by millions, and our figures and faculties fail in appreciating the myriads of spores which compose the orange-dust produced upon one infected cluster of plants of *Tragopogon*." "Nor is this all, for our number represents only the actual protospores which are contained within the peridea; each of these on germination, may produce not only one, but many vegetative spores, which are exceedingly minute, and individually may be regarded as embryos of a fresh crop of cluster-cups." Most of you are acquainted with the sooty patches on wheat. It has been computed that 8,000,000 spores of this fungus, would merely cover one square inch of surface. "For every ear of diseased wheat," says Cook, "10,000,000 spores have been distributed for a future crop." A curious feature in Fungi is, that they exhale carbonic acid, and absorb oxygen, thus being diametrically opposed to *Flowering* or *Phanogamous Plants*; and

rendering them useless in keeping up the balance between animal and vegetable life. To this cause is attributed the absence in their cells, of *chlorophyll*,—the green coloring matter seen in the higher orders of vegetation.

FUNGOID DISEASES.

We will now pass to the consideration of the disease caused by the presence of Fungi; but, in so doing, I will merely select such as have proven the most injurious. The Grape appears to offer a fair field for these pests, for we find different species luxuriating upon it, at every period of the vine's growth, and in various ways preying upon the fruit with remorseless avidity. Commencing with the terrible Grape disease, that ravaged the vineyards of all Europe, and which was entirely unknown previous to the year 1845. We are informed that it was at first attributed to numerous foreign agencies, until the true cause was discovered by Berkeley. Finding it belonged to the old genus *Oidium*, he gave it the specific name of *Tuckeri*, in honor of the gentleman by whom it was first brought to notice. The presence of this Fungus is first detected by the appearance of the vine, which changes to a yellowish hue, soon a white stud-like substance is noticed, and the little parasite then emits a musty odor, and spreads with almost inconceivable rapidity. In the later stages, when the Fungus is about developing its fruit and discharging its spores, dark-colored spots take the place of the mildew,—the leaves curl up, and the grapes split open, or dry up in most instances. The very valuable paper on this subject by a French Vineyardist,—H. H. Mares—has lately been incorporated in Flagg's work on European Vineyards, which is well worth a careful perusal. In regard to the species of mildew affecting our hardy grapes, I am afraid I cannot give you any very definite information, but I am decidedly of the opinion, that they are all quite distinct from the *Oidium Tuckeri* of Europe, although nearly related to it. Of the many varieties of grapes grown in the Northern States, those of foreign parentage are the most susceptible of mildew and rot, so that by our glass structures we are enabled to produce

an atmosphere, uncongenial to the growth of these cryptogams. Dr. Engelmann, of St. Louis, describes two forms of our Grape disease under the names of "Brown rot," and "Black rot," both of which I have detected in this State. For a full description of these, I will refer you to the "Trans. of the Acad. of Science, of St. Louis," vol. 2, p. 165, 1863. Prof. Silliman also refers to the same, in the *Horticulturist*, vol. 18, No. 10. During the past summer, my attention was called to a curious disease in the vinery belonging to our worthy Secretary at Germantown. I procured a few specimens of the fruit of a Black Hamburg, and placing a portion of the diseased skin under a microscope, I soon found unmistakable signs of Fungus, which, upon examination, presented two very distinct forms. One, which I presume to be nothing more than the Mycelium, was very like the usual grape mildew in general character. The other, and more dangerous form, was of a nature to create suspicion in the minds of every grape grower, for it answered in many particulars the greatly to be dreaded *Oidium* of Europe. The small rust-like spots and patches, were not unlike the *puff-ball* family, on long stems,—those most advanced, splitting open, and discharging their myriads of dust-like spores. This last form I take to be the culmination of the disease, and was similar to many species of our worst parasites.

As an article of food the tomato is not only nutritious, but it possesses many valuable medicinal qualities. It is one of the most powerful aperients of the liver and other organs, and can be substituted for calomel. It is also stated that, before long, experiments now being made will result in producing a chemical extract from the tomato that will ultimately supersede calomel in the cure of disease. Diarrhœa has been successfully treated with the tomato alone, and it is said to be an excellent remedy for dyspepsia and indigestion. Cooked or raw, the tomato as a daily food is one of the most wholesome articles in use.

TO PREVENT HENS EATING THEIR EGGS.—Give plenty of lime, old plastering, oyster shells, powdered bones, etc.; supply a little animal food, such as bits of fresh meat from the table, or any fresh meat chopped fine; besides, provide good large nests well filled with leaves or hay, and set in snug darkish corners, away from observation. Then your hens will not eat their eggs and will lay abundantly.

TREATMENT OF SINGING BIRDS IN CAGES:

I always use unpainted cages for my birds, as I think them more healthy than painted ones; birds are apt to pick the paint, which often poisons them. I consider those cages, best which are made of mahogany, with a draw in the bottom for convenience of cleaning, China or glass cups should be provided on each side to hold the seed and water, and there should also be a cup of water large enough to bathe in, but not to drown them. They cannot be healthy without plenty of clean water, both for bathing and drinking. The cage should be large enough to allow them to fly about and enjoy themselves.

Canaries usually pair about the middle of March, when they should be placed together, each pair in a large breeding cage; if brought together before, they will fight and sometimes injure each other; if they agree, they will soon begin to feed each other, they must then be supplied with a box, two-and-a-half or three inches square, or a basket made for that purpose which should be hung up in the cage for them to build their nest in; they should also be supplied with material for building. I have found hemp rope, cut about one inch long and picked to pieces, and the white hair from a calf's tail to be the material they prefer. They will commence their nests several times, and pull them to pieces again; but when they begin really in earnest, they will work very fast.

When the hen has laid one egg, she will begin to set, and lay an egg every day till she has four; in two weeks from the time the first egg was laid, it will hatch. During the time of setting, the birds must be attended to very carefully, giving them a variety of food, such as hard boiled eggs chopped very fine with bread, and bread and milk, as well as seed of several kinds. The milk should be scalded to prevent their becoming sick during incubation, which frequently happens unless this precaution is taken. The white of eggs should never be given to the young.

The cage should be examined by lamp-light while there are young birds in it, to ascertain if there are mites about it, which are small red

insects barely perceptible to the naked eye. Unless these mites can be kept out of the cage, it is useless to attempt to raise or keep birds. A single drop of sweet oil on the sole of each foot of the female, when she commences setting, will prevent the attacks of these insects.

Once a month the birds should have a small pinch of saffron in their drinking water. Great attention must be paid to cleanliness; the cage should be thoroughly cleaned once a week, and well dried before the birds are returned to it, except while the bird is setting, when it must not be disturbed; the draw should be taken out every day, cleaned and sprinkled with fine white sand.

If it is necessary to handle the birds, it should be done carefully, as they are very tender. Great care should be taken not to frighten them. I have known a valuable Canary bird so frightened, that he never sang again. Strangers should never go very near to the cage, and no one should look into the nest, while the bird is setting, as she may desert it.

I have frequently allowed them to go out of their cages, always taking care to close all places, doors and windows, whence they could make their escape. They will fly around and alight on the heads and shoulders of those present, and sometimes, even on our hands; and if there are plants in the room, they seem to take great delight in flitting around them. When tired, they will return to their cages; but it may be necessary to place a piece of apple or something tempting inside the door of the cage to attract them back; but they will soon become so tame, if frequently permitted to fly around, that they will not need much coaxing to induce them to return.

Ripe fruit in its season, sugar, chickweed and lettuce are excellent diet to keep them in health; cuttle fish-bone and bread or crackers should always be in the cage for them to pick at, but they should not have rich cake; if they have the dumps, they will set on the perch with their feathers rough, not taking the trouble to dress their plumage; a drop of sweet oil put on the sole of each foot will cure them. A little scalded milk on some bread,

will cure the diarrhea. When moulting, they they should have less seed, but be supplied with soaked bread, lettuce leaves, fruit, etc., to allay the natural fever.

In winter they should be kept in a warm room, but not near the fire; in summer the cage should be hung out of doors a part of the day, to give them air, but should always be shaded from the sun; they should not be exposed to dew or rain.

As I am averse to shutting up our native songsters in narrow cages, thus depriving them of their liberty, I keep none but Canaries and Finches, who having been bred there and thoroughly domesticated, suffer no deprivation.

HOW SAND DRIFTS ARE CHECKED IN FRANCE.—From the Loire to the Gironde, the shore, continuing low and sandy, is indented by several bays, generally protected by islands, and presents the two seaports of La Rochelle and Rochefort. From the mouth of the Gironde, to the foot of the Pyrenees, the coast is but an unbroken line of sandy downs, interspersed with marshes, the only opening to vessels being the basin of Arcachou. Drifting sands have invaded large tracts of good soil, and within the last two centuries a number of scattered cabins, private residents, convents, and even whole villages, have been thus completely buried. Of late years such ravages have been partially stopped by the planting of beach grass, boom and pine trees.

A MARIN COUNTY DUCK RANCH.—Mr. Hugh McKennon has a duck ranch in Bolinas, Marin county, where he is now feeding about 2,500 of these birds. He has a very complete arrangement of buildings, pens, etc., for his flock. The ducks have constant access to a large pond of fresh water, and also to a part of Bolinas Bay. He sends during the egg season, an average of 1,050 eggs per day to this market down to 250, as the season falls off. The ducks consume an average of fifty-five tons of the best wheat, during the year, and he is constantly renewing his stock by selling the old, ones and raising young ones.

Editorial Portfolio.

In the last number of this journal, we presented the subject of irrigation for the consideration of our readers, as one of importance to them and the State. It is our purpose in this article to draw their attention to a kindred topic, that of planting forest trees.

Like irrigation, this subject is commanding considerable attention in other countries, and commends itself with especial force to California. Forest trees are at all times things of beauty; lending grace and life to the valley, grandeur and majesty to the mountain top. Upon this account alone, if there were no other, we should plant trees. But when we come to look closer into the workings of the great laboratory of nature, we find them not only pleasing to the eye, but useful in many ways to the health of our people, and the fertility of our fields.

In California large portions of the country are destitute of trees of any kind, while in other parts, the woodman's axe has wrought dire destruction to our native timber. It is now time that our agriculturists, and all others interested in the future welfare of our State, should turn their attention to this matter, and endeavor to remedy the evil already done, by encouraging a system of forest cultivation.

The demand for timber both for fuel and building purposes, is steadily on the increase; and to supply this demand, we are encroaching upon the patrimony of those who are to come after us. Considerations then, not only for our present wants, but for the future wealth and prosperity of the country should impel us to this work.

Forest trees do not diminish the fertility of the soil. This is proved by the great productiveness of lands newly cleared, and would be still further demonstrated, if the vegetable substances of the forests were united with the soil in a proper manner. Trees also have an influence upon the health of a community, as they absorb a large amount of the carbonic acid gas, which is being constantly manufactured by the machinery of animal life. They

also absorb malarious poisons, due to the decomposition of vegetable materials. But by far their greatest benefit (at least to California,) is their power of condensing the clouds and vapors, and thus increase our annual rain fall.

Our Coast Range which at one time was clothed with the redwood, (*Sequoia sempervirens*) had a much larger rain fall than it at present receives. Since the trees were removed, the annual rain fall has been on the decline, until it is now only about one-half of what it was in former years. So it will be all over our State, if the same plan is persisted in. Hints like this, on the part of Nature, should be heeded, and a remedy, as far as is possible, be applied. Farmers (more particularly) should be taught to understand the great value of growing timber, and the influence it has upon their occupation and labors. They would then see the necessity of protecting it as much as possible from further wanton destruction, and also in addition, the value to be derived from setting out young trees, both of the evergreen and deciduous varieties. State legislation should be invoked in behalf of this interest, so that by a united effort upon the part of State and people, the area of timber cultivation might, by all available means, be enlarged.

The Bay District Horticultural Society of California have taken the first steps in this matter by submitting the following question, (among others) for discussion at an early date. "Which are the most suitable forest trees for California?" We feel sure, that the discussion will bring out many valuable suggestions, which we hope to see disseminated over the State.

We can leave no grander monuments for the veneration of future generations, than the o'er towering tops of mighty trees.

JOHN SAUL'S CATALOGUE.—We have received an excellently arranged catalogue from John Saul, nurseryman of Washington, D. C., which comprises a superior list of new, rare and beautiful plants. We call the attention of our readers to his advertisement in another column

BAY DISTRICT HORTICULTURAL SOCIETY
OF CALIFORNIA.

The sixth regular meeting of this society was held on Saturday, February 25th, at the rooms of the Academy of Sciences. The attendance was numerous.

After the transaction of the regular business, and the receiving of the reports of officers and committees, the following gentlemen were elected regular members. Gov. H. H. Haight; Henry S. Fitch, of Oakland; S. Simpson Brown, of San Francisco; Gustave Mahe, of San Francisco; Seven Vincent, of Alameda; John Hampton, of San Mateo; Ludwig Doeltz, of San Francisco; Wm. Robertson, of San Francisco; and John Rock, of San Jose.

Dr. C. C. Parry, and Hon. Horace Capron of Washington, were elected honorary members.

The subject of the proposed incorporation of the society, having come up, by resolution it was made a special order for the next regular meeting, when a majority of the regular members are expected to be present.

Mr. E. L. Reimer, decorated the table with two beautiful specimens of variegated leaf Geranium, which were raised by him from seed, and which were the general admiration of the members present. At the request of Mr. Reimer they were named by the society, and received for their appellations, "Gem of California," and "Reimeriana" respectively.

The importance of discussing subjects of general interest in relation to agriculture and horticulture at the meetings of the society having been duly canvassed, it was resolved that the society do now open and keep open a list of such subjects as may be proposed for discussion, and which shall be taken up by the society in consecutive order as they appear on the list.

The following subjects were then placed on file.

1. Which are the best varieties of roses, adapted to this climate for pot and open ground cultivation? Proposed by F. A. Miller.

2. Which are the best house plants? Proposed by Professor H. N. Bolander.

3. Which are the most suitable forest trees for California? Proposed by Professor H. N. Bolander.

4. Which are the best evergreen shade trees for California? Proposed by R. Turnbull.

5. Which is the best remedy for the destruction of the mealy bug? Proposed by R. Turnbull.

6. What is the best means of destroying those insects which at the present time infest cabbages and other similar vegetables to such an alarming extent? Proposed by M. Chiouse.

There are many more equally important and interesting subjects in horticulture and agriculture, which need proper agitation and discussion, and doubtless a great deal of good must emanate from such deliberations if carried on properly. But not only should the members of the Horticultural Society, but every one who is interested in horticulture and in the development of the resources of the country, should take an interest in this matter. They should communicate their knowledge and experience upon these points to the Society, and take an active part in assisting to canvass these matters thoroughly.

Letters and communications may be directed to or left at the office of the Secretary, F. A. Miller, No. 418 Kearny Street, San Francisco.

This is a good movement in the right direction and we do not doubt but that the Horticultural Society will soon fill a most important mission, that of enlightening the people of California on some of the most essential issues in the field of horticulture!

THE March No. of the "Western Pomologist" is before us, and is full of interesting matter for the fruit grower, gardener and farmer. The subscription price is only \$1 50 per year. If any of our California friends wish to subscribe for it, we will take pleasure in sending for copies. The magazine is published and edited by Mark Miller, Des Moines, Iowa.

NEW AND PROMISING VARIETIES OF VEGETABLES.

Trophy Tomato, is now considered the best and finest tomato in the East. The *National Farmer* says: They are almost as heavy as lead, and for beauty of color, perfect form and apparent hardness, surpass anything we have ever seen.

Egyptian Beet, was introduced into the United States about three years ago. It is the earliest turnip-rooted beet known. The flesh is fine and tender, flavor, sweet and excellent, and the deep rich color is well retained after boiling.—*Tilton's Journal*.

Laxton's William I. Pea, a splendid early variety and very promising.

A Big Pear.—At the rooms of the Massachusetts Horticultural Society, a pear was exhibited by Hon. Marshall P. Wilder, of the Uvedale's St. Germain variety, also called Pound Pear or Belle Angevine, which was grown in the orchard of A. P. Smith, Esq., Sacramento, California, and which weighed four pounds and nine ounces, measuring twenty-one inches around the stem and eye, and eighteen inches transversely.

PIEDMONT SULPHUR SPRINGS.—But very few of our readers probably are aware of the fact that we have some fine Sulphur Springs within one and one-quarter hours ride of San Francisco. About three miles back of Oakland, surrounded by magnificent Landscape Scenery are several Sulphur Springs, including some 360 acres of adjoining land, which have lately come into the possession of an enterprising company. A fine hotel nearly completed, highly improved Ornamental Grounds, (the most picturesque natural scenery remaining undisturbed,) a magnificent view over San Francisco, Oakland and the Bay, will make these Springs one of the most attractive places of resort during the Summer, and from present appearances we judge Piedmont is to become the fashionable "Watering Place" of this neighborhood.

NEW AND RARE PLANTS.

Crataegus Crus-Galli, (Cockspur Thorn) is one of the most beautiful of the *Crataegus* family, forming a conspicuous and striking object in autumn scenery, owing to the bright tints of its foliage at that season of the year, resembling the rich colors of the foliage of the Virginia Creeper. Let us imagine a tree 20 feet high, clothed with rich, beautiful autumnal colors, and mixed with large clusters of bright red berries, and we will be able to form a fair idea of its beauty.—*Gardeners' Weekly*.

Begonia Bolivienensis.—A most remarkable species, with flowers of a rich vermilion red color, which are most freely produced. It is tuberous rooted, grows from two to three feet high, and its stems die down in the autumn, when they should be treated the same as *Gloxinias*.—*Gardeners' Monthly*.

Chrysanthemum frutescens.—A large white flowered greenhouse bush, sometimes called *Anthemis*; is a great favorite with the French people, and can be seen everywhere in spring with them, in windows, in halls, in flower beds, on restaurant tables, and its similitude in almost every young lady's bonnet. At the Paris Exhibition, plants were shown from four to five feet across, full of flowers.—*Florist and Pomologist*.

BENEFITS OF TREE PLANTING.—It is said in arid Egypt, formerly desolate and sandy, irrigated alone with the overflowing waters of the Nile, there are now regular rains, owing to the forest trees planted by the government. A western writer begs our eastern papers to throw all their influence to help devise some plan by which our government can induce forest trees to be planted on the great plains beyond the Mississippi. Unless it is done, thousands of settlers must suffer both in crops and in their families for the lack of sufficient water.—*New York Horticulturist*.

(For us in California nothing seems to be of more importance than a general planting of forest trees. The Press should agitate the matter constantly until a systematical planting of trees is inaugurated.—*Ed.*)

THE ORNITHOLOGICAL AND PISCATORIAL ACCLIMATIZING SOCIETY.—A meeting of this Society was held March 15th, at the rooms of the Academy of Sciences, 622 Clay St. The attendance was large, and a great deal of interest manifested by those present. Mr. Green stated that Mr. Throckmorton had sent for 5,000 trout ova, which he proposes to donate to the Society. The eggs are to come from Massachusetts. The Secretary stated that they were using from 1200 to 1500 gallons of water per day, at the fish tanks, and also that it would be best to commence making arrangements for the removal of the fish. It was ordered that the Committee of Arrangements be empowered to select proper places, and report to the Society. The Committee were also requested to confer with Mr. Clayburne, (who is about to leave for Europe,) with regards to the importation of game birds, (Pheasant and Partridge.) After some discussion of the game laws of the State the Society adjourned.

The Society now numbers 140 members and is rapidly on the increase.

WE call the particular attention of Nurserymen, Seedsmen, and Amateurs in Europe and the East to the advertisement in another column, referring to California bulbs, seeds, and plants. Mr. Miller has made and still is making arrangements for extensive collections on the Pacific Coast during the coming season; he will also exchange with foreign countries, and is ready to open negotiations for exchanges where it has not already been done.

WE now offer great inducements to new subscribers to the "California Horticulturist," read our new advertisement in another column; go to work at once and send in your subscription, make up clubs and assist us in our efforts to develop the resources of the country, to create taste and comfort, and to better and improve the condition of our gardens, vineyards, orchards and farms. Horticulture and agriculture are the chief resources of our future welfare. Everybody admits this, but few are willing to take an active part. It is time that all our capitalists, landowners and business men generally should take this matter into serious consideration.

THE NEW YORK OBSERVER YEAR BOOK AND ALMANAC.—We have received a copy of this valuable work from the publishers (Sidney E. Morse & Company, 37 Park Row, N. Y.) It contains an interesting history of almanacs; civil, commercial and agricultural information concerning all the governments in the world; a general summary of all the benevolent institutions and religious denominations in the world, with a complete Ministerial Directory of nearly every religious body in the United States; a complete list of all the colleges, theological seminaries, medical and law schools in the United States. In addition to the above it contains a reprint of the first Directory of the city of New York. Price one dollar. Mailed to any address postpaid on receipt of price.

All persons subscribing and paying for the New York Observer for one year (\$3) will receive a copy of this valuable work gratuitously.

PRESERVE THE YOUNG FOREST TREES.—W. G. B., in the *Prairie Farmer* says: In almost every part of our country it is the common practice to pasture the lot which contains the reservation of growing timber. Sheep, cattle and horses eat every young tree as it starts from the seed, so that in a few years when the old trees are gone, none will be growing to take their places. As a man raises lambs, calves and colts to perpetuate his live stock, so he or his children will find it necessary to preserve the young trees. Look out for the wood lot. If you have a farm destitute of growing timber, plant young trees and take good care of them. By so doing you will show a love for your country, and wise foresight for the coming generation.

[This has been the doctrine of this Journal for years, and we have been continually urging the planting of timber trees and ornamental trees, not only for mechanical purposes and for ornament, but for the *preservation of moisture* and for the general good.—*Ed. Calif. Farmer.*]

The *Farmer* is right. The planting and protecting of forest trees should form a much more prominent feature in this State, and we hope our next legislature will take the matter in hand.—ED. CALIFORNIA HORTICULTURIST.

WE have received the *Gardener's Monthly* for February, edited by Thos. Mehan, Brinckloe & Marot Publishers, 23 North Sixth St., Philadelphia. \$2 00 a year.

The contents of this valuable Horticultural Magazine are:

Chromo Colored Plate of *Bouvardia Vreelandii*—Hints for Flower and Fruit Garden and Greenhouse — Communications;— A Flower Show in the Year 1830. By Mr. W. T. Harding, Phila.—Remarks on the *Daphne Cneorum*. By Mr. Antoine Winter, West Grove, Pa.—On the Raising of New Varieties of Potatoes from the Seed-ball. By Mr. Geo. Such, South Amboy, N. J.—Evergreens for Winter. By Walter Elder, Phila.—Discovery of Ancient Bones at Waukegan Ills. By Mr. R. Douglass—Well Ripened Tomatoes. B. L. B. Phila.—Bud Variations. By Mr. Charles Arnold, Paris, Ontario, Canada.—New Foreign Grapes By Mr. James Taplin, South Amboy, N. J.—Fungi and its Structure. By Mr. Josiah Hoopes, West Chester, Pa.—Editorials:—Travelling Recollections—*Bouvardia Vreelandii*—Hot-Water Boilers. With a large variety of news items both Foreign and Domestic.

AMERICAN POMOLOGICAL SOCIETY.—According to a letter received lately from Hon. Marshall P. Wilder, the 6th, 7th, and 8th of September next, have been fixed upon as the time for the next meeting of the American Pomological Society, at Richmond, Va. We hope to see California represented.

CATALOGUES RECEIVED.—Vick's Illustrated Catalogue and Floral Guide for 1871.

No. 3, (Hoopes Brother, & Thomas, Cherry Hill Nurseries, West Chester, Pa.,) Semi-Annual Trade List. Spring 1871.

Catalogue of new and beautiful plants, and French Hybrid *Gladiolus* for 1871. George Such, South Amboy, N. J.

Descriptive Catalogue (No 3) of plants. Ellwanger & Barry, Mount Hope Nurseries, Rochester N. Y.

Hovey & Co's., Illustrated Guide to the flower and vegetable garden for 1871, Boston, Mass. And, Kelsey's Catalogue of fruit, trees, plants, etc., Oakland, Cal.

THE HORTICULTURIST.—This journal, published at New York, and edited by Henry T. Williams, comes to us in a new and improved form. It is as usual filled with well written and useful matter pertaining to Horticulture, etc., and ranks as the first journal of its kind in the country. Price \$2 50 per year.

POULTRY FOR PROFIT.—There are few things more profitable than a well conducted chicken ranch, in this State. Eggs are high and will continue so; all kinds of poultry meat is also high and commands a ready market. A few acres of land with a few hundred dollars to prepare and stock it, is sure to pay well. But before a man wades deep into this business, he must be sure that he knows what he is about, and he must look close after his fowls, especially if he keeps them closely confined. A chicken is a delicate and complicated machine for turning cheap aliment into the most dainty food; but a hen can't lay eggs or raise chickens without proper care and food. Variety of food and cleanliness of coops are the essential requisites. No inexperienced person will be likely to succeed except from small beginnings. Such a man must build up his business gradually. A hundred hens are enough to start with, even when a large business is counted on in the future; and an acre of ground is wanted for their range. An acre should be added for each additional hundred. If only a single hundred was contemplated, a little less space might answer. The men are few who succeed in this business on a large scale; but when they do succeed they make a good thing of it. Even the lessons learned from the care of the first hundred, are often found to fail when applied to flocks of larger extent.—*Pacific Rural Press*.

ALMOND CULTURE.—We are informed that Colonel W. W. Hollister, has set out on his farm this season, fifty thousand almond trees, of the Languedoc variety. We hope to hear soon that all our farmers will follow his example and fill every nook with almond trees. There is more money in them than in gold mines.—*Santa Barbara Press*.

Editorial Cleanings.

THE TRADE IN SILK WORM EGGS.

A Washington correspondent of the *New York Journal of Commerce* furnishes the following information, showing the great extent and value of this new industry, which California is in a position to secure to herself:

The Minister of Italy, Commander Cerruti, in conversation this morning, impressed us with the importance of publishing widely in this country the fact of the continued spread throughout the countries of the Old World of a disease which threatens the destruction of the silkworm abroad, and the necessity which already exists for the importation of the eggs of this insect from the New World, where the disease has not made its appearance, and which may be for centuries free from its ravages. There are many places in this country where considerable plantations were made of the mulberry tree, of which no practical use has been derived in the way of producing silk on account of the high price of labor. Wherever these trees exist to the number of a few dozen, an unexpected source of profit now presents itself in the production of the eggs of the silkworm, which command readily \$4 per ounce in specie. Two millions of ounces of these eggs can be disposed of annually under present circumstances, with the probability of a greatly increased demand. There is now a demand in Italy, France and all Europe, for such eggs as may be produced in inexhaustible quantities in this country with facility, and the subject is earnestly brought to the attention of our countrymen, who cannot manufacture silk fabrics to advantage, while they may produce the eggs with but little labor and trouble at a great profit. The best variety of the mulberry is the White Italian, *Morus alba*, which is a tree of remarkably easy cultivation. Should any persons who have a couple of dozen of these trees desire to test the advantages to be derived from the production of the eggs of the silkworm,

but be wanting information as to the best process, we are quite certain that the Italian Minister resident at this capital will, on application, be most happy to supply the proper directions for the successful production of the eggs. Commander Cerruti will be happy to have any information where unemployed groves or plantations of *Morus alba* exist, and he will facilitate measures to render them productive to their owners. For some years France and Italy have been having recourse to Asia Minor, Persia, China, Japan, and other countries, but these resources failing, America must be looked to to supply the means of feeding the looms of Europe and the mouths of the silk producing population. The production of the tree and the egg in their greatest perfection in this country is no longer problematical, and now the opportunity presents of realizing the advantages which were some years since sought for, at so great loss of labor and capital. The white Italian mulberry tree is that which best supplies the product most sought for in Europe and which commands the highest price. The subject is worthy the attention of our nurserymen and rural population.

PUMPKINS AMONG CORN.—A correspondent of the *N. E. Farmer* grows pumpkins as follows:

Procure seeds of a good quality, and from a different locality—for like all other vegetables, pumpkins need a change of locality—then after having planted the field of corn, go over it with the pumpkin seeds and put one or two seeds in one hill out of each four; and near the border or edge of the field, in every other hill. Those on the outer rows, by running out where they will receive more sun and air, will do the best, and may be planted more thickly. Not only in the corn field, but also in the “potato patch,” can good pumpkins be raised by planting them near the edge or in the outside row, or anywhere in the field, by giving to each vine the space allowed to a potato hill. They must be looked to occasionally and the bugs destroyed; remembering to nip the ends of the vines after well “set.”

EFFECTS OF SALT AS A MANURE.

It supplies soda and chlorine to growing plants. By moisture, keeping the soil moist, and so assisting plants to assimilate their food contained in the earth, especially during a continuance of dry weather. It exercises a great influence in rendering soluble some of the more insoluble earthy salts of the soil. When mixed with farm-yard manure sown on soils already dressed with dung, it seems by its penetrative and assimilate power to cause many of the salts in the manure to be sooner developed into a state fit for plant food than would be the case if left to the action only of the slower process of natural decomposition.

When added to the manure heap in the barnyard and thoroughly mixed into it at the rate of about two tons of salt to thirty tons of manure, it kills the seeds of weeds, eggs and larvæ of insects, and greatly promotes the fermentation and decomposition of the whole mass, while at the same time it does not, like lime, set free the ammonia or volatile salts in the manure. When added to lime a double decomposition takes place, resulting in the production of soda and carbonic acid, both of which possess greater fertilizing properties than either salt or lime. Combined with gypsum, salt produces soda and sulphuric acid, at a cheaper rate than can be obtained in any other way.

As a general thing there are few fertilizing materials used on the farm that cannot advantageously have salt added to them.

TO DESTROY THISTLES.—The *Canada Farmer* says: "Let the thistles grow up as thick and as high as they will, until they are just in full flower; then, if they are too thick for the horse to walk through, as is often the case, they are mowed and the land is thoroughly plowed. The cut thistles, which are almost as good as a green crop, are plowed in and the ground well cultivated. The thistles have made their growth to the utmost, and the roots are in the weakest and most expended state, and two plowings, with cultivating, will then make clean work."

PRESERVATION OF APPLES.—The *London Gardeners' Chronicle* says: "I cover the floor of my cellar with hurdles, two in thickness, and on this I put a little straw, upon which the apples are placed without further care or attention, except removing all that appear to be faulty as I place them in the cellar, and I think it is unnecessary to use any particular care in this respect. I have at present one hundred and ten bushels of apples thus heaped up in a small cellar; two or three times a week I give a good wetting with fresh water, as much as I think will wet the whole of them. This water drains off through the straw and hurdles into a well. In this way my apples keep well until the time I usually dispose of them; the best to make me a good return after Christmas.

"At present, the apples look as firm as if just gathered, and I understand that during the last ten years, they have always kept as well and fresh as now. How much less troublesome and easy of application for keeping large quantities of fruit, than storing them away in dry sand on shelves, or in boxes, or in any other of the ways that are highly recommended."

SPECIAL MANURES FOR POTATOES.—Dr. Augustus Vælker, of England, during the last year, has reached valuable conclusions as to the application of manure to potatoes. He sums them up in the *Journal* of the Royal Agricultural Society.

1. The greatest increase came from the application to an acre of 400 pounds of mineral superphosphates, 200 of potash salts, and 200 of sulphate of ammonia.

2. Dung did about as well.

3. The absence of sulphate of ammonia was attended with a marked falling off, and nitrate of soda cannot replace it.

4. The compound above named beats Peruvian guano.

5. Common salt does no good, but harm to potatoes.

6. The above mixture gave a crop of twelve tons to the acre on light land, and the same unmanured yielded but half.

BOUVARDIA DAVISONII.—We have before noticed this beautiful plant in our magazine. It was obtained by Mr. Davison from B. Hogarth. As we understand, it was a branch of Hogarth which produced a white flower, and not a seedling, which has some interest in connection with the cases of Trillium and Wistaria recently noticed. It is a remarkable fact that plants with variegated leaves which originate as sports from green leaved ones, will not come true when raised from root cuttings. A root cutting of a variegated plant as far as we know, produces but green leaved plants. It was supposed by some good florists, that on the same principle root cuttings of this Bouvardia might produce the original Hogarth. This would be against its value, as there is no way to raise Bouvardias rapidly except by roots. But we are pleased to say we have now before us a specimen raised from a root which has the white flowers, so this question is settled. The Bouvardias are amongst the most valuable of our winter flowering plants. A good white will be particularly so. Mr. Davison we think has met with a little fortune in his lucky accident.—*Gardeners' Monthly.*

CASTOR BEANS.—A Los Angeles paper says: The raising of castor beans is attracting something of attention hereabouts. Several who last season cultivated a few acres have met with results that have been eminently satisfactory. In this section the crop must undoubtedly prove a profitable one. The plant will thrive upon soils that are too dry for many other products, and the cost of cultivation is said to be less than the same number of acres in corn. A ready market at remunerative rates is always open.

REMEDY FOR SMUT IN WHEAT.—At a late meeting of the New York Farmer's Club, Mr. Newbold said that as far back as forty or fifty years ago, smut prevailed to a great extent throughout Burlington county, New Jersey, and his father adopted the plan of soaking selected seed wheat in brine, and then dusting it with air slacked lime. This proved then, and has proved ever since, a perfect preventive, without a solitary exception.

WHAT CLOVES ARE.—Cloves are the unopened flowers of a small evergreen tree that resembles in appearance the laurel or the bay. It is a native of the Molucca or Spice Islands, but has been carried to all the warmer parts of the world, and is now cultivated in the tropical parts of America. The flowers are small in size, and grow in large numbers in clusters to the very ends of the branches. The cloves we use, are the flowers gathered before they are opened and whilst they are green. After being gathered they are smoked by a wood fire, and then dried in the sun. Each clove consists of two parts, a round head which is the four petals, or leaves of the flower rolled up, enclosing a number of small stalks, or filaments; the other part of the clove is terminated with four points, and is in fact, the flower cup and the unripe seed vessel. All these parts may be distinctly seen if a few cloves are wet for a short time in hot water, when the leaves of the flower soften and readily unroll. Both the taste and smell of cloves depend on the quantity of oil they contain. Sometimes the oil is separated from the cloves before they are sold, and the odor and taste in consequence much weakened by such unfair proceedings.

CENTRAL PACIFIC RAILROAD.

Passenger Sunday excepted.	Express Train Daily.	February 27, 1871.	Express Train Daily.	Passenger Sundays excepted.
4.00 P M	8.00 A M	San Francisco.....	5.45 P M	12.30 P M
4.42 "	8.40 "	Oakland.....	5.12 "	11.58 "
	7.30 "	San Jose.....	5.40 "	
7.58 "	12.10 P M	Stockton.....	1.46 "	8.55 "
9.35 P M	2.10 "	Sacramento.....	11.15 A M	7.00 A M
	4.10 "	Marysville.....	9.10 "	
	9.00 "	Sesma.....	4.20 A	
EASTWARD.	2.20 "	Sacramento.....	11.45 "	
	5.25 "	Colfax.....	8.45 "	
	1.15 A M	Reno.....	1.00 A M	
	9.10 "	Winnemucca.....	4.05 "	
	12.00 M	Battle Mountain.....	1.25 P M	
	4.10 "	Elko.....	8.45 A M	
	6.10 "	Ogden.....	5.15 P M	
				WESTWARD.

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, B 6.50, 8.00, 9.10, D 10.20 and D 11.40, a. m. 12.00, 1.50, D 3.00, 4.00, 5.15, 6.45 and B 11.30 p. m.

LV. BROOKLYN, B 5.15, B 6.30, 7.40, 8.50 and 10.00 a. m., 1.30, 2.40, 4.55 and 6.25 p. m.

LV. OAKLAND, B 5.25, B 6.40, 7.50, 9.00, 10.10, 11.00 and 11.50 a. m., 1.40, 2.50, 3.50, 5.05 and 6.35 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, B 7.20, E 9.00, BC 9.30 and EC 11.30 a. m., 1.30, 4.00 and 5.30 p. m.

LV. HAYWARDS, B 4.15, B 7.00, E 8.30, B 9.00 and E 11.00 a. m., and 3.25 p. m.

LV. ALAMEDA, B 5.15, B 7.36, E 9.06, B 9.36 and E 11.36 a. m., 1.35 and 4.05 p. m.

B Sundays excepted.
D to Oakland only.

E Sundays only.
C To Fruit Vale only.

T. H. GOODMAN,
General Passenger and Ticket Agt.

A. N. TOWNE,
Gen'l Supt.

T H E

CALIFORNIA HORTICULTURIST

AND FLORAL MAGAZINE.

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No. 6.

THE FUCHSIA.

The Fuchsia derives its name from the German botanist, "Fuchs." The first plant (*Fuchsia triphylla*) was introduced into Europe by Plumier, who took it there from America in the seventeenth century. It is usually found growing on hills throughout the forests of Mexico, Peru and Chili.

Along the Coast Range of California the Fuchsia can be cultivated to perfection; it thrives best in moist and partly shaded localities.

In San Francisco and its vicinity, the Fuchsia seems to be at home, and no plant is cultivated here with greater success both out of doors as well as under glass. In summer and in winter it continues to develop its bright little "ear-drops" (as some people call them) and it is remarkable that the same degree of cold which we had here last winter, would have killed those plants if exposed to the open air in New York or Boston, but had not the slightest effect on our plants; in fact, in many localities they continued to bloom as freely as in May. Under such circumstances, should not the Fuchsia be one of our greatest favorites?

Very often we are asked, can I raise Fuchsias from slips in the open ground? Our answer is, we have met parties frequently who have stuck slips of year-old wood of the Fuchsia into the ground; they have grown

and within a few months have made flourishing plants; and this has been done both in summer and in winter with equal success.

This fact goes far to prove how well our climate is adapted to the cultivation of the Fuchsia.

However, no florist or nurseryman would attempt to raise Fuchsias in that way. The florist takes the young shoots of the present year's growth, plants them close together in pots or shallow boxes filled with sand, waters them well after planting so as to settle the sand close around the stem, and places the box close under the glass, shading them for a few days, and in a month or six weeks roots are formed; the young plants are then transplanted singly into two or three-inch pots, placed again under glass, and shaded for a few days. As soon as the ball of earth is covered with the young roots, the plants must be shifted into four-inch pots; afterwards from four-inch to five-inch, and so on. The grand secret to ensure perfect success is to keep the plants in a constantly growing condition; as long as you keep the plant growing, you will have a profusion of flowers. It is true that Fuchsias will flower more freely with us in the open air than in pots under glass, but this is only the case when the soil in the pot is not sufficient to keep the plant in a growing condition. Taking into consideration how easily young plants are raised, we do not see why every one who is fond of Fuchsias should not raise

every year young plants from the old ones, and in this way keep a certain number of plants always in readiness to replace the old ones, which should be turned into the flower garden or thrown away.

Some Fuchsias are well adapted for training, while others make handsomely shaped bushes and trees. We have seen them covering the side of a house twenty feet high, and certainly the effect was charming.

The varieties are too numerous to mention, and all of them are good. Every year adds a large number to the already copious list; these are sold in Europe and in the East at extravagant prices. Latterly the florists have succeeded in producing double flowering Fuchsias, and these are in more demand and at much better prices; one of the best and most popular with us is the double white.

At an early day we shall endeavor to give the names and descriptions of the best varieties now in cultivation here.

THE LILY.

We promised to continue from time to time, the description and hints for the treatment of bulbous roots, and we offer the following remarks in compliance.

Although Hyacinths and Tulips are at the present time the most popular of flowering bulbs with us as well as in the East, yet there are many other varieties of bulbous roots which are equally desirable. We propose in this article to speak of another most important class, the Lilies, these have attracted a little more attention since the Japanese lilies have been brought in large quantities into our market, and have proved a success. Of all the Japanese lilies, (and there are a goodly number of them,) the *Lilium auratum* has no superior; fine plants in pots have been sold frequently at four and five dollars each when in flower, while good bulbs can at the present time be bought at 15 to 20 cents apiece, and are certainly within the reach of any one who appreciates flowers. There are also many other varieties which deserve extensive cultivation: We

know a gentleman in New York who cultivates over 100 varieties. Some of them are very fragrant and of very powerful perfume, while others are even injurious to health, if a group of them is placed in the bedroom or parlor; others are not fragrant although beautiful in form and color.

The cultivation of the lily is very simple, it requires a deep soil enriched with very old rotten manure. The bulbs should be planted from six to eight inches deep, and should not be removed more frequently than every three or four years. The most of the lilies improve if allowed to remain in the ground for a number of years. Unlike hyacinths or tulips the roots should not be kept out of ground for any length of time, and if they are not replanted immediately, they should be covered up with dry soil so as to exclude the air as much as possible. They can be cultivated successfully in pots, deep pots being preferable. The lilies are propagated by seeds, offsets, and also by scales of the old roots, which will form themselves slowly into bulbs.

We have in California five or six distinct and very superior native lilies, which when properly cultivated, will doubtless rank among the very best at present in cultivation. In fact, our large native white lily, *Lilium Washingtonii*, which is indigenous in the higher range of the Sierra Nevadas, is considered superior to any of the known lilies in size, form and fragrance, yet no one attempts to cultivate them. We are inclined to believe, that by proper treatment, we shall be able to exhibit them equally as good as they are in their native localities, where we have seen them six to eight feet in height, with from twelve to fifteen large and well-developed flowers. We shall at an early day give a description of our native lilies, and if possible, give a correct representation of the flowers.

Of the Japanese lilies of more recent introduction there are several varieties, the best of which is the above named *Lilium auratum*, (golden lily,) the flower of which is from eight to ten inches in diameter, and consists of six white petals, marked with chocolate crimson

spots, and a golden band through the centre of each petal, the flower is most exquisite for sweetness of perfume and of color.

Next comes the *Lilium lancifolium*, (*Lil. speciosum*), of which there are several varieties, viz: *Rubrum*, white with crimson spots; *Album* pure white and very fragrant, and *Roseum*, rose spotted.

Lilium candidum, is an old variety of a pure white, very fragrant and it deserves extensive cultivation.

Lilium tigrinum, (Tiger lily) is a native of China. The flowers are of an orange color with black spots, somewhat resembling our California so-called Tiger lily, but differing in many essential points; the foliage of the latter standing in whorls around the stem and producing much larger flowers. The *Lilium tigrinum* produces small bulbs in the axils of the leaves, which if placed in the ground will form new plants.

Lilium superbum, is a native of the New England States. It deserves extensive cultivation and is also entirely different from the so-called *Lilium superbum* of the Pacific Coast.

Lilium chalcedonicum, is a beautiful scarlet lily with reflexed petals. It is a very popular old lily; several varieties of it exist.

Lilium longifolium, is a fragrant white lily of great beauty; its flowers are rather long, and it comes into bloom in July.

Lilium Canadense, is also a native of the Eastern States. Its flowers are of an orange color with brown spots, and it is much improved by cultivation.

We have now enumerated the best and most popular varieties of lilies, and if we add the five or six varieties growing wild on the Pacific Coast, the collection will serve all purposes in our gardens.

CRANBERRIES.—The cranberry plant is a beautiful evergreen, and grows thriftily; it can be kept all winter, and may be so trained to grow from flower-pots as to be beautifully ornamental to the parlor and dining-room through all seasons of the year. They will grow in any ordinary room, without special attention, and the berry will remain on the stem until the flowering for another crop. It flourishes farther north than any other berry ripening on Bushman Island, on the Western slope of Greenland, in latitude seventy-six.

FUNGI AND ITS STRUCTURE.

BY JOSIAH HOOPES.

From an Essay read before the Penna. Fruit Growers' Society.

(CONCLUDED FROM LAST NUMBER HORTICULTURIST.)

In passing to the Apple and Pear, (for the species of Fungi, that attack them, are almost one and the same,) I desire first to call your attention to the very dangerous disease, popularly known as the *fire-blight*. Our observing Secretary, in a paper read before the American Pomological Society, at its eleventh session, minutely described this malady in all its stages; and in fact, was the first to take decisive ground in favor of the fungoid theory. Subsequent research has fully proven to my mind, how true was his reasoning. Certain requirements are undoubtedly necessary—or rather the little parasitic plant greatly prefers some particular condition in the growth of a tree to locate, for we find it destroying some varieties, to the total exclusion of others. In large blocks of Nursery trees, it will frequently follow a particular row its whole length and studiously avoid all others in the near vicinity. Thus we see, as in all other species of fungus, the form under notice, acts in precisely the same manner. Early in the season, this microscopic pest commences its operations, and at the point where it first makes its appearance, a slight discolorization will be apparent, which, rapidly working its way round the tree, in fact completely girdles it, and produces strangulation. As the bark darkens and dies, we need not then examine the locality, for the criminal has performed its mission and departed. Those who suppose the withering leaves and shriveling tender twigs embrace the diseased portion, are wonderfully mistaken. All the functions of the branch above the girdled parts will be found uncontaminated. This particular parasite propagates itself in the following simple manner, according to my observation. The spores falling upon the bark, soon change into little thread-like rootlets (if I may be allowed the term.) These soon work their way into the openings of the epi-

dermis, or outside skin of the tree, winding down through the cellular fibre of the bark, and here in the form of mycelium, grow directly on the wood. Occasionally, however, they penetrate the wood-cells, and in that case the disease is always, and quickly fatal. Berkeley asserts, in corroboration of this fact, that "the wonderful power of penetration possessed by Mycelium, may be easily seen in any dark-colored Fungus, by making thin vertical sections through the wood. Not only do the threads penetrate between the cells, but into their cavities themselves, at length completely blocking up their apertures, after traversing them in every direction." But while the little pest is rapidly spreading by means of its root-like formation, it is also developing large numbers of little capsules with their millions of spores, to reproduce its species in other spots. So that the sooner the branch is eradicated and burned, the better it will be for neighboring trees.

A few weeks since, I had an opportunity of examining a twig from a pear tree, which was thickly marked with indentations, closely resembling the result of insect depredations. Under the lens, it showed an occasional remnant of Mycelium; but the plant itself had perfected its growth, burst through the skin of the bark, and disappeared, thus causing the disfigurement mentioned above. As it appears to be an entirely new form, or at least it works on a new method, I should like to obtain fresh specimens at an earlier season. Meehan, in the paper referred to, in speaking of leaf-blight, alludes to the theory of its under-ground introduction. In this I think he is entirely correct. English Mycologists have asserted, that many species of Fungi, that appear in their perfect state on the external portion of plants, have first intruded themselves into the roots,—up through the body,—out of the branch,—and become apparent on the leaves; there to flourish, throw out their spores, and perish; leaving always behind them, a devastating mark, after they have passed away. Such I firmly believe to be the nature and habits of the leaf-blight fungus, as

in nearly every instance the Mycelium will be found on the roots of such diseased trees or plants. Growers of Pear Seedlings should note this fact, and apply some powerful remedy to the soil, and thus destroy the seeds of growth. Canker and cracking of the fruit, have each been attributed by the aforesaid writer to the presence of fungus, and justly so, according to my own observations during the past year.

The disgusting sooty patches on the skin of the apple becomes, under the microscope, one of the most enchanting sights—resplendent with all the rainbow tints. At one point, we see a rich golden-yellow; then, merging into a brilliant orange, or a charming shade of red,—the whole, forcibly reminding one of a bright mass of Fungi, consisting of thousands of dots and fibres, radiating in every direction from the outer edge, whilst in the interior, the dense bulk becomes confluent. To the naked eye this immense multitude of miniature plants covered a space no larger than a medium-sized pea. We frequently hear complaints of the Apple, Pear, etc., rotting on the trees. This is not unfrequently the work of an *Oidium*, allied to the origin of the Grape disease of Europe. It commences with a small dot or speck on the skin of the fruit, and as the Mycelium rapidly increases, the decaying portion soon marks its course, until at last the whole fruit is in a manner diseased, and rendered worthless. The terrible pest of the silk growers, that occasionally sweeps off their worms by thousands, is also closely related to the *Oidium*, and can be transferred artificially from one insect to another, thus proving its true character. My own views relative to the disease in the Peach, known as the "Yellows," are, I admit, purely speculative at present, but at the same time founded on personal examination and comparison with not unsimilar affections in other trees. For some years past I have carefully considered the many theories advanced in regard to this mysterious malady, but all proved unsatisfactory to my own experiments. The idea occurred, can it possibly originate from the presence of Fungi? I im-

mediately commenced a series of critical observations on the organic structure of the wood of such unhealthy trees, and although I detected very many suspicious traces of these minute pests, I candidly admit that my labor was not rewarded with success. The *Yellows*, to my mind, present every feature of an organic disease, caused by some poisonous species of cryptogamic plant; as we find like traces of their existence, commencing in the roots, up through the main body of the tree, working their way out of the various branches, and finally ending their career externally on the leaves and tender twigs of the present season's growth. During the life of the fungus, it makes scarcely a perceptible sign to the unaided eye of the observer, but after its functions have been performed, and the plant itself has ceased to exist, then the change in its victim becomes apparent. The dissection of various portions of the tree, plainly shows that a poisonous virus has penetrated into every part, of its organization. This theory is sustained by many facts; as for instance, orchardists are well aware that a knife used in dissecting one of these diseased trees, will communicate the *Yellows* to a healthy one, by the simple act of pruning. This is an undisputed fact, and is an excellent argument in favor of the transfer of mycelium from one point to another. I feel confident that future and careful investigation, will confirm all that I have advanced in this direction. Some varieties of the *Peach* and its curious sport the *Nectarine*, are liable to mildew; in a few instances, injuring the tree alone, but occasionally destroying the fruit, whilst ignoring the limbs and foliage. This form of fungus is exceedingly partial to particular organizations, and will not spread from its chosen variety to another, whether near or distant therefrom.

The *knot* on *Plums* and *Cherries* is so evidently caused by the presence of Fungi, that it seems scarcely necessary to refer to it at all. But only so late as the past summer, I read in one of our Agricultural magazines, an article by a correspondent, arguing strenuously that the excrescences were caused by insects; "for had

he not seen them in all their various stages disorganizing the cells of the Plum and Cherry?" It is merely necessary to say that the insects in question select these soft spongy excrescences to deposit their eggs, as they would the young fruit, and if the writer of the article in question had commenced his observations sufficiently early in the season, he could readily have satisfied himself that another enemy was already at work. Our worthy honorary member, Dr. Ezra Michener, a cryptogamic botanist of high standing, emphatically asserts in the columns of the "Medical and Surgical Reporter," that this disease is caused in the manner which I have stated. The spotting of the leaf in Plums and Cherries, is caused by a similar species of Fungi to that found on the Apple and Pear, only differing in a few unimportant points, of no particular interest to the fruit-grower.

On the smaller fruits, we have numerous annoying diseases, classed under the general heading of *mildew*; as for instance, the foreign varieties of Gooseberries, are often completely disfigured, by a fine, meal-like dust or web-like growth, covering every portion of the plant and fruit, and rendering the latter entirely useless. Then again we find the leaves of Currants spotting badly, and Raspberry leaves shriveling and falling off prematurely. A very pernicious species of fungus has occasionally been found on Raspberry leaves, cup-like in character, and of a beautiful orange color. I judge it belongs to a class of parasitic plants, which ascend from the roots, up through the whole structure of the canes; as we have ample evidence in the numerous weakened shoots usually forced into growth, as the result of its presence. I am informed, however, that it rarely occurs on properly drained soils. On Blackberries, both *high-bush* and *trailing*, in a wild state, I have frequently noticed this pest; but never in cultivation in the eastern portion of our State. I understand in some sections in New Jersey, it is presenting rather a formidable appearance, and increasing rapidly. I should feel obliged for specimens next year, and will gladly give any

information in regard to it, that I may possibly discover.

REMEDIES.

There are various receipts for destroying these pests; but the most certain and least expensive, is to cut away and burn all diseased portions of the tree or plant, as soon as the malady is detected. Sulphur is perhaps the most powerful remedy for destroying them, but heat is absolutely essential, as in a volatile state, it will penetrate into the most difficult places. A writer in the *Gardeners' Chronicle* says: "The crude sulphur, it should seem, combines with oxygen in a nascent state, and so forms sulphurous acid, which is eminently destructive to mucedinous bodies, as appears from its effect in stopping fermentation. The more finely the sulphur is divided the better, and therefore it is more efficacious when applied in such a form, as to cause a chemical deposit of sulphur, or, as it is called in the old chemistry, a *magisterium* on the leaves." Lime, air-slacked to a powder, is likewise a valuable destructive power, either applied to the diseased spots, or incorporated with the soil. A combination of the above two agents, is occasionally used, and regarded by some, as more serviceable than either separately, for in solution, it forms a hydro-sulphate of lime.

English writers say that a successful agent in destroying smut on wheat, is a strong solution of *Glauber's Salts* applied to the seed, to be followed by a dusting with quick-lime, a short time before planting. Caustic Soda is also beneficial in ridding us of some species; and Carbolic Acid has proven useful as well. According to Berkeley, "substances which would prove fatal to many other vegetables, as solution of arsenic, opium and many other poisonous chemical substances, do not prevent the growth of moulds."

USES OF FUNGUS.

Before leaving this subject, I wish to add a few words in favor of this class of vegetation. In addition to the many nutritious esculent species which are valued as articles of food, Fungi have another useful office to perform and may be classed among the most beneficial

scavengers of decomposing bodies. The moment vitality ceases in any organized matter, whether animal or vegetable, millions of spores floating in the air, are ready to alight upon it, and assist in its dissolution. Whether Fungi is the cause of disease, or merely natural consequence of some disarrangement of the organs of a tree or plant, has long been a much disputed point; many scientific gentlemen being arrayed on either side. Of late years, however, the question appears to have been pretty generally settled in favor of the advocates of the former belief. Yet it is an undisputed fact, that these pests will attack a feeble tree or plant, in preference to one in a healthy condition, after the manner of all parasites, whether animal or vegetable.—*Gardeners' Monthly*.

ORNAMENTAL AND LANDSCAPE GARDENING.

SECTION VI.

In our former numbers, we have offered suggestions as to soil; preliminary work; selection of plants, and their disposition in a garden attached to a city residence, but we have as yet said little about the laying out of walks in such garden. The grounds being too limited to admit of much choice, local circumstances must necessarily govern their extent and direction. We protest however against the construction of narrow walks, and we are very much opposed to cutting up the ground with too many of them, as they entirely spoil the desired effect, besides good walks are expensive to construct, and entail as much expense to keep clean and in good condition as the beds themselves.

It is difficult to give the exact width which walks should have, but an average of 3 feet will suffice for most of the gardens of city residences, but more importance than is customary should be attached to the construction, and to the material which is used.

The walks should be staked and marked out before the soil for the beds is prepared and before the planting takes place, but the finishing of them should be made the last work in the

laying out of a garden, they should be kept a little higher in the centre than at the edges; this will give a more pleasing effect than when they are constructed entirely level, and will also during wet weather keep the centre dry and in condition to be used with comfort.

In reference to material, there is a great difference of opinion, but this exists only among owners and occupants, and not among gardeners. Some prefer bricks for walks, others prefer wood, while some are satisfied with the natural soil with a wooden border. The most objectionable material for walks is wood, as it gives a stiff and unnatural appearance; brick walks are also objectionable, not so much on account of their appearance, as the difficulty of keeping them in good condition, while those consisting of the natural soil appear unfinished, and lack that effect of contrast so desirable in a house garden.

The best material for walks is a layer of about six inches of hard rock of moderate size as a foundation, with an upper layer of three to four inches of soft rock, this should be pounded down well, carefully preserving the cross-curvature, and keeping the surface completely smooth and even, finally adding a covering of an inch of fine gravel; crushed shells will answer if the gravel is difficult to obtain. We have also seen very good walks made of soft blue stone, which packs well and gives a good finish without any other top-covering. In Oakland we have seen a kind of soft red slate used for the top-dressing of walks, this is crushed at the mills for that purpose. In every locality some material suitable for walks, can be obtained at a moderate outlay not exceeding the cost of lumber or bricks, and certainly much more desirable; but fine gravel if it can be obtained at a reasonable expense, is the neatest and best material for a top-dressing.

The walks being completed, we next urge the necessity for procuring suitable stakes for the plants; these if possible should be uniform in size for certain plants. Trees should be provided with stakes large enough to allow for two or three years growth; flowering shrubs should be suited with them according to their

average size. Roses may be supplied with five foot stakes, and geraniums, fuchsias, etc., with four-foot ones; pinks should have wire or wooden frames.

We are also in favor of labelling plants correctly; labels certainly are instructive, make us familiar with the names of plants, and give a certain finish to the garden; they may be made out of wood, zinc, or tin, and should be painted white, the names can be written on them with black lead pencil.

POPULAR BOTANY.

CHAPTER VI.

Having given in a former chapter the construction of an exogenous stem, it will now be necessary to give a glance at the development of an endogenous growth before we pass to the minute consideration of vegetable structure. Plants of this form of growth are principally confined to tropical countries, though a few do overstep the boundary lines, and are to be found in the temperate zones, or rather those portions of them which are better styled sub-tropical.

The trunks of endogenous trees are unbranched, except at, or near their summits, and rise in cylindrical columns to the height of from 30 to 150 feet. The internal structure of the stem differs from an exogenous one, in having no clear distinction into bark, pith or wood, while the wood is destitute of concentric rings, or layers, and contains no medullary rays. In construction it is made up of woody and vascular tissues, arranged in bundles or fibres, which are imbedded in an irregular manner in the cellular tissues, the whole being inclosed in an integument, which, although acting as a bark, is still widely different from the true bark of an exogenous tree; for it is not increased by layers, neither is at any time separable from the wood.

The fibrous bundles which constitute the wood of the stem, can be traced from the base of the leaves through the stem, often to the roots themselves. In most cases they turn aside and we find the terminal end imbedded in the integument.

The stem is increased by new bundles arising from the base of newly developed leaves, and passing thence towards the centre of the stem descend to a greater or less distance, curve outwards and end in the integument as before said. The bundles which are added to the stem from year to year, do not arrange themselves on the outer surface of the previously deposited ones; but actually push themselves into the centre of the stem, and so force the older bundles outwards. Hence this form of growth is called *inside growers*, while the exogens which deposit their wood in layers or rings, one without the other, are termed *outside growers*.

The stem of an endogenous plant has its softest wood at the centre, and the hardest and most compacted at the circumference, this being the reverse of the exogens. The stem continues to increase in size by this system of distention, so long as the integument is capable of yielding, but as this property fails, the multitude of descending bundles at last block up the lower part of the stem, and so it is at once seen that plants of this kind must have a limited life. This rule does not, however, hold in all cases, as there are plants of this class, whose integument is capable of an unlimited distention.

Palms, which we will take as the typical plant of this class, (endogenous) grow as a general thing from one terminal bud, and if this bud is destroyed the plant dies. This mode of development accounts for most of the endogenous trees rising up in such perfect columns, and bearing their branches all at the top. While we can claim this as a main characteristic of the endogenous class, still even in this there are exceptions, as in the case of a certain palm of Egypt, and also the *Pandanus* (screw-pine) which do develop lateral buds, and so bear branches other than at their summits.

In this, and previous chapters, we have endeavored to show the formation and arrangement of the wood in the different stems. We shall now proceed to give a few thoughts to the origin of wood, which is as yet something

of a disputed point. We consider that the wood of a stem originates in the leaves, and grows from above, downwards. Prof. Gray says: "the following considerations may be adduced to show that the wood is deposited or produced *from above, downwards*. 1. When a ligature is closely bound around a growing endogenous stem, the part above the ligature swells; that below does not. On examination, the woody fibres are found to be arrested at the upper margin of the ligature, and thrown into curved and knotted forms; or, where the ligature is spiral, the descending fibres follow the course of the obstruction. 2. When we girdle an exogenous stem, by removing a ring of bark so as completely to expose the surface of the wood, the part above the ring enlarges in the same manner; that below does not, except by the granulation of cellular tissue, until the incision is healed.

From these two facts if there were no other we might assume the correctness of our premise, but there are others which are also conclusive. Wood is not produced in a seedling until the leaves are developed. In our next chapter we shall take up the leaves, showing their relation to the stem, and adduce further proof of the downward growth of the wood fibres.

HENS.—Some interesting experiments have recently been made upon the comparative fecundity of ducks and hens, so as to determine from which of the two the larger number of eggs can be obtained in the same time. For this purpose three hens and three ducks were selected, all hatched in February, and nourished with suitable food. In the following autumn the ducks laid 225 eggs, while the hens laid none. In the next February the laying season began again with ducks and continued uninterruptedly until August. They showed no inclination to set, but became very thin, although they afterwards fattened up somewhat. The total number of eggs laid by the hens amounted to 257, or 86 eggs each; and 392, or 191 each for the ducks. Although the eggs of the ducks were smaller than those of the hens, yet they proved to be decidedly superior in nutritive material, so that the superiority in productiveness appears to be decidedly with the ducks.

CALIFORNIA VINICULTURE.

We have read with a great deal of interest, several letters published lately in the *Alla California* relating to the cultivation and management of Grape vines. The public discussion of these matters is an excellent movement, and we hope to see more of it.

The correspondent of the *Alla*, Mr. Keller of Los Angeles, is evidently well posted both in the treatment of Grape-vines and the making of wine. So far as our opportunities have offered, we have argued from year to year, in favor of the more extensive planting of foreign grape vines, and if, as Mr. Keller says, "many of our viniculturists attach more importance to quality of soil than to the varieties of the Grape vines they cultivate," it is simply a mistake on their part, and they must be losers in the end; can it really be the case that some of our viniculturists prefer the planting of Mission Grapes because they yield larger crops? Can it be that they still follow our old California maxim, to look for quantity in preference to quality? We are inclined to believe that our cultivators are not keeping pace with the consumers, who are beginning to look more for quality than quantity. This we can easily prove by the fact that a few of our prominent growers of foreign wine grapes are able to turn their produce into money at any time they desire, and that they are readily obtaining prices which leave to them a very handsome profit, while the majority of those who cultivate the Mission Grape exclusively, are compelled to sell their products at any price.

The great bulk of the wine which we require for our own consumers, is a light wine, which, as Mr. Keller says, *cannot* be made out of the Mission Grape, while the success of the cultivator must always depend on his knowledge and capability to suit the wants of the consumers.

Little judgment has been hitherto exercised in the selection of land for the growth of Grape vines; low flats have been used for that purpose on account of the richness of the soil, easiness of access, and abundant moisture; we

have no faith in such localities for Grape vines. Experience has proved that hillsides always have been, and always will be preferable, and this is a point which is universally conceded. But will Grape vines grow on the hillsides without facilities for irrigation? We have every reason to believe so, and we offer the following advice for due consideration. Take good well rooted plants, one or two years old, and otherwise in good condition, plough your ground deeply, plant early, plough again in the following spring, keep the ground clear from weeds, and if circumstances are very unfavorable, mulch with a small quantity of straw or litter of some kind, and you will not lose many of your vines, and there will be no trouble after the first year. Do not plant any more than you can properly attend to.

In connection with this subject, we will mention a peculiarity which came under our own observation more than once. In testing different varieties of foreign grapes, we found the flavor of those grown in the northern foothills to be much more distinct, than of the same varieties grown in the Sacramento and Sonoma Valleys. Can any one explain this?

HOME-MADE YEAST.—The following is the most superior receipt for yeast I ever saw, and I have tried dozens, for we always use hop rising. It is available to country people, as it requires no yeast to commence with. Try it and you will never use any other: Boil two ounces of best hops in four quarts of water, half an hour; then strain it and let it cool to milk warm; then add a small handful of salt and half a pound of brown sugar; beat one pound of flour with some of the liquor, and mix all together. The third day, add three pounds of potatoes boiled and mashed, and let it stand until the next day; then strain it and it is ready for use; stir it frequently and keep by the fire while making, and stir well just before using it. This is very strong, and only half the usual quantity is required.

A LONDON paper thus describes the process of road making now generally adopted in the larger places of both England and France: The road is first prepared by being loosened with pickaxes, then covered with ordinary granite, above this a dressing of sand is laid, the whole is then watered. An immense roller, propelled by steam, is then moved slowly over the prepared surface. It exerts a pressure of twenty-eight tons, and the result is that, in an unusually short time a firm and compact macadamized road is formed.

CALOCHORTUS LEICHTLINII.—(Hook.)

It is our intention in this Journal to give, as time and space will permit, short descriptions of plants indigenous to California. We have a large number of plants, which are much admired in the East and Europe, for their beauty, but which are overlooked and neglected by us. In bulbous plants California is particularly rich, and one of the finest is the *Calochortus Leichtlinii*. This plant is to be found in most parts of the State, from the Coast Range to the Sierra Nevadas. It seems to seek dry hill sides, and flourishes well on the high stony ridges of our mountain ranges. It commences to bloom about the first of May, and continues until the middle of July. It is, as we have said, a bulbous plant, with glaucous grass-like leaves, the flower stalks bearing from two to three flowers. The calyx is formed of three lanceolate sepals, of a somewhat greenish color, streaked with red. The petals are of a pure white, with a purple spot at the base. The flowers generally open in pairs. There are two other varieties of *Calochortus* in California, one a light-yellow, the other a pinkish white.

SELECTION OF LOCALITIES FOR ORCHARDS.

It frequently occurs that those orchards situated on the foot-hills and among the highlands of the Sierra Nevadas, are injured by late frosts. It would be well for our cultivators to investigate this matter; if a remedy can be found for the evil, let it be applied. It is a prevailing practice among our highland gardeners to occupy the very lowest portions of those highlands, the alluvials and moist lands along the streams, and the low and wet patches around the numerous large springs, that issue forth at a low level among the hill-sides, as orchards. The necessity for irrigation in the successful production of fruits, save in such localities as are naturally watered, has hitherto prevented many from attempting the cultivation upon the more elevated grounds; yet there are good reasons why, in many localities, these elevated lands are the best for

fruit growing, provided they can be irrigated; and an important one among the reasons that might be adduced, is their almost certain immunity from late frosts, while the low grounds in their immediate vicinity suffer from the infliction.

We endeavor to account for these phenomena, if such they are, in this way: During the greater part of spring and summer, the prevailing winds among the highlands or foot-hills of the Sierras, heated and rarified from the lower valleys, sweep upward during the day; this action is reversed at night; a cold wind then rolls down from the snowy summits of the higher mountains; the colder currents, from their density, following more directly down the bottoms of the narrow valleys and ravines; these from their pent up situations, have been the most heated during the long and cloudless days. This cause alone subjects them to very great and sudden changes of temperature.

We would assign as another reason that the alluvial or bottom lands of the ravines and mountains, being what may be termed blacklands, simply from the fact that the land is black or dark, absorbs more of the sun's rays and heat during the day than do the lighter colored soils of the uplands, at the same time that the power of radiation, or throwing off the heat from the same cause—color—is far greater when the sun is withdrawn, thus lowering its heat more rapidly than the highland or light colored soils during the night. Thus it is that fruit trees on black lands and in low situations, are forced prematurely into bloom by the heat of the day, only to be made the more liable to injury from the frosts of the succeeding nights. These sudden changes to the two extremes prevail in all the low grounds of the foot-hills to a far greater extent than upon the surrounding highlands, or even in the broad low valleys of the Sacramento and San Joaquin rivers.

The diurnal ebb and flow of the great wind tides of California, to and from the mountains, is one of the various striking peculiarities of her climate; in many places producing results

upon vegetation, quite local in character; its effects therefore upon the introduced vegetation of the country should be carefully noted. Those upon the indigenous vegetation are apparent to any one who gives the subject proper attention, and should be duly considered before determining upon a location for orchard or fruit-growing purposes, as doubtless in many instances it will lead quite as unerringly to the proper position, soil, altitude and exposure, which are adapted to the production of fruits among the highlands, as can be otherwise obtained except by years of experiments.

The difference in the vegetation upon the north and south sides of the same deep ravine or narrow valleys, lying east and west, is everywhere apparent in California, and would at once indicate, which of the two, would be most likely to prove favorable to the culture of an introduced vegetation. Nevertheless, if proper artificial irrigation can be secured, the positions so marked out by the natural vegetation, as the best for its growth without such irrigation, may be directly reversed; for as the rays of the sun nowhere destroy the vegetation of a country, which, at all times is sufficiently supplied with moisture, so our success in many localities may yet be found to depend more upon the artificial irrigation with the proper altitude, than upon position naturally favorable without such irrigation.

There are among the Sierras, elevated tracts of country far above the present limits of our introduced fruits, where the common wild Plum, the Choke Cherry, Gooseberry, Whortleberry, and California Chestnut, are produced in great abundance, and from recent examination, the present season will not be an exception, notwithstanding the late frosts killed the fruit of the same description of Plum trees, that after having been transplanted, have for two years produced their fruit in the ravines and valleys of the foot-hills. It will be noticed, however, that these Plum trees, with other fruits and nuts in their natural positions, occupy almost invariably the broad tops of the great ridges, instead of the sides and bottoms of the ravines

and hollows. Thus it seems that if we were to follow nature to some extent in the selection of our fruit and orchard grounds, with a due regard to a supply of moisture in the soil, either naturally or by artificial means, we may find that no more hazard attends the cultivation of the ordinary fruits of our latitude among the highlands, or even the mountains of our State, than is incident to many other apparently far more favorable localities.

THE RAMIE.

Some time since we drew the attention of our readers to the Ramie plant, as most successfully cultivated by Mr. J. S. Finch, resident near Haywards, Alameda Co. We understand that the plantation is a continued success and well worthy of a visit from those interested in the raising of textile material, as well as from agriculturists in general. To those who cannot go so far to see the Ramie, we are pleased to say that there are several plants in a highly flourishing condition at "Woodward's Gardens." We understand that several successful experiments have been tried in feeding silk worms with the leaves; thus the whole of the plant can be utilized, as the refuse after the separation of the fibre is spread around the plants as manure.

THE SLEEP OF FLOWERS.—Almost all flowers sleep during the night. The marigold goes to bed with the sun, and with him rises weeping. Many plants are so sensitive that their leaves close during the passing of a cloud. The dandelion opens at five or six in the morning and shuts at nine in the evening. The goat's beard wakes at three in the morning, and shuts at five in the afternoon. The common daisy shuts up its blossoms in the evening and opens its 'day's eye' to meet the early beams of the morning sun. The crocus, tulip and many others, close their blossoms at different hours toward evening. The ivy-leaved lettuce opens at eight in the morning, and closes forever at four in the afternoon. The night-flowering cereus turns night into day. It begins to expand its magnificent sweet-scented blossoms in the twilight, is in full bloom at midnight, and closes never to open with the dawn of day. In a clover-field not a leaf opens until after sunrise.

PHANTOM OR SKELETON LEAVES.

Skeleton leaves are among the most beautiful objects in nature, and as they can be arranged either in groups under glass shades, made into pictures, as it were, and hung against the wall, or placed in either blank-books or albums, they come within the means of all, and can be used to decorate the palace or the cottage. The most suitable leaves for the purpose are those from what botanists call *exogenous* plants, and may be known by the veins of the leaf branching from a central vein or midrib; those from *endogenous* plants rising from the base and curving towards the apex of the leaf. The object in view is to destroy what may be called the fleshy part of the leaf, as well as the skin, leaving only the ribs or veins.

The most successful, and probably the simplest way to do this, is to macerate the leaves in rain water till they are decomposed. For this purpose when the leaves are collected they should be placed in an earthen-ware pan or a wooden tub, kept covered with rain water, and allowed to stand in the sun. In about a fortnight's time they should be examined, and if found pulpy and decaying, will be ready for skeletonizing, for which process some cards, a camel's-hair brush, as well as one rather stiff (a tooth-brush for instance), will be required. When all is prepared, gently float a leaf on to a card, and with the soft brush carefully remove the skin. Have ready a basin of clean water, and when the skin of one side is completely removed, reverse the card in the water and slip it under the leaf, so that the other side is uppermost. Brush this to remove the skin, when the fleshy part will most likely come with it; but if not, it will readily wash out in the basin of water.

If particles of the green-colored matter still adhere to the skeleton, endeavor to remove them with the soft brush; but if that is of no avail, the hard one must be used. Great care will be necessary to avoid breaking the skeleton, and the hard brush should only be used in a perpendicular direction, (a sort of gentle tapping) as any horizontal motion or

"brushing" action will infallibly break the skeleton. Never attempt to touch the leaves or the skeleton in this state with the fingers as when they are soft their own weight will often break them.

A very good way of bleaching the skeletons is to prepare a solution of chloride of lime, which must be allowed to settle, and the clear liquid poured into a basin, in which the skeletons may be put by floating them off the card. It is as well to have half a dozen ready to bleach at once, as they require watching, and if allowed to remain in too long will fall to pieces. From two to four hours will generally suffice to bleach the skeleton of all ordinary leaves, after which they should be washed in several changes of water, and finally left in clean water for half an hour.

After the leaf has been sufficiently washed it should be floated on to a card and dried as quickly as possible, care being taken to arrange the skeleton perfectly flat, and as near as possible to the natural shape. This can be done with the assistance of the soft brush. When dry the skeleton should be perfectly white, and should be mounted on dark backgrounds, as black velvet or paper.

Well grown leaves should always be chosen, and be thoroughly examined for flaws before maceration. Leaves containing much tannin cannot be skeletonized by this process, but are generally placed in a box with a number of caddis worms which eat away the fleshy parts, when the skeletons can be bleached in the usual way. Holly leaves must be placed in a separate vessel on account of their spines, which would be apt to damage other leaves; they make beautiful skeletons, and are sufficiently strong to be moved with the fingers.

PRUNING is to be done before growth begins. In pruning neglected trees, the object should be to get an open and well-balanced head. Take care that a bad wound is not made by the falling of the limb when partly sawed off. Pare wounds smooth, and cover them with melted grafting wax or paint, which may be tinted, to be less conspicuous.

SEEDS, of all kinds, likely to be needed, both for the firm and garden, should be early provided, and tested in pots or boxes, to prevent disappointment.

LETTER FROM THE BOTANIST.

The following has been received from Dr. C. C. Parry, Botanist of the Department, now with the San Domingo Commission :

SAN DOMINGO CITY, *February* 13, 1871.

Dear Sir:—I have the honor to report that since arriving at this point I have been closely occupied in making observations and collections of matters of interest connected with the agriculture and natural resources of this district. As first fruits of our labors, I send by the Tybee steamer, direct for New York, three boxes, two of which contain dried plants, (so marked;) the larger one contains articles for the museum, including native fibers, cordage, commercial woods, and such articles of native produce as will bear transportation. The fiber called *Kanote*, is the product of *Fourcroya Cabense*, and yields enormously. I hope to send some bulblets of this plant that may be grown in the green-house.

This is not the best fruit season, and most of the native fruits will not bear transportation, but at the last point we shall stop at, I shall endeavor to secure some of them for modeling. All investigation tend to show the vast resources of this country, which are hardly touched through imperfect methods of culture and want of enterprise. Our collection of plants will, I think, number over five hundred species, and we hope to lay in a good stock of seeds and live plants before leaving. I have found Mr. Shumacher very friendly and obliging. I have visited him at his residence, two miles from town, on the sea beach—a delightful residence. He has the *Fourcroya Cabense* growing in his grounds, and is engaged in making experiments in producing the fiber from the green plant by machinery.

My assistant, Mr. Brummel, has been away on an expedition into the country for twelve days; is expected this week. My associate, Mr. Wright, is also absent on an expedition across the country.

I cannot ascertain certainly what will be the movements of the Commission, but I judge there will be no particular haste about return-

ing. I shall try to improve all the opportunities that the different movements offer. There is no doubt large sections of the mountainous districts are adapted to the growth of *cinchona*. The frequent rains and cool, misty atmosphere, and elevation above the sea, absence of frost, etc., supply all the conditions of successful culture. A fair topographical map would enable one to lay down this cinchona district with tolerable correctness.

The woods of the country are numerous and exceedingly valuable; will constitute one great item of the wealth of the country. I have found coffee growing wild by the roadsides. On all these points I hope to present some interesting data in my final report.—*Monthly Report, Department of Agriculture, February.*

SILK CULTURE.

The correspondence which follows, with regard to a new species of silk worm to be forwarded from Calcutta, in India, and authorized to be received by Mr. Horace Dunn of this city will explain itself. Mr. Dunn has not received the worms yet, but is daily expecting them. He intends, when the worms arrive, if they are in sufficient quantity, to distribute them to the different silk-growers throughout the State, who may desire to possess them, if they will pledge themselves to report results to the Commissioner of Agriculture at Washington City :

DEPARTMENT OF AGRICULTURE, }
WASHINGTON, D. C., Feb. 1, 1871. }

Horace D. Dunn, Esq., San Francisco, Cal.—
Dear Sir:—This Department has just received advices from Nathaniel P. Jacobs, United States Consul-General, Calcutta, of the shipment of a package containing live cocoons of the "Atlas" silk worm; also a package of hedge seed, both consigned to the Collector of Customs, San Francisco.

The cocoons are intended for experiments in California, as per letter of Mr. Brownlow, the donor, a copy of which I herewith enclose as a guide to those who may take part in the experiment.

I beg to put this matter in your hands, with the request that you will call upon the Collector (who will be directed by the Secretary of the Treasury to pass both parcels free of duties and customs charges), and take charge of the cocoons and seeds, and put the former in the right hands, one of which I would name—Mr. Joseph Neuman, at your discretion.

Please to have it understood that a full report of the result of experiments be made through you to this Department and to Mr. C Brownlow, care of N. P. Jacobs, United States Consul-General, Calcutta, East India. I beg to request further, that if this trial proves a success, you will cause to be forwarded, at the proper season, a few of the live cocoons to this Department.

Please advise me of your action in the matter.

I am, very truly,

HORACE CAPRON,
Commissioner.

P. S.—The pamphlet to which Mr. B. refers in his postscript did not come by the mail. It will probably be found in the package.

The American Consul, Calcutta—Sir: I take the liberty to forward to you a small package of live cocoons of the "Atlas" silk worms, which I trust you will cause to be forwarded to California by the Pacific route, so as not to have to encounter another winter. With this precaution, I have little doubt of their surviving, and the moths may be looked for at the commencement of summer—perhaps not before May or June in California.

The worm will feed on almost anything, hence my wish to see if the California folks can make anything of it. The eggs should be divided into a good number of batches, and a batch put on one of a number of trees, the other batches being similarly disposed, it will soon appear on which of the trees the worms feed, and on which they do not. I have scarcely any doubt but that some trees will be found on which it will thrive.

I must also trust to you to see that the cocoons get into good hands—of somebody who understands how to train the worms. I have no doubt there are many such in the colony.

I would recommend the eggs being placed out of doors if not very cold, inside a pocket handkerchief, in which the young worms should feed with plenty of room for a week. The handkerchief should, of course, be tied on the end of a twig of the tree.

When the moths come out, they should be placed inside a large net or airy room, where the males will visit the females. From 250 to 400 eggs will be procured from each female.

The silk is not reelable, but cards well, and the beauty of the worm is that it eats almost anything, and spins a very large cocoon. In conclusion, I trust to receive an account of how they succeed. Trusting you will excuse the apparent liberty I take in forwarding the things through you, I remain, dear sir,

Yours, faithfully,

C. BROWNLOW.

WOODLANDS, CACHAR, November 25, 1870.

I send a small pamphlet, giving names of trees fed on by the "Atlas," which please send to California along with the cocoons.—*Call.*

WHAT EATS FARMERS UP.—The fences of the United States are estimated to have cost more than the houses, cities included; more than the ships, vessels and boats of every description, which sail on the ocean, lakes and rivers; more than our manufactories, with all their machinery; and more than any one class of property, real estate alone excepted. These are curious facts, but they are facts, nevertheless. The fences of New York are put down at \$144,000,000; those of Ohio at \$115,000, and of Pennsylvania at \$120,000,000. Divided out at this rate, the money invested in fences alone is more than equal to the national debt. As fences must be renewed, on an average, once in ten years, the annual cost to the country, is not far short of \$200,000,000.

"ANY soap-grease to-day, ma'am?" "No, sir; I use my own soap-grease." "Make your own soap?" "No, sir," "How do you use your own soap-grease then?" "I make it into eggs," I said smiling. The man looked so astonished and half frightened that I thought it time to explain. "I feed the grease and fat which is unfit for cooking to the chickens."

OUR DOMESTIC PROSPECTS.

It is evident from reports which reach us from every part of the State, that we are marching forward in the way of progress, and it is well to review from time to time the efforts of our enterprising men.

Forest Trees.—Mr. Stratton, of Alameda Co., has 53 acres planted out for forest culture, mostly of the *Eucalyptus* or Australian Gum. The seed for which was gathered from seven year old trees of his own.

Mr. Aiken, of Sacramento Co., has a plantation of 5,000 Balms of Gilead; 7,500 *Morus multicaulis*; 5,000 *Morus Alba*; 10,000 California black walnut; 4,000 American white maple; 5,000 American elm; 2,000 English elm; 400 Spanish chestnut; 500 American chestnut, all so far in good condition.

Mr. Edwards, of Sacramento Co., has planted out 7,000 locust trees for forest culture.

Tule Lands.—From Vallejo, we hear that tule farming is being carried on successfully this year, several thousand acres have been cultivated.

Near Rio Vista, several hundred acres are being cultivated.

Ramie.—Near Haywards, in Alameda Co., over 200,000 ramie plants have been set out during the present season, and its success is conceded by those who ought to know.

The cultivation of the ramie plant is attracting attention in Santa Clara Co., among the farmers there; Judge Graham, of Haywards, has planted 90,000 roots of the ramie plant.

Mr. Nourse, of Chico, is also making an experiment by planting two acres with the ramie plant.

Oranges.—General Vallejo has been shipping a considerable quantity of oranges, which he has raised in Sonoma Co., and which are said to be superior to the oranges coming from Los Angeles. He sold them at from forty to fifty dollars per thousand, and has obtained 15,000 oranges from thirty trees.

In Dacoto, according to the *Rural Press*, 5,000 orange and lime trees have been planted out this year. Several thousand orange and

lemon trees have been planted in the neighborhood of Oroville; so far, the prospect of their successful cultivation seems encouraging.

Fine oranges have been raised in the open air by Mr. Snowball, of Knight's Landing.

Mr Van Lusen, in San Bernardino, has produced oranges weighing one pound.

Castor Oil Beans.—The cultivation of castor oil beans has been inaugurated in Los Angeles County.

Over 200 acres of castor oil beans are cultivated near Marysville this year; a heavy yield is expected.

Silk Culture.—On the road between Grass Valley and Nevada, 10,000 Mulberry trees have been planted this season. Mr. Iscard, of Nevada City, has now over 8,000 Mulberry trees in cultivation. Mr. Mills, of Contra Costa, has on his plantation about 4,000 Mulberry trees of the different varieties.

Some 30,000 Mulberry trees and cuttings have been planted out near Martinez this season.

Napa Valley devotes also a great deal of attention to silk culture; a large number of Mulberry trees have been set out there this year.

Mr. Brannan is cultivating 10,000 Mulberry trees and 30,000 Ramie plants at Calistoga.

The Grape.—In El Dorado county, more grape vines have been planted out this year than ever before. The Grape can be cultivated there profitably, at from three-quarters to one cent per pound. Mr. Bugby is largely interested there, and says that he can afford to pay \$25 per ton for grapes, if delivered at Shingle Springs.

In Nevada county, several new vineyards have been planted with foreign grapes; some of our best wines are expected to be made there.

Gen. Bidwell, of Chico, has now 50,000 grape vines planted, besides 8,000 fruit trees and over 2,000 acres in grain. The distillation of brandy from grapes is much encouraged in the counties of Los Angeles, El Dorado, Napa, Santa Clara, San Bernardino, Sonoma and Yolo. These counties, in 1868, produced over 257,000 gallons, and the yield has in-

creased ever since. Mr. Bugby, of the Napa vineyards, has done much in that direction; he advocates the Johnson process of distillation, by which he obtains 50 gallons of brandy out of one ton of grapes.

Napa Valley has now about 1,700,000 grape vines, from which last year 315,000 gallons of wine were produced, besides distilled liquor.

Sugar Beet.—Enterprising men of Santa Barbara are about to erect a factory for the manufacture of beet sugar.

The Alvarado Beet Sugar Company is planting extensively; they commenced work last February; enough beets are expected to be raised this year to keep the mill running to its full capacity. Experiments show that the most desirable soil for sugar beet is a deep, rich, light loam.

The cultivation of the sugar beet and the manufacturing of beet sugar will be attempted in Sacramento and San José this year.

Sundries.—In Burns' valley, Dr. Delamont is cultivating ten acres of opium poppy.

In Yuba county the cultivation of the cocacnut is being attempted with some prospect of success.

Tea plantations have been set out near Calistoga, but we have not heard anything about their success so far.

Our southern counties are making strong efforts to introduce cotton culture, and a number of acres are cultivated for that purpose this year. This movement is being closely watched, and we wish it every success.

THE ROSE OF SHARON is one of the most exquisite flowers in shape and hue. Its blossoms are bell shaped, and of many mingled hues and dyes. But its history is legendary and romantic in the highest degree. In the East, throughout Syria, Judea and Arabia, it is regarded with the profoundest reverence. The leaves that encircle the round blossom dry and close together when the season of blossom is over, and the stalk withering completely away from the stem, the flower is blown away at last from the bush upon which it grew, having dried up in the shape of a ball which is carried by the sport of the breeze to a great distance. In this way it is borne over the sandy wastes and deserts, until at last, touching some moist place, it clings to the soil, where it immediately takes fresh root and springs to life and beauty again. For this very reason the Orientals have adopted it as the emblem of the Resurrection.

THE ROAD TO SUCCESS.

As far as we can at present ascertain, the prospect of bountiful crops to our horticultural and agricultural men are very good, although, before the last rain set in, we had ample reason to fear for them. Indeed our last rains have been an incalculable benefit to our State. Everything now looks encouraging for the farmer, and we anticipate that business in general will brighten up. So long as we depend entirely upon the returns from our gold and silver mines, much less importance was attached to the produce of our fields, the consumer was dependent on the importer, and prices paid were governed by the foreign markets, and subject to the manipulations and combinations of our commercial men, who very often monopolized the supplies and took advantage of the consumer; but time has brought about a change which is now effecting great improvements in our system of business, and if home produce and home manufactures are encouraged and assisted by capital, and if our cultivators will co-operate in forwarding the best interests of our State by the inauguration of a more enlightened system of farming and gardening, we may in a short time realize those expectations which our most prominent farmers and horticulturists, both here and in the East, are anticipating for us.

If we were to-day to gather up all the practical information which has been made public in print, we might fill volumes with facts which most effectually prove the enormous resources of California; and if we were to gather the advice and suggestions which have originated with men of practical experience, we should be able to bind up other volumes in almost every department of agriculture and horticulture, but although our progress has been enormous, yet our success is not so much attributable to our own engineering as to the productiveness of our soil, to the superiority of our climate, and to the existing mineral wealth of our own and the neighboring States, which lavishly paid for our produce when we made our first attempts to develop our agricultural and horticultural resources.

When we take into consideration the facilities which we have for farming and gardening, we are inclined to believe that we have been slow in availing ourselves of the experience and suggestions so often repeated, and with deep regret we see that a large majority of our cultivators still adhere with unwarranted stubbornness to many antiquated systems and ways of their own. This state of things cannot last much longer, without proving detrimental to our interests.

There was considerable alarm manifested about the scarcity of rain during our present season. We have seen various districts, and have received information from many others, and we have come to the conclusion that one-half of the crops were ploughed and sown too late, and there is no doubt that, while early sown crops would have matured well even with less rain, the late sown crops would have suffered terribly if the late rains had not come just in time. So often as it has been repeated that deep ploughing and early sowing and planting are our only safeguards against drought, yet there are some who still advocate shallow ploughing, and others who always manage to be behind time.

We hope, most sincerely, that our farmers will open their eyes and ears and will recognize deep ploughing and early planting and sowing as one of the chief elements of success, and the result will be less anxiety and fear if the rain does not come just exactly when it is wanted.



HINTS ABOUT FLOWERS.—House plants ought to be stimulated gently once or twice a week. Rain water, so refreshing to summer flowers, always contains ammonia, which also abounds in all liquid manures. If you take an ounce of pulverized carbonate of ammonia, dissolved in one gallon of water, it will make spring water even more stimulating to your plants than rain water. If you water your plants once in two weeks with guano water (one tablespoonful to a pail of water), they will grow more thriftily. Chicken manure dissolved in water is excellent. Always keep the soil in your flower-pots loose. A common hair pin used daily, will stir the earth sufficiently.

THE subject of selling fruits and vegetables by weight is being agitated again in the West. They think that this system would be the fairest both to the purchaser and the vender.

AGRICULTURAL AND HORTICULTURAL WORK FOR MAY.

Although the season for planting trees and shrubs may now be said to have closed, yet doubtless a great many ornamental trees will be planted out where water can be obtained for irrigation.

Our rainy season having commenced much later than usual, and the quantity which has yet fallen being less than the average, as a consequence many people have hesitated to plant extensively, but our last rains gave a fresh impetus, and as we may fairly expect some later rains, which should they fall will be even more beneficial than our usual copious rains during the winter. Deciduous trees and shrubs, and such evergreens as will stand trimming, may still be transplanted as late in the season as this, by cutting in close, giving a good soaking after planting, and mulching; this will be particularly necessary where water for irrigation is scarce.

In the orchard, all operations may now be suspended, except keeping the ground clear from weeds and looking after insects. We have frequently given various methods of treatment to destroy them, and shall continue to publish all information that may reach us. Clayey soils should now be ploughed the second time to make the ground more porous; it will help the trees, destroy weeds, and make it uncomfortable for certain insects.

The vineyard should be let alone—inexperienced hands may do much damage in working among the vines, as the young shoots just starting are very easily broken off. An experienced man, however, may do much good, by going over the vines and breaking off those young shoots which start from the ground or from the main stock. These young shoots take away a great deal of nourishment, which the bearing shoots cannot well spare.

In the kitchen garden there is a busy time coming; the transplanting of cabbage, cauliflowers, tomatoes, head lettuce, peppers and celery, should be continued in fresh prepared soil; corn, beans, cucumbers, etc., should be hoed carefully and the weeds thoroughly

cleaned out. Where snails are troublesome, apply lime, and when insects begin to show themselves, use a thin solution of whale-oil soap, which may be sprinkled over the plants twice or three times a week.

In the flower garden, every day develops something new, and at no time during the year do plants appear so interesting and instructive as at the present. New acquisitions of bulbs which have been planted during the past months are growing up and will be anxiously watched to welcome the first appearance of a flower bud, while new seeds are coming up and are carefully freed from the surrounding weeds. The ground around the plants should be kept loose, but care must be taken not to trample on the young plants and bulbs just sprouting, nor to break off the young and tender shoots of your older plants. Ignorant and pretentious gardeners often destroy many young plants and bulbs, and then the seedsman is wrongfully accused of selling worthless seeds.

Green-houses and conservatories should have fresh air during the greater part of the day, if the weather is not too rough. House plants should also receive daily airing; a close watch should now be kept for insects, and the remedies applied as directed in former numbers of this magazine. Water freely while the plants are making their new growth and forming their flower buds; but as the day may be very warm, while water from the well or from water pipes may yet be very cold, it is advisable to expose the water to the warmer temperature of the green-house before using it for irrigation. If plants are kept too far from the glass there is danger that the young shoots may grow up too tall and slender; the evil may be remedied by pinching off the young shoots before they make their flower buds, so as to obtain bushy plants, which will give more flowers and present a better appearance.

SPREADING MANURE.—In spreading manure, care should be taken to scatter it evenly over the land, breaking to pieces all large and hard lumps. This should always be done immediately, or not more than a half a day before plowing, especially if the weather is dry and very windy. The manure should be plowed under before it dries very much, or loss will accrue.

GROWING FOREST TREES.

We have repeatedly alluded to the necessity of growing forest trees in California. It seems that the attempts made so far were not calculated to cultivate the most valuable timber. It is well to look into this matter more thoroughly and to inaugurate the planting of such trees as will be most valuable for timber.

The *Western Pomologist* recommends the following deciduous trees for forest planting. The Chestnut, Black Walnut, Hickory nut, White and Sugar Maple, White Ash, Elm and Birch, all of which are very desirable and easily raised from seed.

California has its peculiarities in climate and soil, and we cannot adopt the above list entire; however, some of them have been neglected entirely, when we have every reason to believe that they can be grown here very satisfactorily. The Chestnut makes valuable timber, but may be considered slow growing on the Pacific coast, which is an objection. The Black Walnut is also a very valuable timber tree, and we are importing every year an immense quantity of this wood, which should be grown here. The tree grows well in all parts of the State. The Hickory, which is used so extensively in the East, has not been cultivated here yet to any extent. By proper treatment the Hickory would grow well here. The Maple is a very rapid growing tree in California, but so far no attempt has been made to cultivate it very extensively. The Elm is well known throughout the United States, and is used very extensively for ornamental purposes; its timber is also valuable. We should like to see this tree cultivated extensively. The Birch, we are inclined to believe, will not succeed well in California. Some varieties of the Birch have been in cultivation in Oakland, and with some success, yet our climate here is not cold enough, and as far as its timber is concerned, we think but very little of it.

Besides those mentioned above, we have many other trees in cultivation on this coast now which are well adapted for forest culture. The Eucalyptus, (or Australian Gum) is a

very fast growing tree, and some of the varieties produce an excellent timber. The Redwood, which is a native of this State, must rank among the very best of forest trees; but its cultivation must be confined to the sea coast. It will not grow outside of the sea fogs. The Oak furnishes a very valuable timber for various purposes. However, it seems to grow rather slow in this country. The California Laurel is well known in California, but its cultivation has not been very successful. There is no doubt that this tree can be grown very successfully and would be profitable. The Locust grows rapidly and without any trouble, but its timber is not so useful as that of the others.

There are various kinds of Pines and other coniferæ indigenous to California, which could be cultivated profitably, and we hope that our next legislature will take this matter in consideration, and offer some good inducement for forest tree cultivation.

NEW AND RARE PLANTS.

The *Gardeners' Monthly* speaks of a new *Centaurea*, which is much superior in elegance of foliage to all others; it is called *Centaurea clementei*. The same journal also gives an illustration of a new crimson-flowered *Mignonette*, of which the anthers are of a dark crimson, instead of a brown, as in the common variety.

Enothera Whitneyi, or *Godetia Whitneyi* as it is also called, is a splendid evening primrose, which was discovered in Humboldt County, California in 1867, but has not been brought to public notice until within the last year. The *Gardeners' Chronicle*, (London,) speaks very highly of it. The plant is from 12 to 15 inches high, and has its upper portion completely covered with flowers from 3 to 4 inches in diameter, of a beautiful rose color, with a dark crimson blotch near the centre of each petal. This plant is said to have been in cultivation in England as early as 1842, but as no seeds were saved, it disappeared from cultivation until its re-introduction in 1867. However this may be, its present introduction is due to Prof. H. N. Bolander, of this city.

HOW TO KEEP A THOUSAND HENS.

With a flock of one thousand fowls at least six acres are requisite. Some have given this rule:

An acre to each hundred. This area should be fenced in with boards or pickets, and houses erected, large enough to accommodate one hundred fowls for roosting, shelter from storms, and laying. It is not essential that these houses should be expensive, but they should face the south, and the fronts should be partially or entirely glazed. The glazing should be by sashes, which may be opened easily by hinges above, and may be left open through the summer to permit a free circulation of air. The care of these houses should be entrusted to a capable person, as on their proper management the success of the poultry largely depends. In addition to the poultry houses, there should be provided numbers of low sheds, beneath which the fowls may take shelter from the heat of the sun or from storms. Care should be taken to prevent the ingress of vermin, skunks, weasels, etc., to the grounds, and one or more good dogs should be confined within the enclosure, care being taken to secure dogs which will not trouble the fowls, but which are good watchdogs, and vigilant. An abundance of pure water is absolutely necessary, and unless a brook runs through or a pond is located on the land, water should be brought by a ram, or pumped by a windmill from a well. Fowls drink a great quantity of water, and it should be of as pure quality as can be obtained. The preparation of the grounds, and building of houses and sheds having been completed, the stock may be procured. For all practical purposes the common dung-hill fowl is as good as any, as we have proved completely to our satisfaction. In selecting a stock, take hens from one to two years old, bright-eyed, red-combed, clean-legged fowls, as large and well-formed as can be obtained. There is no need of a crower with the large flocks, the breeders being selected and kept separate from the others; for laying purposes, hens do better away from a cock than with one, and if a number of male birds are together, the fights and troubles are

incessant. The care of the poultry is not great after they are placed in the park. The fowls selected for breeding purposes should be kept in flocks of twenty, in yards separate from the others, and each of these small flocks should have a male bird. These birds should be the very best to be obtained, strong, well-formed, and hardy, and the cock should be two years old, healthy, strong and courageous. We believe that a Brahma cock, such as we have described, crossed with the dung-hill fowls, would get better and more marketable chickens than would any other breed. This, however, is for the poulterer to decide.

INSECT LARVÆ.

The practical question remains, whether any general rules can be established by which we can know what form the noxious larvæ we meet with will ultimately assume?

In order to understand what follows, it is necessary to state that larvæ have legs of two kinds; first, the true legs, representing the legs of the perfect insect, which are comparatively firm, conical, and jointed, and which, when present, are almost always six in number, and attached to the first three segments of the body. Secondly, the spurious legs, or prolegs, which are short, thick, muscular, and unarticulated, varying in number from two to sixteen, and attached to one or more of the eight last segments.

1st. *Generalisation.*—All larvæ generally known as caterpillars, and distinguished by having both legs and prolegs, produce either Lepidoptera, or saw-flies in the order Hymenoptera; and the larvæ of the saw-flies are distinguished from those of the Lepidoptera by having more than five pairs of prolegs; and by having only two eyes, whilst the true caterpillars have ten or twelve, and also by their habit of rolling themselves into a spiral coil.

2d. As a general rule, hairy caterpillars produce moths, whilst spiny or naked ones produce butterflies or sphinges. The rule may be more accurately stated thus: all densely haired caterpillars produce moths, but all the larvæ of moths are not hairy. The cater-

pillars of the butterflies and sphinges are either naked or ornamented with spines, or with very short or scattered hairs.

3d. Wood-boring larvæ belong mostly to the Coleoptera; but also to a few families of the Lepidoptera, namely, the *Ægeridæ*, the *Hepialidæ*, and a few exceptional *Tortricidæ*. The larvæ of the Lepidoptera can always be distinguished from those of the Coleoptera, by the presence of prolegs on the intermediate segments. A few Coleopterous larvæ have one pair of prolegs on the anal segment, but more generally only one such leg.

4th. All leaf-sucking larvæ belong to the order Hemiptera (including the Homoptera.)

5th. All leaf-gnawing larvæ, excepting grasshoppers and the caterpillars above treated of, belong to one tribe of Coleoptera, distinguished by the title of *Phyllophaga*, or leaf-eaters and comprising the four families *Crioceridæ*, *Galerucidæ*, *Cassididæ*, and *Chrysomelidæ*. These larvæ, moreover, can generally be identified by their short, wrinkled forms, their sluggish motions, and some of them by the singular habit of protecting their bodies by their own excrement.

6th. All larvæ found underground, excepting those which enter it only for the purpose of undergoing their transformations, are divisible, according to their habits, into two sections. First, the subterranean larvæ, properly so called, which live under ground, and feed upon the roots of plants; and, secondly, those which subsist above ground, but burrow into it, when not feeding, for the purpose of concealment. True subterranean larvæ are found in the orders Coleoptera, Hemiptera, Homoptera, and Diptera. None of the last order, except a few of the *Tipulidæ*, have ever been known to multiply so as to be seriously injurious to vegetation. But in the Coleoptera, we have the well known white grub of the may-beetle, and the large grape-root borer, in the family *Prionidæ*; and belonging to the Homoptera, is the pernicious Apple tree root-louse. The second section is limited almost exclusively to the notorious tribe of cut-worms, all of which belong to the family of *Noctuidæ*, in the order Lepidoptera.

These are a few of the more obvious general results which we derive from the observation of insects, under the two limitations of noxious habits and the larval state. Others, less remarkable, perhaps, but equally interesting, would be suggested by a more minute study of the subject.—*Dr. W. Le Baron, in "American Entomologist."*

WOODWARD'S GARDENS.

We recently visited these gardens, and were much gratified by the many improvements in progress. Among these the public will doubtless find the great assembly-room, amphitheatre, hall of recreation, or by whatever other name it may be designated, which is now in the course of erection, and which will soon be finished, a means of amusement suited to the taste of a large majority of the visitors. For ourselves, the magnificent appearance of the really superb collection of Acacias, now in full bloom, together with the luxuriant growth of the various evergreens and deciduous trees and shrubs, were a source of extreme pleasure. Other plants also attracted our attention—a fine specimen of *Dracæna fragrans* coming into bloom, the *Phormium tenax* (New Zealand flax), pushing forth its flower stems, the Ramie plant, with others too numerous to mention here; while within the conservatory, tropical-house, etc., etc., we found a splendid collection of Azalias in full bloom; various varieties of the Coleus and other foliage plants in full leaf, and presenting a gorgeous appearance. This collection is very rich in foliage plants, having a fine relay of specimens in readiness to be brought forward. We were, in fact, much more pleased with the reserve than with those in exhibition. The Orchidaceous plants are also well represented. A *Banana* in flower, and forming its young fruit, attracted our attention, as did also four luxuriant specimens of *Anana*, (Pine-apple) now fruiting; by the way, we saw from 20 to 30 others equally promising in reserve. In fact these very interesting gardens are evidently increasing in public value, and we do not believe that they, although very popular, are appreciated as they deserve, affording as they

do, not only recreation and amusement, but the means of study in botanical science, as well as intellectual improvement, and we hope that the enterprising proprietor will meet with ever increasing encouragement during the ensuing season.

EFFECTS OF GAS UPON PLANTS.

It is well understood that plants will not do well in a room where gas is burned; but that gas, which may escape from pipes running through a garden, will kill shrubs and trees in close proximity, is not generally credited; yet it has been proven that such is the case. In removing shrubs and trees which have died from some unknown cause, the ground was found to be saturated with gas, which had escaped from some open place in the pipes. (When plants or trees are lost, it will always be well to look for the cause, so that we may prevent similar loss in the future). To provide against this risk from gas, we would advise those who are about to plant their gardens, not to lay gas pipes where they intend to place their valuable trees or shrubs.

GOOD QUALITY APPLES.

It has always been our doctrine that the foot-hills of the Sierras will produce the best flavored and best keeping apples of any portion of our State. The *Rural Press* says, on this subject: "But a few years since all our winter apples came from Oregon. It is gratifying to know that now most of them come from the foot-hills of the Sierras, within our own State. A comparison of apples from Oregon and the Sierras, as they are found side by side in our market, is decidedly in favor of the latter. Our own apples are more juicy, finer grained, better flavored, and highly colored. The same varieties compared show the California apple in a much better state of preservation, and proves its keeping qualities to be superior. We have noticed a few boxes in the market lately, from some thirty miles above Placerville. They are much superior in all the qualities referred to above to those grown down towards the valley."

We have had considerable experience in fruit raising in Nevada Co., and we feel sure that the fruit grown in that part of the State would command a much better price in our market than that raised in the valleys. If the owners of orchards in that section will bring their fruit into our market, they will obtain good prices, and establish a good demand for their really superior productions.

OUR LATE RAINS.

During the latter part of March, discouraging news reached us from many parts of the State, caused by want of rain; however, one of the best showers we have had during this season came just in time to brighten up our prospects. This rain was general throughout the State, and the latest advices from the country are of a most cheerful character.

Reports from Visalia indicate a much larger grain crop than in any previous year, and represent the fields as in a fine condition.

The *Castroville Argus*, reports: The crops in that valley as looking splendidly, with excellent prospects of a bountiful harvest; the young grain is said to stand more regular, unbroken and vigorous in its appearance than ever before, and a much larger breadth has been sown in grain than usual.

Los Angeles will produce a larger crop of corn than ever before.

The *Encinal*, of Alameda, says: The late rains saturated the earth thoroughly. The grain prospects look much brighter than they did a week ago.

The *San Joaquin Valley Argus*, says: The rain has been general throughout the valley and will be a blessing to all. This fall of rain ensures large crops in many localities where total failures were expected.

The *Monterey Republican* reports a fine rain throughout the valley.

The *Petaluma Crescent*, says: That crops of Sonoma county never looked better, and will doubtless be the most prolific for years.

The *Santa Cruz Times*, says: The prospects for an abundant harvest never looked brighter.

OUR MARKETS.

The fruit season has just now commenced with a fair supply of strawberries, which are retailing at from 25 to 35 cents per pound. From various reports the strawberry crop promises fair. Apples from last year are plentiful, yet at 6 to 12 cents per pound. Of vegetables the supply of asparagus, green peas, and rhubarb is plentiful, while cabbage and cauliflowers are scarce. The quality of asparagus this year is better than that of last. We understand that a number of extensive and new plantations have been made this year. Large shipments of asparagus and other vegetables have lately been made to Chicago and New York. We hope most sincerely that the enterprise will be remunerative and that the articles shipped will be a credit to California. We understand that the fruit crop will be far above the average, this year. Cherries, plums, peaches, etc., are more promising than ever.

PIEDMONT SULPHUR SPRINGS.

This beautiful summer resort is now ready for the accommodation of visitors, and thus we are enabled within an hour's ride, to enjoy every comfort the most fastidious may wish for. Those who are not fortunate enough to have their own equipage, can take the regular Omnibus Line at the Broadway Station in Oakland. The road leads through a fine farming district, which with its waving grain fields and flowering fruit trees makes a magnificent sight. As you ascend the hills, a most picturesque panorama is spread before you; with Oakland, Alameda, and the surrounding villa grounds at the foot of the hills; the city of San Francisco in the background, and our magnificent bay whose surface is dotted over by the many sailing and steam vessels plying on its waters.

On reaching Piedmont, visitors have magnificent parlors and rooms to their disposal, and Mr. Walkington will do all in his power to make their stay pleasant. The hotel is surrounded by ornamental grounds and groups of live oaks, embellished with comfortable

seats. Walks and drives make every point of interest accessible, the most prominent of which are the Sulphur Springs, surrounded by the most picturesque scenery of natural landscape.

We are very much in need of a resort of this kind, and the owners are public spirited men, who have invested a large amount of money to make this place what it is. Yet they are only in the beginning, and expect to add constantly to its attractiveness. Now it is for the public to show a due appreciation of their efforts, which will stimulate the owners to make Piedmont the most attractive and fashionable watering place.

FIRST ANNUAL EXHIBITION OF THE BAY DISTRICT HORTICULTURAL SOCIETY OF CALIFORNIA.

TO OPEN ON TUESDAY, AUGUST 8TH, 1871, AND TO CONTINUE FOR FOUR WEEKS, AT THE PAVILION, UNION SQUARE, SAN FRANCISCO.

Premium List—(First Week.)

CLASS I—FLORAL DEPARTMENT.

1. Best display and general collection of Flowering Plants in bloom. \$20.00
2. Best collection of Plants, Indigenous to Australia..... 25.00
3. Best collection of Coniferæ, both Native and Foreign..... 20.00
4. Best collection of Plants for Greenhouse, Conservatory and Window culture..... 15.00
5. Best collection of Bedding Plants..... 10.00
6. Best collection of hardy plants with Variegated Foliage..... 10.00
7. Best collection of Bulbous Plants 10.00
8. Best 12 Specimen Plants.... 10.00
9. Best collection of Tropical Plants..... 10.00
10. Best collection of Climbing Plants, (not less than 25 varieties) 10.00
11. Best collection of Climbing Plants, (not less than 10 varieties) 5.00
12. Best collection of New and Rare Plants 10.00

13. Best collection of plants suitable for Hanging Baskets and Rockeries..... diploma
14. Best collection of Ferns..... 5.00
15. Best collection of Ornamental Grasses..... diploma
16. Best collection of Roses in pots or boxes, (not less than 20 varieties, in flower) 10.00
17. Best collection of Roses in pots or boxes, (not less than 6 varieties, in bloom)..... 3.00
18. Best collection and display of Cut-flowers..... 10.00
19. Pair of best arranged Wire-Hanging Baskets..... 5.00
20. Pair of best arranged Rustic-Hanging Baskets..... 5.00
21. Pair of best arranged Earthenware Hanging Baskets..... 3.00
22. Best Miniature Garden..... 40.00
23. Best design for a Suburban Garden..... 10.00
24. Best exhibit of Wire-work adapted for floriculture..... diploma
25. Best exhibit of Flower-pots and Vases diploma
26. Best kept Flower Garden in the city of San Francisco..... diploma
27. Best kept Suburban Garden... diploma
28. Best kept Lawn..... diploma
29. Best exhibit of Rustic Work.. 10.00

CLASS II—FRUITS.

1. Best and largest collection of Fruits 25.00
2. Best and largest collection of Apples..... 10.00
3. Best 12 varieties of Apples... 5.00
4. Best and largest collection of Pears..... 10.00
5. Best 10 varieties of Pears.... diploma
6. Best and largest collection of Peaches..... 8.00
7. Best 10 varieties of Peaches.. diploma
8. Best and largest collection of Plums..... 8.00
9. Best 10 varieties of Plums.... diploma
10. Best collection of Nectarines.. 5.00

- 11. Best and largest collection of Quinces.....diploma
- 12. Best and largest collection of Figs.....diploma
- 13. Best exhibit of Oranges.....diploma
- 14. " " " Lemonsdiploma
- 15. " " " Cranberries...diploma
- 16. " " " Strawberries .. 5.00
- 17. " " " Blackberries ..diploma
- 18. " " " Nuts.....diploma

CLASS III.—VEGETABLES.

- 1. Best and largest exhibit of Vegetables, (not less than 15 varieties)... 15.00
- 2. Best collection of Irish Potatoes 5.00
- 3. Best collection of Sweet Potatoes..... 3.00
- 4. Best collection of Sugar Beets.. 5.00
- 5. " " " Squashes and Pumpkins..... 5.00
- 6. Best 6 Watermelons..... 3.00
- 7. Best 6 Muskmelons..... 3.00

CLASS IV.—MISCELLANEOUS.

- 1. Best collection of imported Seeds..... 10.00
- 2. Best collection of California Seeds... 10.00
- 3. Best exhibit of Castor Oil beans 5.00
- 4. Best exhibit of Flax.....diploma
- 5. " " " Ramie plants and fibre..... "
- 6. Best exhibit of Hemp..... "
- 7. " " " Tea plants.... "
- 8. " " " Cal. Rice in ear "
- 9. " " " Hop vines..... "
- 10. " " " Tobacco leaf.. "
- 11. Best exhibit of California Coniferæ Cones, (not less than 15 varieties.)..... 5.00
- 12. Best exhibit of bouquet paper..diploma

SECOND WEEK.

CLASS I.—FLORAL DEPARTMENT.

- 1. Best collection of Fuchsias, in pots, (not less than 15 varieties). 8.00
- 2. Best collection of Fuchsias, in pots, (not less than 6 varieties).. 3.00

- 3. Best collection of double flowering Geraniums, in pots..... 5.00
- 4. Best collection of Tricolor Geraniums, in pots..... 5.00
- 5. Best collection of Zonale Geraniums..... 5.00
- 6. Best collection of Pelargoniums in pots..... 5.00
- 7. Best collection of Verbenas, (not less than 12 varieties)..... 3.00
- 8. Best collection of Pinks, Carnations and Picotees, in pots..... 5.00
- 9. Best collection of Pansies, in pots or boxes 3.00
- 10. Best collection of Double Petunias, in pots..... 3.00
- 11. Best collection of Annuals, in pots or boxes..... 5.00

CUT FLOWERS.

- 1. Best 20 Dahlias..... 3.00
- 2. " 10 "diploma
- 3. " 12 Gladiolus 3.00
- 4. " 6 "diploma
- 5. " 12 Spikes of Hollyhock.. 3.00
- 6. " 6 " "diploma
- 7. " 12 Roses..... 5.00
- 8. " 6 "diploma
- 9. " 12 Pansies 3.00
- 10. " 6 "diploma
- 11. " 12 Carnations 3.00
- 12. " 12 Picotees..... 3.00

CLASS II.—FRUITS.

- 1. Best exhibit of Tropical Fruits. 5.00
- 2. Best arranged two Baskets of Fruit 5.00
- 3. Best and largest collection of Foreign Grapes..... 20.00
- 4. Best 10 varieties of Wine Grapes 10.00
- 5. Best 6 varieties of Table Grapes 5.00
- 6. Best varieties of Raisin Grapes. diploma
- 7. Best 6 bunches of Grapes of any one variety.....diploma
- 8. Best exhibit of California Seedling Pears.....diploma
- 9. Best exhibit of California Seedling Apples.....diploma

THIRD WEEK.

BOUQUETS, BASQUETS, ETC.

- 1. Best basket of flowers..... 5.00
- 2. Best pyramid bouquet..... 3.00
- 3. Best 2 round bouquets..... 3.00
- 4. Best 2 table bouquets..... 3.00
- 5. Best wedding bouquet..... 3.00
- 6. Best funeral wreath and cross. 5.00
- 7. Best flat bouquet..... 3.00
- 8. Best 4 button-hole bouquets... diploma

FOURTH WEEK

- 1. Best collection of Variegated foliage plants, of tender nature.. 10.00
- 2. Best and most numerous exhibit of different styled bouquets and floral decorations, (not more than one of each style..... 10.00

Note I. Diplomas of the Society will be given instead of money if so desired by the exhibitor.

Note II. Exhibitors of Fruits and Vegetables, who wish to compete for premiums, are to exhibit not less than three specimens of each variety.

RULES AND REGULATIONS.

1.

The exhibition will continue for four weeks, commencing on Tuesday, August 8th, and closing on Saturday, September 9th.

Articles offered for competition according to premium-list for the First Week, must be entered on or before Saturday, August 5th, and delivered before 11 o'clock, on Tuesday, August 8th.

Articles for competition in the premium-list of the Second Week, must be entered on or before Saturday, August 12th, and delivered before 11 o'clock on Tuesday, August 15th.

Articles for competition in the premium-list of the Third Week, must be entered on or before Saturday, August 19th, and delivered before 11 o'clock on Tuesday, August 22d.

Articles for competition in the premium-list of the Fourth Week, must be entered on or

before Saturday, August 26th, and delivered before 11 o'clock on Tuesday, August 29th.

2.

All articles must be properly named and entered in the name of the grower or owner.

3.

Exhibitors are requested to present to the Secretary a list of their contributions, and to state whether they are for competition or not.

4.

All articles for competition must have been produced by the exhibitor, or have been in his possession for at least three months.

5.

Competition for premiums is open to all, but a discount of one-third of the amount will be made from the Awards to persons who are not members of the Society.

6.

All articles received for exhibition will be entirely under the control of the Committee of Arrangements, who will give them their proper places and take all possible care to return them uninjured.

7.

No person or persons shall be entitled to receive more than one premium for the same specimen of plants, flowers, fruits, seeds, vegetables, etc. If any specimen has obtained a premium in a collection, it shall not be credited to the same person in another collection, nor as a single specimen, nor shall any premium be awarded to a single variety, which may be included in any of the collections.

8.

No article on exhibition will be entitled to a premium, unless it possesses points of superiority, and the judges are strictly required to withhold premiums, if in their opinion the articles exhibited do not merit them.

9.

Articles of a suitable character not mentioned in the premium-list, will be received,

and if thought deserving will be recommended for premiums.

10.

A premium will not be awarded when the article is not worthy, in case there is no competition.

11.

After the Judges have made their awards, the prize specimens will be labeled and cards with the names of exhibitors will then be placed on their articles.

12.

Articles for exhibition must be entered and staged by numbers, and no cards bearing the names of the exhibitor can be attached to them before the awards are made public.

13.

Dishes, glasses and vases for the display of fruits and flowers, will be furnished by the Society.

14.

All premiums that are not claimed within three months after the close of the exhibition, shall be forfeited to the Society.

15.

No article can be removed from the place of exhibition unless by permission of the Committee of Arrangements.

16.

The Judges will be required to base their decision upon a recognized standard, as far practicable, and their decision in all cases will be final.

17.

An Auction Sale may be held after the close of the exhibition for the disposal of such articles as the exhibitors may wish to sell.

APPOINTMENT OF JUDGES.

Each exhibitor will present in a sealed envelope to the Committee of Arrangements on the day of the opening of the exhibition, a list of three names which he desires to act as judges in the class where he is a competitor.

No person can be judge and competitor in the same class. The three names receiving most votes will constitute the judges in that class.

In case the exhibitors neglect to elect judges, the President of the Horticultural Society will appoint them.

AWARDS.

The judges must hand in the awards in writing under sealed envelopes to the Secretary of the Society, on or before the third day of each exhibition, as defined in the premium list. The awards will be opened by the Committee of Arrangements, and announced on the following day by the President of the Society.

TRANSPORTATION OF ARTICLES FOR EXHIBITION.

Arrangements are being made with the different transportation companies to forward articles for exhibition free of charge.

H. N. BOLANDER,
PRESIDENT.

F. A. MILLER,

SECRETARY.

Office, 418 Kearny St.

San Francisco, April, 1871.

THE TIME TO DO IT.—This is the season in which to plant the seed of Western nut bearing trees. Our farmers and those of our citizens who own land but are not farmers, should take this matter under serious consideration. A trifling expense and less labor, would fill our valley with the choicest varieties of trees which would not only be splendid ornaments, but a source of good profit. They will all thrive well, and long avenues or large orchards of Walnut, Hickory, Butternut, Beech or Chesnut trees would add an immeasurable value to the property on which they are located.—*Daily Independent.*

MULBERRY TREES.—Parties have recently purchased several acres of land at San Leandro, for the purpose of setting out mulberry trees, in order to raise silk-worms.

EDITOR :

C. A. STIVERS, M. D.

ASSOCIATE EDITORS :

F. A. MILLER.

C. STEPHENS.

Editorial Portfolio.

In looking through our Eastern exchanges, we are constantly impressed with the necessity for our people giving more serious attention to our Californian Agricultural and Horticultural papers and journals. The publications of this kind issued in the Eastern States, are, as a general rule, conducted with great ability, and contain much of interest to us all; but for practical guides they cannot be used on this coast.

The United States, stretching as it does from ocean to ocean, has a great diversity of climates, and a rule that can be applied in one section is utterly useless in another. This reasoning applies with greater force to California than to other portions of our common country. We not only have a widely different meteorological relation with the balance of the States, but even within the boundaries of our own State, a number of varying climates. Knowledge, then, to be of use to us, must be of us; having for its basis an actual experience in the things treated of.

No one will deny that the future wealth and prosperity of California, and in fact of the whole Pacific Coast, are dependent upon their agricultural interests. It is the proper development of that interest which is to give us a steady progression in prosperity.

Our friends in the East look upon this coast almost as the promised land—a land that overflows with the “milk and honey” of golden promises—and wonder at our own indifference to the great advantages that Nature has bestowed upon us. Possibly this indifference of ours is to be accounted for by the old proverb, that “Familiarity breeds contempt.” While others, thousands of miles away, behold the bright vision of an almost earthly paradise, we who are at the very doors, nay, within the temple itself, see naught, and grope halting and stumbling in the dark.

The glitter of gold, and the charm of rapid made fortunes, have to a certain extent, unsettled us for sober, patient toil. But time works changes in commonwealths and communities as well as in individuals; changes that it is only wisdom on our part to understand and take advantage of. Gold is no longer the staple production of this State; grain and fruit have displaced our former monarch and now reign supreme. Development of the agricultural interests then, is the great work of the people on the Pacific Coast. It is not alone the farmer who is to do this work, but all classes must unite in furthering the object sought for.

There are now three publications in California devoted to the advancement of all that pertains to the cultivation of the soil. The *California Farmer*, *Pacific Rural Press* and our own journal; for the first two we have words of praise and consider them in all respects superior papers; as for ourself we let our columns speak. It is by supporting these journals and papers in a liberal manner, that all may do their share in sustaining and increasing the agricultural resources of the Pacific Coast. If it is praiseworthy to patronize home manufactures and home productions, it is certainly equally so in fostering those means by which these home products are increased and rendered valuable. We are not advocating an exclusiveness in regard to agricultural and horticultural literature, but rather that home journals ought to receive a larger share of home support than is at present accorded to them. Those published abroad will always contain many important items of agricultural knowledge which our farmers should by all means possess themselves of, but they cannot, as we have said, be anything like guides in actual work on this coast. In fact they have never assumed this, but on the other hand look to us for knowledge and information respecting this part of the world. Besides the good done in the bounds of the State itself, and among its own people, by the dissemination of facts in agriculture and horticulture, we are (or at least hope to be) instrumental in

inducing immigration, and thereby adding to the general wealth of the State. We ask in return that all interested in the future growth of the Pacific Coast, shall aid us in this work.

LIQUID MANURES.

Very little attention is paid in California to the manuring of pot-plants, and it seems that we are expecting rather too much of the small quantity of earth contained in a small pot; yet plants are grown for years in this manner, and little or nothing is done to assist them in the development of leaves and flowers. No one doubts the beneficial effect of the application of manure, but the additional labor is generally avoided. We appeal to our nurserymen and florists to give this matter more serious consideration, and recommend to their customers a system of manuring by liquids. It is not our purpose in this article to recommend certain kinds of manures for pot-plants, as almost any kind of manure used judiciously is better than none.

That proper judgment is necessary in manuring pot-plants is generally conceded, and also that the best time for applying manure is during the period when the growth of plants is most active, *i. e.* from the time the young wood is pushing forth, up to the forming of flower buds. During the time when flower buds are formed, we should cease to stimulate the growth of plants by application of manure, while we may give it again when the flower buds are about to expand.

The *Journal of the Farm* publishes the following from a correspondent:

"In many cases, in green-house culture, where the soil is generally limited to a pot or perhaps a large wooden vessel, there is a disposition to stimulate the growth of sickly plants by the direct application of guano, or other highly concentrated manures. The result very frequently is, that the remedy is worse than the disease. A distinguished writer on floriculture says: Only plants in perfect health are in a fit state to be benefited by manures; they may be growing slowly for

the want of nutriment, and at the same time be perfectly healthy, with abundance of hungry roots. Such plants as have been for years in the same pot, as oranges, oleanders, camellias, &c., frequently will be amazingly benefited by applications of liquid manure during their season of growth. It is also of great service in green-house culture, especially for plants that are not rooted, and where it is not deemed expedient to change them into larger pots, and if liquid manures are applied to such plants as Pelargoniums, Cineraries, Primroses, &c., just as the flower buds are expanding, the flowers will be increased in size and brilliancy.

It is, however, to be borne in steady mind, that it is a dangerous experiment to make these liquid applications when flower buds are forming, as the growth of wood will be stimulated, and the flowering principle interfered with. Manurial liquids are beneficial only when applied when the growth is active. As already stated, they should be withheld during the period when the buds are forming, and sparingly used during the time of blossom expansion.

Another point to be remembered is, that liquid manures should be applied to plants in pots in a perfectly clear state. Most persons are under the impression that the solution should be thick or disturbed. This is an error.

I have found great advantage from keeping a large vessel filled with liquid manure from which I use the quantity required without disturbing the sediment, and I have had admirable results from a liquid manure made by dissolving super-phosphate."

THE AGRICULTURAL DEPARTMENT AT WASHINGTON.—We regret to see some parties in the East, advocating the abolishment of the Agricultural Department. The Department is one of the most important in the United States, and happily one of the best conducted, as far as we can judge. The movement for abolishment will prove a complete failure, we predict. The people want it and must have it, and we would consider an argument on this point waste of time.

BAY DISTRICT HORTICULTURAL SOCIETY
OF CALIFORNIA.

The seventh regular meeting of the Bay District Horticultural Society was held Saturday, March 25th, 1871, at the rooms of the Academy of Sciences, No. 622 Clay street, San Francisco.

Reports were received from the Secretary, the Committee on Exhibition, and the Committee on Premium List.

The following new members were elected: David Hudson, J. H. Leonard, F. L. A. Pioche, of San Francisco; Judge Thomas, of Santa Rosa; J. H. Gilmore, of Oakland; and Dr. B. C. Fredericks, of San Francisco.

The premium list for the next exhibition was adopted as reported by the Committee, after a few unimportant amendments. The list will be found in another column of this magazine. The Committee on Exhibition was granted full power to act.

A number of books for the library of the Society, and a package of seeds for distribution, were presented from the Agricultural Department at Washington.

On motion it was resolved to hold an adjourned meeting on the following Saturday, April 1st, for the transaction of pressing business.

At the adjourned meeting, April 1st, the Committee on Exhibition reported that they had completed an arrangement with the Mechanics' Institute, to hold the Horticultural Exhibition at the same time and place with the next Industrial Exhibition, which is to commence on August 8th, and will continue for four weeks at the Pavilion. The Mechanics' Institute agrees to furnish a building attached to the main building, forty-five feet wide and three hundred feet long, which is to be connected by three large doorways with the Pavilion; the Mechanics' Institute also furnishes gas and water, free of expense. The Horticultural Society has full control over the space occupied, and manages the exhibition by its own rules and regulations, which are also published in another column of this magazine.

The premium list, as will be seen, offers six hundred dollars in cash prizes, and we hope that nothing will remain undone to make the affair a success in every respect. It is the intention to so arrange the exhibition as to give it the appearance of a garden; grassplots, rockeries and other prominent features will be introduced.

A Committee of Arrangements was then appointed for the exhibition, which will do all in their power to conduct the affair properly and impartial.

It is supposed that much of the time of the Horticultural Society will be taken up with ordinary business, and the members have therefore concluded to hold a special meeting hereafter every second Saturday of each month, for the purpose of discussing horticultural matters. These meetings will be open to all, and we hope that many friends of the Society will avail themselves of the opportunity to hear what practical men think of horticulture.

A SUGGESTION.

The *California Farmer*, in speaking of the Horticultural Society of California, says:

"We would suggest to that Society, that an increase of interest for their Society and for the cultivation of Floral Gems would grow up in our community, if *Lady Members*, who are Amateur Florists were admitted, and all ladies who take an interest in these things, for they would promote these institutions, as is the case in the Horticultural Society of Massachusetts."

We appreciate the suggestion of the *Farmer* and cannot see why the ladies would not make very good and active members of the Society. We feel sure that such a step would help still further to promote the taste for floriculture on this coast.

SEEDS RECEIVED.—We have received from the Department of Agriculture, a quantity of Carter's Prize Nursery Sugar Beet Seeds, packages of which can be obtained at our office, free. It is a new and fine variety.

POISON OAK.—One of the most annoying and troublesome features in our suburban gardens and the picnic grounds, frequented by excursionists from San Francisco and elsewhere, is the Poison Oak. The beauty of its foliage, which represents a most striking appearance in autumn, is apt to attract the attention of visitors, who become victims of its poisonous qualities by cutting or even touching its branches. There are some peculiarities about this plant; some are effected easily, and we have many cases on record where persons have been poisoned by it in passing the plants without touching them, while others are handling it *ab libitum*, without it having the slightest effect upon them. The writer has had occasion to be among the Poison Oak for over fifteen years, and never has been effected by it, although handling it frequently, until some two years ago he was slightly effected, and ever since, he runs the risk of being poisoned whenever he comes near it, without touching. How is this to be explained?

We would suggest that owners of tracts of land, covered with Poison Oak, inaugurate experiments by which this troublesome pest could be destroyed effectively and without detriment to the operator. Parties owning or keeping picnic grounds would find it very much to their interest to look into this matter seriously, and we have not the least doubt that there is some way by which we might operate against it with some success. Is there any one who can suggest something worthy of a trial?

CATALOGUE RECEIVED.—We have received No. 6, of John Saul's (Washington, D. C.) Descriptive Catalogue (including a fine chromo lithograph of two new varieties of Zonale Geraniums, "Lady Edith," and "Coleshill,") of new, rare, and beautiful plants for the spring trade, 1871. It is principally made up of Geraniums and Pelargoniums, which at present seem to be great floral favorites in the Eastern States. People in California have no idea to what perfection our friends in the East have arrived in the cultivation of these beautiful plants.

DECAY OF ORCHARD TREES IN OREGON.—We are sorry to hear that in some localities of Oregon, orchard trees are suffering from decay, and so far we have not been informed of the probable cause. A correspondent of the *Willamette Farmer*, attributes the decay to "too much cultivation and pruning in the earlier stages of growth." We, for our part, cannot see it in that light. If there is anything wrong with our orchards in California, we are inclined to assign, as a direct cause, the "too little cultivation."

Another correspondent on this subject, says: "What matures early, dies early. Too heavy crops on young trees bring ruin to our orchards." The same correspondent says, that since he cultivates his orchard in clover, the trees do remarkably better.

HORTICULTURAL FAIR.—As will be seen, by reference to the proceedings of the Bay District Horticultural Society of California, arrangements have been made between that Society and the Mechanics' Institute, whereby the First Annual Horticultural Fair will be held at the Pavilion during the Industrial Exposition. It is the intention of the Society to make this exhibition far superior to any of the kind ever held on this coast, and also to make it the grand feature of the entire exhibition.

We hope to see our horticulturists, florists, and amateurs in the floral art, well represented as exhibitors. It is not only to their pecuniary interest to take hold of this thing in a right, hearty manner, but it will be also beneficial to the State in general. We have for a number of years been writing, and talking about what we can do in this line, now let us make a practical showing of our productions, and the great advantages that California possesses.

PENNSYLVANIA HORTICULTURAL SOCIETY.—At the monthly display of this Society, held February 21st, Robert Buist received the premium for the best collection of Camellias. Of Pears, the Duchesse de Bordeaux received the first premium, and of Apples, the Fallawalder, Smith's Cider, Cooper's Redling, Rawel's Janet and Pennock.

Editorial Gleanings.

THE FAULT OF TOWN GARDENING.—In our travels about the country we notice one glaring fault in all the town and village flower gardens, and that we can express by no more appropriate name than "legginess." Everything is run up and drawn up to its utmost, with the exception of those plants which do better when trained up, and they are left to branch from below at will. Let us take as two examples, the Pelargonium (Geranium) and Heliotrope, which are among the most common plants set out for garden decoration. The Geraniums, whether the Rose Geranium, grown for its fragrant leaves, or some of those prized for the brilliancy of their flowers, or the showiness of their variegated foliage, are often badly wintered plants, a tuft here and there of foliage set upon long, leggy branches, which never come into shapely plants. In plants like these, people seem to lack courage to pinch. There is nothing more tractable than a Pelargonium (Geranium) of any kind. A house-grown plant may be made a dense bush by pinching, and a bit of a plant received from the green-house in spring may be left to grow into a "leggy," shapeless thing, or may be made, by proper pinching, to assume a pleasing form. Many people who grow plants and love them, lack the courage to do that which will be for the plants' good. A neighbor of ours has a lot of plants, all at sixes and sevens, and though we almost daily advise the use of the knife, he lacks the courage or the faith to apply it. The Heliotrope, when put out, often becomes a nuisance. Some branches start out near the base and grow a long distance before they show signs for flowering. Keep the Heliotrope pinched in as to its lower branches, growing it as a little shrub, and it will give an abundance of flowers all summer. By proper attention to the plant in the boarders it may be kept in a good shape for potting for winter flowering, but as generally grown, it has a great number of long, weak branches at the base, and when it is potted in fall it is usually worthless. Timely care is the price of comely plants.—*American Agriculturist.*

CHANGES WHICH THE COLORS OF SOME BLOSSOMS AND FLOWERS UNDERGO WHEN EXPOSED TO AMMONIA GAS.—Dr. Vogel relates at length, in a German publication, a series of experiments extended over no less than eighty-six species and varieties of flowers, and made with the view to learn how the colors thereof are affected by the action of ammonia gas, the flowers being exposed to that gas by being placed under a bell-jar filled with the gas, and left in that condition for from a quarter of an hour to two, or even twelve hours. Among the general results obtained, he found marked difference to exist between the action of the gas upon flowers, the coloring matter of which is fixed in small granules, and that which is present in solution; the former is far less changed than the latter. Among the eighty-six kinds submitted to research, twelve exhibited no change whatever; of these, seven were yellow, and five deep violet-colored. Deep violet-colored flowers are not at all affected, and some blue colors also stand the action of the gas for a time very well. The alteration produced by the gas is, in most cases, very akin to that called forth by the fading away of the flowers. The yellow coloring matter of the *Lotus corniculatus* exhibits a great stability, since it withstands the action of ammonia gas for twelve hours without change. On becoming dry, this coloring matter becomes bright green.

In reply to a query about a remedy for white worms in plant pots, a correspondent of the *New England Farmer* says that lime water will kill them, or a little slaked lime sprinkled on the surface of the earth and in the saucer of the pot. Lime water can be made easily by slaking a large piece of lime in a pail of cold water, letting it settle and then bottling for use. Give each pot a table-spoonful twice a week.

A WRITER in the *Plantation* states that he destroyed the insects which infested his cabbage and collards by applying kerosene oil with a common pepper box, making a pint suffice for a hundred plants.

APPLICATION OF MANURE.—The best application of manure is a subject which has been too much neglected by farmers generally, and while they are commended for applying all the manure within their reach, yet more profitable results would be realized if manure was applied more in consonance with the laws which govern the growth and nutrition of plants. Plants as a general rule do not require equal supplies of manure, which may be found out by the fact of their not all requiring the same length of time to mature a crop. The longer a plant is in the soil before it matures, the greater will be the exhaustion of the soil, and consequently will require better land and more manure to produce a good crop. Of this, winter wheat is an instance as compared with oats or other grain of short duration in the ground.

PANSIES IN MASSES.—A correspondent of the *Gardeners' Chronicle*, says that no one who has not seen the effect of pansies in large masses, can have an idea of their beauty. He planted a border, 400 yards long and 24 feet wide, with pansies and cerastiums, with a single row of pyramidal Zonale Geraniums in pots at intervals of ten feet, and it was the admiration of all who saw it.

SAWDUST FOR CUT-WORMS.—A correspondent of the *St. Louis Journal of Agriculture*, has discovered that a handful of sawdust placed around the root of a plant will effectually protect it from cut-worms. His experimenting was on a pretty large scale, and in not a single instance was there a failure. He does not state what kind of wood the sawdust was from, but we suspect that it was pine, and that therein lies the secret of its efficacy.—*California Farmer*.

The Magnolia grows wonderfully rapid at the city of Sacramento, and blossoms there freely. At Governor Stanford's beautiful residence there are large Magnolias, also at the Garden of Gen. Reddington, and at C. Crocker, Esq. The Magnolia should be more extensively grown.—*Farmer*.

CALIFORNIA oranges as large as a man's head are for sale in Washington.—*National Farmer*:

We should like to ask the *Farmer* two questions. First, in what part of California were those oranges grown. Second, what is the size of the "head."—Ed.

SUPERIOR TABLE MUSTARD.—Take best flour of mustard, fresh parsley, chervil, celery, tarragon, each $\frac{1}{4}$ oz., 6 salt anchovies—garlic, if liked—all well chopped and ground together, and grape juice and sugar to taste, with sufficient water to form the mass into a thimish paste. When put into pots, a red-hot poker should be thrust into each after filling, and a little oil should afterwards be poured upon the surface.

ANOTHER.—Take black mustard seed, quickly dried until friable, and then finely powered, 1lb., salt 2 oz., tarragon vinegar to mix. Other mustards, may be prepared by employing differently flavored vinegars, or walnut or mushroom vinegar, or the liquors of sweet pickles.

CENTRAL PACIFIC RAILROAD.

Passenger Sunday excepted.	Express Train Daily.	February 27, 1871.	Express Train Daily.	Passenger Sundays excepted.
4.00 P M	8.00 A M	San Francisco.....	5.45 P M	12.30 P M
4.42 "	8.40 "	Oakland.....	5.12 "	11.58 "
	7.30 "	San Jose.....	5.40 "	
7.58 "	12.10 P M	Stockton.....	1.46 "	8.35 "
9.35 P M	2.10 "	Sacramento.....	11.15 A M	7.00 A M
	4.10 "	Marysville.....	9.10 "	
	9.00 "	Sesma.....	4.20 A	
	2.20 "	Sacramento.....	11.45 "	
	5.25 "	Colfax.....	8.45 "	
	1.15 A M	Reno.....	1.00 A M	
	9.10 "	Winnemucca.....	4.05 "	
	12.00 M	Battle Mountain.....	1.25 P M	
	4.10 "	Elko.....	8.45 A M	
	6.10 "	Ogden.....	5.15 P M	

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, B 650, 8 00, 9 10, D 10 20 and D 11 10, a. m. 12 00, 1 50, D 3 00, 4 00, 5 15, 6 45 and B 11 30 p. m.
 LV, BROOKLYN, B 5 15, B 6 30, 7 40, 8 50 and 10 00 a. m., 1-30, 2 40, 4 55 and 6 25 p. m.
 LV, OAKLAND, B 5 25, B 6 40, 7 50, 9 00, 10 10, 11 00 and 11-50 a. m., 1 40, 2 50, 3 50, 5 05 and 6 35 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, B 7-20, E 9 00, BC 9 30 and EC 11 30 a. m., 1 30, 4 00 and 5 30 p. m.
 LV, HAYWARDS, B 4 15, B 7 00, E 8 30, B 9 00 and E 11 00 a. m., and 3 25 p. m.
 LV, ALAMEDA, B 5 15, B 7 36, E 9 06, B 9 36 and E 11 36 a. m., 1 35 and 4 05 p. m.

B Sundays excepted.
 D to Oakland only.

T. H. GOODMAN, General Passenger and Ticket Agt.
 A. N. TOWNE, Gen'l Supt.

E Sundays only.
 C To Fruit Vale only.

T H E

CALIFORNIA HORTICULTURIST

AND FLORAL MAGAZINE.

VOL. I.

MAY, 1871.

No. 7.

THE CACTUS.

It is somewhat remarkable that the Cactus family is so much neglected by the majority of our able writers on Horticulture; some of them merely mentioning a few of the leading varieties while others ignore the family entirely. No good reason can be assigned for this neglect, as their cultivation is comparatively easy, and the brilliancy of their flowers cannot be excelled.

In the East and in Europe the Cactus is treated as a hot-house plant, as there the least touch of frost will injure; here in California we have seen it under glass, in the window, and in the open ground, everywhere flowering freely, but our florists complain that there is no sale for the Cactus. For this we can assign several reasons:—First, the prevalent supposition and belief that the Cactus is a hot-house plant, and therefore requires too much protection and care;—Second, that they flower but once a year, and that, not till they have attained a certain age;—and, third, that the plant itself is not a particularly attractive one. But, if the public had the opportunity of seeing such specimens as we have seen lately when visiting an amateur friend of ours, who cultivates a large number of varieties, we believe they would offer even handsome prices to tempt him to part with them. We advise our readers to cultivate some of the varieties of

the Cactus, but at the same time recommend a warm and well protected place if they have to be cultivated out of doors; the flowers will develop much larger and more brilliant in color under glass.

Before giving a description of some of the best varieties of this peculiar plant, which is a native of America, a few interesting facts may not be out of place.

In some portions of the continent, particularly in Mexico, the Cactus is planted for hedges. In San Domingo, a certain variety is used as war material for keeping cavalry and infantry from penetrating. For hedges the *Cereus* varieties are most extensively used. In South America, the dry trunks and branches of the *Cereus* are used as firewood. In Chile, this variety of Cactus grows large enough to serve as rafters for small buildings. The Cactus is found in extremely dry regions, where neither stream nor spring can be found, and here the instinct of animals prompts them to kick off the trunks of the Cactus and to suck the juice.

Many varieties of Cactus bear a fruit which is eaten and apparently well liked by the inhabitants.

Some of the Cacti have prickles from ten to twelve inches in length, and they are frequently used by the natives for knitting. It is also said that a piece of the *Cereus*, if thrown into impure water, will purify it. And who has not heard of the perfume of the Night-

blooming *Cereus*, which is sold at high prices by the dealers in perfumery.

The best soil for the cultivation of the Cactus, is a sandy loam mixed with small pieces of brick and lime; an application of guano dissolved in water, if used sparingly, will be very beneficial. As soon as the flowering season is over, it is best to keep them in the open air, and during that time it is well to water them once a day. In transplanting from smaller into larger pots, care should be taken not to cut or bruise the roots, as such injury may cause them to rot.

The propagation of the Cacti is mostly effected by cuttings, although some are raised from seeds. The cuttings should be kept in a dry place for several days before planting them, by which time they will cease to bleed; if set in the ground while fresh, they are apt to rot. In planting the cuttings they should not be inserted deeper than is sufficient to keep them steady, they will root more easily; after planting they should be placed under glass and watered only when dry.

The *Cacti* are subdivided into several classes, viz.:

1. The *Mammillaria*.—These are round and partially covered with small, wart-like offsets. There are fully fifty varieties of this class, and they are cultivated more for their peculiar shape and form, than for their flowers, which are small and appear to be set on the main trunk; the colors are rose, red, yellow and white.

2. *Melo-cactus*, (Melon-cactus.)—These are natives of the West Indies and Brazil, and resemble very much the form of a Melon. The flowers are small, make their appearance on the top of the plant, and are mostly of a rose color. There are about twenty varieties of this class known. The *Melo-cacti* are slow in growth, and require a higher temperature than the *Mammillaria*. They are propagated most successfully from seed, while the latter are raised from seed, offsets and from root-cuttings.

3. *Echino Cactus*.—These grow in the form of a round column, or entirely round, with connecting ribs. The flowers are large, and

appear on the top of the plant; they are either red or yellow in color, and open in the forenoon during bright sunshine. This Cactus is propagated by offsets from the old plant. There are over fifty varieties.

4. *Cereus*.—This class furnishes some of the most brilliant and dazzling flowers obtained by the art of floriculture, and many of them are very fragrant. The plant produces branches which have from three to six angles. The best varieties are—*Cereus azureus*, *C. flagelliformis*, *C. grandifloris*, (Night-blooming *Cereus*,) the flowers of which open at night; they are from eight to ten inches in length, and are from six to eight inches in diameter. *C. speciosissimus*, the flowers of which remain open for several days.

5. *Epiphyllum*, (Leaf-cactus.)—These produce their flowers upon the leaves. They grow mostly on mossy trees in the dense forests of Brazil. They have no prickles; the flowers are red, and from two to three inches in length, and remain open for several days. The best varieties are *E. Ackermanii* and *E. truncatum*; the latter is the more extensively cultivated here. They propagate easily from cuttings, and require abundance of water while in a growing state.

PLANTS FOR THE DWELLING-HOUSE.

We are delighted to see so much appreciation of the beauties of nature as is evinced in the numerous efforts to raise and cultivate plants of every grade, among all classes of our citizens in every part of the city; whether in the drawing-room or the *salon* of the wealthy, the parlor or dining-room of the thrifty, the humbler apartment of the employé, or the poorer residence of the day-laborer; whether selected from the choice denizens of the greenhouse, or simply a plant of polyanthus or a pot of mignonette. It is with a desire to foster and assist this commendable refinement of taste, that we offer the following extract:

“The wealthy may enjoy rich sensations of pleasure drawn from the parterre and the conservatory, the man of science may increase

his store of knowledge under the healthful excitement of a botanical ramble, and the poorest cottager with a garden has his hour of rest while admiring his border of simple beauties; but the inhabitant of the dwelling-house, in the crowded city, has to seek Nature's treasures within its walls, and considering the few occasions in which he can derive assistance, he has in many instances shown an acute intelligence, and in many more an enthusiastic admiration, worthy of receiving every encouragement. I will not occupy your columns with long detailed lists of plants suitable for window culture, as so much depends upon the care and attention which they receive. To the beginner I recommend evergreen shrubs of a bushy, free growing habit. It is of some importance to one whose patience in plant culture has not been perfected, to have something at all times to look at, and which will stand a little extra care and fondling without material injury. When further initiated, climbers may be supplied, and there is no class of plants more worthy of attention. Imagine the parlor dressed out for the summer season, and having the borders of the windows fringed with growing vines, the pots or boxes ornamented with a housewife's taste—it is a feast that will stand repetition. Creepers and trailing plants for basket decoration are indispensable, and the flower-basket may yet be a common luxury for the rich, as well as a constant grateful companion to the lonely one in a single room. Here the variety and growth are more than sufficient for every requirement; colors of all grades stand ready to the eye; shapes the most fantastic, simple, and pleasing; habits suitable for the noonday sun, or for the cold, cheerless aspect of a sunless exposure, and many of them are of very simple culture.

I have seen it stated that there are varieties of the Fern that will stand the dry air of the living-room. I have not found this to be the case for any length of time. A Fern case is a necessity in their culture, and this case may be anything from an eight inch shallow flower-pot, with a glass globe, to a square box of wood and glass the full width of the window, and say

eighteen inches deep at the back, and twelve deep in front. The bottom of all such boxes must be protected from water drips, by having a lining of light lead over it, and rising two inches in depth all round the sides, and with a plug in the center, or at one corner, to let off superfluous water. It will be ready when painted, etc., for the bottom covering, which should consist of very fine gravel, about half an inch deep. Cocoa-nut fiber, saw-dust, and fine sand are all bad, holding, as they do, water in excess, and not admitting that free circulation of the air which even here must go on if health is to be secured to the inmates. Perhaps, for a small Fern case, the best thing I can do is to describe one occupying the center of a window in a room where a fire is seldom lighted, and at a house where I am a constant visitor. The box is octagonal in shape, twelve inches high, and two feet in diameter; the roof is hipped, and is also octagonal in form, and from the top to the bottom, perpendicular, is nearly two feet. This case has a pillar to stand upon, and upon which it is made to revolve at pleasure, and is a not unhandsome piece of furniture. On planting it, about an inch and a-half of square blocks of cork were placed at the bottom, and on this one inch of fibrous peat. *Trichomanes radicans* was planted as an edging all round, then about two inches more soil and cork were put on, and the center was planted with *Adiantum Ghiesbreghtii*. The sides were made good with small pieces of limestone, and the whole well watered with a fine rose. On cold nights the owner covers his treasures with a double blanket, and this is all the protection and nearly all the care required in a room facing the north. Again, wishing to possess a good specimen of *Hymenophyllum Tunbridgense* for my room, I shaped a piece of rough cork the exact size of the pan in which the plant was to grow; this was rubbed well all over with damp (not wet) peat earth, upon this was laid small sprigs of *Hymenophyllum* with regularity, a little fine peat and sand was then sifted through the fingers over the root portion of the stem, a few small pieces of limestone were placed

here and there over the surface. The whole was well watered through a fine rose, and covered with a bell-glass and left in the corner of a light, airy room. In about six months the pan was one mass, presenting such a specimen as is seldom met with. These are simple instances of what may be done with this class of plants.

For a large case, and to an advanced cultivator, I can recommend the following, as some of Nature's choicest gems:—*Hymenophyllum demissum*, *H. caudiculatum*, *Trichomanes maximum*, *T. pyxidiferum*, *T. reniforme*, *T. Luschnathianum*, *T. anceps*, and to these add *Todea superba* and *pellucida*. There are many others, but these, to my own knowledge, will grow well in a case if the following directions are secured. No direct light should at any time fall upon them, a covering of some light material being always kept at hand; a very dry air should be guarded against, and the box kept closed. In warm summer weather the box lid may be tilted several inches, and the plants watered overhead with a fine rose every morning. At other times be content with damping well the sides of the pots and bottom of the box. Neglect not the blanket covering in the cold winter nights. Put in peat and sand and a sprinkling of bruised limestone, and do not allow these delicate plants to be more than one year without a careful shift. Plants suitable for a window basket should not, in my opinion, be of that rambling character which is sometimes insisted upon. A good, handsome basket may be planted thus:—Round the sides *Campanula Celsii*, round the edge *Alyssum saxatile compactum*, and for a centre a nice plant of *Agapanthus umbellatus*; another may consist of a good plant of *Swainsona Ferrandii*, and a few specimens of *Nierembergia gracilis* round the edges, and mixing with the foliage of the *Swainsona*. When nicely grown, this basket is fit for any drawing-room. A really good plant of *Echeveria metallica* for the centre, and an edging of *Sedum Sieboldii* also has a handsome appearance. The *Nasturtium* has been recommended for the vase and basket, but I have always

found it to appear as tattered rags on a windy day. *Cobaea scandens*, the *Maurandyas*, etc., however excellent for a lofty conservatory, are not likely to give satisfaction in a dwelling house; rather would I advise some varieties of *Verbenas*, *Ivy-leaved Pelargoniums*, *Petunias*, *Cerastium*, etc. To plant a basket as it ought to be done, requires a little more ingenuity than potting a plant. If of wire, the sides must be previously well lined with Moss, well steeped in boiling water, to destroy the eggs of insects, and whatever vegetable life there may be left in it. Then commence by laying a little Moss compactly on the bottom, build up the sides of the basket with Moss, and plant promiscuously but with regularity as you go on, in layers of soil introduced inside the Moss; when well up plant the centre, and finish the top by covering the surface, pegging all neatly to its place, and remove any rough points with scissors. The principal cause of failure in basket cultivation is want of attention to watering, and the not supplying that amount of moisture which is necessary for a healthy development. If these are at all times attended to, there is nothing in the basket more than in the common flower-pot to cause failure. Water with care and attention, use a fine rose, letting the water fall gently and evenly, and give time for absorption. Frequently during the summer season steep the whole Moss overhead for a short time, and hang in a temporary place to drip before taking it to the usual place.—*John Richardson.*"

POISONOUS MOLDS.—Moulded bread, meat, cheese, or any other eatable, is an actual poison, whether inhaled or eaten. One kind of mold causes the fatal ship-fever. The mold in damp cellars causes various grades of typhoid fever, diarrhœa, dysentery, etc. Recent chemical researches and microscopic observations seem to show that miasm is nothing more nor less than a mold, and that this mold is, in reality, a cloud of living things, each too small to be seen by the naked eye, and are drawn into the lungs, swallowed with the saliva, incorporated with the food eaten, and by being absorbed into the blood are sufficient to cause all grades of deadly fevers. Elevated or dry localities are wholly exempt.

THE YUCCA.

But very few gardens contain a specimen of this well deserving class of plants, and we hope to encourage their cultivation by publishing the following from the *New York Horticulturist*:

“Yuccas are, as yet, a great novelty in all our gardens. We doubt if over one in a thousand who keep flower gardens, have yet seen or thought of growing one of these charming, yet exquisite flowering plants. The *Yucca filamentosa*, is one of the best for general use. Fuller describes it as follows: Leaves evergreen, long and rather stiff, spreading occasionally, slightly recurved. Flowers usually pure white, but in some specimens slightly tinged with greenish yellow. They also vary in size from one to two inches long, and are nearly as broad. Flower-stem four to eight feet high, branching, carrying several hundred blooms, each of which is succeeded by a large, six-celled pod, filled with smooth, flat, dark-colored seeds. After the plant blooms, the centre of the crown dies, numerous suckers spring up from below, and these will bloom as soon as they are large and strong enough, which is usually in two or three years; but if taken off and planted separately, they will bloom the second season. The seeds grow very readily if planted in autumn or early spring, and are transplanted at the end of the first season. Seedlings usually bloom when three years old.”

We would add to the above variety the *Yucca gloriosa*, which is a native of the Carolinas and Florida, growing near the Ocean. The flower-stalk grows about four feet high, with white, bell-shaped flowers, striped with red on the outside.

We have several varieties of the *Yucca* growing in the southern counties of California, and perfectly hardy with us; they are the *Yucca previfolia*, *Y. Wiblei* and *Y. baccata*. They are all well worthy of being cultivated.

The *Yucca baccata* is well worth cultivating; its flower-stalk grows to the height of seven or eight feet, with tulip-shaped flowers which

are very fragrant. When they are in bloom the store-keepers and tavern-keepers of that part of the country, bring their flower-stalks into their stores and houses, and for months they perfume the premises with a scent similar to that of the *Magnolia*.

A kind of liquor is also made out of it, which is very agreeable.

We expect to receive a full grown flower-stalk, as soon as they are in bloom, and we shall probably give a representation of it in the *Magazine*.

POPULAR BOTANY.

CHAPTER VII.

The first step in the evolution of a plant, is the development of a leaf, out of which, and by whose means, the stem is really brought into existence. It is in the blade of a leaf that the woody fibre is first formed, and from whence it passes downwards into the first joint of the stem, and so to the roots. As the leaves are produced, the internodes of the stem are increased, both in length and diameter, by the addition of woody fibre; all passing from their points of development downward into the roots of the plant, thus serving as the channel ways for the conveyance of the sap to, and from the rootlets beneath, and the leaves above.

By means of the leaves, the green surface of a plant is increased to an almost unlimited extent, and the largest possible amount of *chlorophylle* exposed to the action of the light and air. It is in the leaf that the crude sap is digested, and rendered fit to sustain vegetable life, and therefore this little organ will command a large share of our attention.

If we take the stem as the initial point, the leaf is then but an expansion of its bark, or better still, but a portion of the green covering pushed outwards and expanded laterally into thin lamina, through which, run ribs and veins formed of woody fibre, and which are connected with the liber or inner bark and the wood. The leaf, like the stem, is made up of two parts,—the cellular and woody; the green portion being composed

of cells; the ribs and veins (which are aptly called the skeleton) embracing the woody. The fibrous portion in the leaves performs the same office that it does in the stem, that of conveying and distributing the sap. In addition, it also supports and strengthens the cellular portion which otherwise would be continually destroyed. The cellular part of a leaf is made up of a vast number of cells arranged in a certain order, they varying in that order according to their position. In most cases leaves are so arranged as to present one surface to the ground, and the other upwards to the sky, and so we find that there are two distinct dispositions of cells in each leaf. Those of the upper surface are oblong and placed end to end in compact layers, with their long diameters perpendicular to it; while the lower surface consists of cells loosely arranged, and leaving a large number of spaces between them; the oblong cells having their long diameter parallel with the surface.

This arrangement of the cells, we at once see, is one of those beautiful means by which Nature protects herself and her work. The upper surface, which is exposed to the influence of the atmosphere and strong sunlight, is able by its compacted cells to resist a too rapid evaporation, while the under part of the leaf, from its loose texture, the more readily absorbs the necessary amount of light and air. To allow of the required amount of evaporation, leaves are provided with *stomata* or *breathing-pores*, which are situated in the membrane of the leaf, and consist of a number of holes, or slits. When the plant contains a great amount of moisture, these cells elongate and curve outwards in their center, thus allowing a free communication between the surrounding air and the inside of the leaf; but so soon as the supply of sap from the roots is lessened, these cells shrink down and so the orifice is closed. These *stomata* are found in large numbers, upwards of 100,000 of them have been counted in the space of a square inch. The largest of them are about one-five-hundredth of an inch in length.

The outward form of leaves varies to a great extent, and it is upon this variation that a part of systematic Botany is founded. In most cases leaves are thrown out from an unexpanded part or leaf-stalk, called a *petiole*, but in others the leaf expands directly from the stem, and then it is said to be *sessile*. That portion of the leaf near the stem is called its base, and the further point, the apex. If the leaf blade consists of one piece, it is termed single; when it is composed of two or more parts, or small blades, (that is, when the petiole is branched,) the leaf is then called compound.

The veins of a leaf are called its *venation*, and this venation is formed on two general plans. First the vessels of the petiole divide when they enter the blade, into a number of parallel veins, which pass at once to the apex of the leaf, being connected with each other by transverse veinlets; and in the second the petiole passes at once to the apex, giving off branches on both sides; these smaller ones finally uniting with each other, and so forming a general net work throughout the leaf. In the former case the leaves are said to be *parallel veined*; and in the latter reticulated, or *netted veined*. Endogenous plants have parallel veined leaves; while the Exogenous are characterized by the reticulated.

In the *Cryptogamia*, or flowerless plants, the leaves are forked-veined; the veins dividing and subdividing by forked division, which do not unite again.

ORNAMENTAL AND LANDSCAPE GARDENING.

SECTION VII.

In our last number we were sorry to see an error under this heading. On page 166, second column, where speaking of the width of walks, the printer has made us recommend *three* feet instead of *five* feet. We object very much to narrow walks, and the figure 3—placed there by mistake—caused us considerable annoyance.

Having now given to the readers of this Magazine such information regarding the

preparation of soil; the laying out of beds and walks; the selecting and arranging of trees, shrubs and plants; the materials for walks, etc., as will assist them in making a garden: it is fitting now to say a few words about the edgings or borders for beds; although we are not prepared to state positively which is the best material for borders, yet we will make a few suggestions which may be of some service. Borders for beds should serve not only as a protection for them, but also as an ornament; and it is therefore important that they should be neat and appropriate. The material most frequently used with us is half-inch boards: these, if the right kind is used, will bend in a perfectly easy and graceful manner into any curves that may be desired. The cost of labor and material for putting them down is very trifling. Although we can not speak of wood as a border with much favor, we are hardly prepared to say what is better. For grassplots, borders are out of place, but we are in the habit of using half-inch boards as guides to protect the edges of the plot, until the sod has well rooted, when we remove the guides.

One of the very best materials for borders, is the old-fashioned Box, but we are very doubtful of the practicability and desirability of using it in California. Box requires more moisture than our flower-beds are in the habit of receiving, and in artificial irrigation the borders are very frequently neglected, and we have also good reason to believe that that frequent and close trimming which is necessary to ensure neatness and uniformity, is injurious to Box in this climate. However, it may be said that this plant has not been used in sufficient quantity for borders, to establish its practicability or impracticability for that purpose with us, and it is therefore advisable to give it further and more extensive trial. We have frequently noticed beautiful specimens of Box grown in Sacramento and at San José, but we do not know anything about the peculiarities of soil, etc., in which it was thriving.

Various kinds of Sedum have been used very effectively for borders, and we think

that if properly trimmed and kept in good shape, it is even preferable to Box, on account of its cheapness and easy culture.

We must bear in mind that in the East and in Europe the beds are raised considerably above the walks, and that the borders there beside protecting the beds and serving as ornaments, serve to keep the soil in its place. Box fully answers this purpose, while the Sedum does not. Here, where the soil does not require drainage, the beds are almost on a level with the walks, and therefore ornament and protection to the beds are the only points required.

A very neat border can be made of Oxalis; the large rose-colored flowers are springing up continually. The plants do not grow very compactly, and therefore the outlines cannot be kept very well defined, which is most desirable in a border; however, this deficiency is fully made up by its beautiful and numerous flowers. Violets, Daisies, and certain varieties of Pinks are also used very advantageously, but care must be taken to keep the border well defined and compact, which requires a great deal of labor. The small-leaved Periwinkle is also very useful for the same purpose, with many others too numerous to mention.

It is our intention to give this border question more particular attention hereafter, and it will be very desirable to hear something from our nurserymen and gardeners on this subject.

With this we conclude our remarks on the laying out of fourth-rate gardens, adding a few words in reference to the proper care such gardens should receive.

First of all, the walks should be kept clean, and no weeds should be permitted to grow over them.

Secondly: The plants should be well watered at least twice each week during the dry season, and the soil should be well stirred around them as often as time will permit; frequent watering will make the surface hard and compact, and therefore frequent loosening of the soil is very essential to the plants.

Thirdly: Manage to cultivate your plants

bushy, and do not allow them to run up spindling and in awkward shape; clip or pinch off the ends of long shoots, so as to cause the plants to throw out additional branches and a more compact growth.

Fourthly: Cut away all decayed flowers and leaves, and manage to keep every thing clear of rubbish.

Fifthly: If a grassplot has been formed, carefully pull out all weeds while the grass is making its appearance, as it is only in this manner that a uniform growth of good sod can be obtained.

In conclusion, we add a list of such Annuals and Biennials as may be successfully grown, and are well worthy of a trial.

Ageratum.
 Agrostemma.
 Amarantus.
 Aster.
 Campanula.
 Candytuft.
 Canterbury-bell.
 Coreopsis.
 Delphinium, (Larkspur.)
 Dianthus.
 Gypsophilla.
 Helichrysum.
 Iberis.
 Iceplant.
 Ipomœa, (climbing.)
 Lathyrus, (Sweet Pea.)
 Linum-grandiflorum.
 Lobelia.
 Lophospermum, (climbing.)
 Marygold, (Tagetes.)
 Mesembryanthemum.
 Mignonette.
 Mirabilis Jalapa, (Marvel of Peru.)
 Nasturtium.
 Nemophila.
 Oxalis-rosea.
 Pansies.
 Petunia.
 Phlox Drummondii.
 Portulacca.
 Salvia.
 Sanvitalia.
 Scabiosa.
 Stevia.
 Stocks.
 Viscaria-occulata.
 Wall-flower.
 Xeranthemum, (Immortel.)
 Zinnia.

PROPAGATING AZALEAS.

The propagation and growth of this handsome class of plants, has heretofore met with but little success in this city. It is not easy to explain why this is so, as we have two or three varieties which are indigenous to this State; and, strange to say, these same varieties, when subjected to cultivation, turn out as unfortunately as those imported. True, we have seen a number of plants thriving well and blooming freely, in this city, the most noteworthy of which are at Woodward's Gardens, under the care of Mr. Schuman. But the finest plant which we have ever seen in this city, (and now in bloom,) is in the possession of Mr. Biebend, an amateur gardener, at North Beach. However, as we have said before, the success with these plants is only to a limited extent.

It would be well for our nurserymen to look into this matter, and endeavor to ascertain the best mode adapted to their cultivation in this State. Wishing to throw all the light possible upon this subject, we publish the following article of A. H. Pearson, in the *Gardener's Chronicle*, of London, as to the method adopted in Belgium. Of course, we do not say that all of it could be applied to their cultivation in this State, but we think it offers many points of interest in the treatment of a plant, which at present (with us) has no decided rule of culture:—"My experience in the culture of Azaleas has been principally in Belgium, a country which is considered by most people to be in a flourishing condition as regards Horticulture. The Belgians have almost entirely given up the system of propagating Azaleas by cuttings, saying that it is at best a faulty one, as they require so much smothering under bell-glasses, during which process many of them damp off, added to which many of the former varieties have not the stamina to produce free-growing plants; therefore, instead of cuttings they propagate almost exclusively by grafts. The stocks employed are raised from seed (collected from the most vigorous varieties), which is sown in

pans filled with fine leaf-mould, mixed with a little white sand. The seedlings are pricked out into fresh pans as soon as they are well up, with nicely developed cotyledons, care being taken to avoid breaking the roots; they are subsequently repricked two or three times, till they are large enough to be potted separately. The manner of grafting employed for the Azalea is the cleft graft, or, as the French call it, *greffe en fente*. The strongest stocks are grafted in the month of August, the graft being placed on the new wood, and take with great facility; the weaker ones are grafted some weeks later, on the last year's growth. After grafting they are placed under lights in a warm house, the pots being plunged in a slanting position, with the graft uppermost, or towards the light. When they are well taken the wrapping is undone, and the plants are staked, to prevent the grafts breaking out: straightening is generally needless, as the seedlings grow as upright as possible. The second year after grafting, the plants are put out into beds on the approach of summer; these beds are formed by the earth being taken out to the depth of ten or twelve inches, and the sides enclosed by an edging of boards; they are filled with well decomposed leaf-mould, into which the plants are plunged, *sans pots*. To protect them from the excessive heat of summer, and also from early frosts, they are shaded by boards made into squares about the size of ordinary frame lights, and supported by a simple inch rail running round the bed, and sustained at intervals by props. During the autumn many of the best plants are sold and packed off with the balls of earth just as they are, and the remainder are taken up and potted for the winter. This is the manner in which I have seen them cultivated for sale, and I think the system has many advantages, amongst which are obviously these: that you get more vigorous plants, in a shorter time, and generally longer lived ones, than those grown from cuttings; added to which you may flower your seedlings before grafting them, and thus have the chance of raising new and sometimes very valuable varieties. Amongst the seed-

lings shown last year at the Brussels exhibition were many which will greatly enrich our collection of these beautiful plants.

A. H. Pearson, Chilwell.

THE CAMPHOR TREE OF SUMATRA.

Among the most luxuriant and valuable trees on the island of Sumatra, the first belongs to the *Dryobalanops camphora*. The tree is straight, extraordinary tall, and has a gigantic crown, which overtops the other woody giants by one hundred feet or so. The stem is sometimes twenty feet thick. According to the natives, there are three kinds of camphor tree, which they name 'mailenguan,' 'marbin tungan,' and 'marbin torgan,' from the outward color of the bark, which is sometimes yellow, sometimes black, and often red. The bark is round and grooved, and is often overgrown with moss. The leaves are of a dark green, oblong-oval in shape, and pointed. The outward form of the fruit is very like that of the acorn; the flower has five round petals, these are placed somewhat apart from each other, and the whole form much resembles a lily. The fruit is also impregnated with camphor, and is eaten by the natives when it is well ripened and fresh.

The amazing height of the tree hinders the regular gathering, but when the tree yields its fruit, which takes place in March, April, and May, the population go out to collect it, which they speedily effect, as, if the fruit be allowed to remain four days on the ground, it sends forth a root about the length of a finger, and becomes unfit to be eaten. Among other things, the fruit prepared with sugar furnishes a tasty comfit or article of confectionery. It is said that it is very unhealthy to remain near the camphor tree during the flowering season, because of the extraordinary hot exhalations from it during that period. The greater the age of the tree, the more camphor it contains. Usually the order of the Rajah is given for a number of men, say thirty, to gather camphor in the bush belonging to territory which he claims.

The men appointed then seek for a place where many trees grow together: there they construct rude huts. The tree is cut down just above the roots, after which it is divided into small pieces, and these are afterward split, whereupon the camphor, which is found in hollows and crevices within the body of the tree, and, above all, in the knots and swellings of branches from the trunk, becomes visible in the form of granules or grains.

The quantity of camphor yielded by a single tree seldom amounts to more than half a pound, and if we take into account the great and long continued labor requisite in gathering it, we have the natural reply to the question why it fetches so high a price. At the same time the camphor is gathered, that is, during the cutting down of the tree, the oil which then drips from the cuttings is caught in considerable quantity. It is seldom brought to market, because, probably the price, considering the trouble of carriage, is not sufficiently remunerative.

When the oil is offered for sale at Baros, the usual price is one guilder for an ordinary quart wine bottle full. The production of Baros camphor lessens yearly, and the profitable operations of former times, say the year 1853, when fully one thousand two hundred and fifty pounds were sent from Padang to Batavia, will never return.

Since time out of mind, the beautiful clumps and clusters of camphor trees have been destroyed in a ruthless manner. Young and old have been felled, and as no planting or means of renewal has taken place, but the growth of the trees has been left to nature, it is not improbable that this noble species will ere long wholly disappear from Sumatra.

National Farmer.

OUR CITY PARK.

The *Industrial Reformer* publishes the following from a correspondent:

"It is somewhat singular that capitalists do not invest in City Park Bonds. San Francisco, like other cities in the East, having grown rich and large, needs a Public Park. It was a wise and healthy act for the Legislature at the last session to pass a bill for this purpose. Seeing that the lungs of the city expanded to such a degree, they felt that it was of the greatest importance.

Now that the land has been reserved for a Park, let us encourage the Commissioners by reminding the wealthy that six per cent. per annum ought to be a good investment. Hundreds of acres have been given by a citizen of St. Louis, and eighty-three acres by a citizen of Philadelphia has been donated to that city, to be forever kept for Park purposes. These had been already adorned with botanical gardens, trees, drives, etc., making the gifts still more valuable. We would like to see the same spirit animating the rich men of San Francisco.

Our intended Park possesses many natural advantages on account of its altitude, peculiar position and beautiful surroundings. How many, then, would like to see these attractive pleasure grounds at once begun? The people would commence to press out of the dusty streets in search of health and recreation, and soon build up cozy villages in the suburbs. It will conduce to the beauty and comfort of San Francisco; magnificent buildings will crowd its borders, while Science, Art and Industry will make it grand and attractive.

The blessings and pleasures that will ensue should not be so long delayed; every citizen should take a pride and interest in the great work.

Here the Poet will love to linger, and dash off his stirring lyrics, and the Prose Writer will weave the interesting thread of romance. The Artist will find a haunt for out-door studies. And here, too, will be the resort for picnics and pleasure parties, for nowhere else

PARKS.—The Central Park of New York contains, in round numbers, 850 acres, and has cost ten millions of dollars; but the increased value of property around this Park yields a tax which more than pays the interest on the outlay. Five million persons visit the Park every year. The Prospect Park of Brooklyn contains 578 acres, and has cost already seven millions of dollars.

within our city will they find a place of such artistic beauty and quiet retirement. Here, the voices of women and children will ring with mirth and hilarity; and here, too, will be inviting drives, shady walks and quiet nooks, carpeted with soft mosses and odorous with the fragrance of flowers."

We concur fully in the view of the correspondent of the *Reformer*, and cannot account for this lack of public spirit among our wealthy citizens. In our opinion there is a want of the "go-ahead spirit" in our Commissioners, or else they might have agitated this matter sufficiently to have induced our capitalists to invest in the Park bonds. We see no other way to have this great and much needed work commenced in earnest, than by the efforts of our citizens in general, and the sooner public meetings are called together for the purpose of discussing the necessity and practicability of the work, the better. Unless this is done before our next Legislature meets, we fear that certain interests will be brought to bear upon our law-makers, which may favor some new scheme.

It is generally understood that a much better locality could have been found for a City Park than the present site. Much less territory, more centrally situated, would have answered all purposes for the present and the coming generation. The half of the reservation which lies nearer to the city, is much better adapted for park purposes than the other half lying nearer to the Ocean; but our legislators cared very little, and most probably knew very little about the actual condition of the Park grounds. It is the citizens of San Francisco who should have something to say about their future Park, and if our former Board of Supervisors had no regard for our interests, and if the Legislature has done a wrong, either intentional or out of ignorance, it is for our citizens to express their wishes in the matter and have the error rectified. But, unfortunately, no one steps forward to agitate the matter, and the people have no opportunity of expressing their views on the subject.

It seems to us that the Commissioners

themselves could have done something in this direction, and we are satisfied that if the citizens in general were to sanction the undertaking in public meetings, capitalists would come forward with their money to enable the Commissioners to go ahead. But all this would impose some little labor upon the Commissioners, and perhaps they do not care to subject themselves to these little annoyances.

So far no one seems to be benefited by this Park scheme except the Secretary of the Commissioners, who, we suppose, draws his salary as usual whether anything is done or not.

But there are some other difficulties: some one wants a Park located near the Presidio, and the Board of Supervisors passed a resolution favoring the acquisition of a part of the Presidio Reservation for Park purposes. The locality certainly is much better as far as soil and aspect are concerned, but a serious objection is, that, like the western part of the Park Reservation, it is not central. But what does all this mean? Are we to have two Parks? It would be well enough to have them, but it is certain San Francisco can not afford them both.

We would earnestly suggest the necessity for calling a public meeting and bringing this matter before it for the purpose of having it fairly discussed. Experts, practical men, should then be appointed to examine the respective localities and to report on the practicability of a Park on the proposed site, and such committee of experts should also be instructed to express their views as to any other locality which they may consider better adapted for Park purposes. And when our citizens have by these means arrived at the conclusion, which is the best locality for a Park, then is the time to apply to the Legislature to pass an act for the creating of a Park in accordance with the popular will of our citizens.

We are certain that the money will then be readily forthcoming, and we may expect to have a Park worthy of our young and aspiring city.

We have a number of organizations here which might take this matter in hand, such as our Chamber of Commerce, the Board of Supervisors, our Horticultural Society, the Park Commissioners, or some other public-spirited organization; and if the press of San Francisco will only consent to give their influence, we may surely expect a good result.

A SUGGESTION.

SAN FRANCISCO, May 6th, 1871.

Friend Editor:—I have been a constant reader of your valuable Journal since it first made its appearance, in November last. With pleasure I hailed a paper which was to supply a want long felt, I believe, by the public in general, but by the amateur gardener, like myself, in particular.

I am greatly indebted to you for "Small Talk on Flowers;" for such articles as you have given us on the Pansy, Rose, Fuchsia, and others, as they have afforded me instruction and such knowledge as I lacked. I have read and re-read many other articles, such as those on the "Coniferæ of California," the "Sorgo," etc., which, however, I might term of no direct benefit to me, not being in the position to utilize them, except so far as general knowledge goes. These latter are heavy, learned articles, well handled and profoundly written, no doubt, but they do not offer exactly such matter for which I and many more like myself (as amateur gardeners) are wont to look after.

Excuse me, if I have already taken up too much of your time and space by making such a long exordium, but I thought it a necessary introduction to the object of my letter.

As I said above, your "Small Talk on Flowers" has given me a great deal of instruction. Allow me to submit to your consideration the following suggestion, which, if adopted by you in your known ability and acknowledged willingness, would constitute a regular school for the thousands of people who own a small yard or garden plot, which

they would take pleasure to improve and embellish, if they had the knowledge of *how* to treat and propagate their own plants. But being without such elementary learning, and perhaps not having such superfluous means, as are necessary to remunerate the gardener for replenishing his stock year after year, they possibly set out some plants the first season, but after that permit everything to grow in a straggling manner, until, in three or four years, it looks neglected and almost like a place deserted.

My suggestion is, that you give us a few articles on "How and When to Propagate the Different Flowers and Shrubs;" for instance, how and in what month, the Rose, Pink, Geranium, Daisy, Pansy, etc., illustrating the same by an occasional wood-cut, if possible. The latter sometimes shows it much more intelligibly than any amount of words. Teach us like beginners, who have to learn the first principles; don't "suppose" we know already this or that—which editors very often do—and thus build up an education on a very poor foundation.

I would further suggest to you to open a regular calendar, or better call it a "Manual for Amateur Gardeners," which from month to month would tell us what to do and how to act in our gardens. It should tell us: what seeds of annuals to sow in the coming month, also which plants or flowers can then be propagated and transplanted; what bulbous plants to put into the ground, or when to take them out; when to commence pruning or trimming, and when to think of manuring the soil; and, further, how to shield our pets, and which of them more carefully, against the rigor of our rainy season, which in December and January, may well be called our winter from the severe frosts we then have.

I hope you will approve of my "Manual," which, if properly and regularly written up, will make your Magazine a most welcome guest to many families. You will act the teacher, giving us our exercises, and we the scholars. By attending then strictly to your advice and instruction, the best of your pupils will obtain such a premium as will amply

reward them, viz., a blooming garden filled with the choicest flowers and shrubs, in fact a small paradise of their own creation.

Yours, truly,
R. W.

PRUNING WITH REFERENCE TO FRUIT PRODUCTION.

BY MR. WILLIAM SAUNDERS.

Read before the Pennsylvania Fruit Growers' Society, January 20th, 1870.

Natural laws are constant and unvaried in their operations. Our knowledge of these laws is derived from accurate observations of causes and effects. Science is the systematized explanation of these observations. The science of pruning fruit trees is, therefore, the explanation or concentrated evidence of effects produced by manipulation on the branches and other portions of plants, derived from the accumulated knowledge of centuries of observation and experience; and when we consider the lengthened period, during which pruning has been performed—the general intelligence of the operators, and the countless repetitions of similar processes ending in similar results, it is reasonable to suppose that a sufficient number of facts have been observed to establish a very perfect science.

I do not propose entering into an extended review of modes of pruning; neither do I intend to discuss, what is of far more importance, the principles that science has established for our guidance in performing the operation, but will at once proceed to state that, so far as the production of fruit is concerned on trees that form fruit-buds on short-spur branches, such as the Apple, Pear, Plum and Cherry, I am convinced of the evil of *shortening in*, as it is technically termed, the young growth or points of shoots, at any season, either summer or winter.

When we wish to form a thickly branched, bushy plant, such as we desire in a hedge, the end is accomplished by frequently pruning or cutting back the growing shoots as they pro-

ject beyond the ideal limit, thus encouraging lateral twigs or side branches, slender but numerous, as the object of a close hedge requires; but when the development of numerous lengthy shoots is the aim, as in willows for basket making and similar manufacturing purposes, pruning is performed during winter only, and the more decided or severe the operation, the stronger and better the resulting growths.

Similar treatment to the above, will produce similar results when applied to fruit trees.

I will take the Pear as an example; and certainly no variety of fruit tree has been so tortured under the sanction of both science and ignorance, as this has been. When the tree is submitted to a regular course of winter pruning, together with a regular pinching of young growths during summer, a thicket of slender growths is produced, and, if it is followed up with skilful persistence, may produce that great desideratum, a beautiful pyramidal shaped tree.

On the other hand, when summer pruning in its every shape, is abjured, and thorough, or severe winter cutting the systematic rule, a profusion of upright growths, of more or less luxuriance, are yearly produced, and yearly removed, just as practiced in the culture of Willows, excepting that the Pear growths are useless, and the Willows are valuable.

All who are familiar with Pear culture, will recognize these widely different modes of treatment, and the distinct forms so produced; also that they both agree in one important particular, that is, they produce but very little fruit.

Having practised both of these systems to my entire satisfaction, or rather dissatisfaction, it occurred to me some twelve years ago, to let the trees alone. I had pruned, pinched and disbudded, until my trees were acknowledged to be as finely formed as any in the country, and they certainly were as perfectly outlined as the most beautiful of Norway Firs. I felt the risk of abandoning an orthodox custom, and of being classed among *negligent cultivators*; but my eyes were opened, I saw that these orthodox managed trees were naked of fruit, and resolved, that however much it

might shorten in my reputation, I would not, for the future, shorten in my fruit trees.

To illustrate more particularly the plan now pursued, I may state that in the spring of 1863 I planted a collection of sixty varieties of Pears; these were set in duplicate, one-half being on the Quince roots, the other on Pear stocks. These have received the same general treatment throughout. When planted they were pruned down very closely, many of them cut so as to resemble a smooth walking cane from two to three feet in length. In the fall of that year, they were cut back in order to establish a proper spread of branches, but with the exception of taking a few scions from some of the varieties, the branches have not been shortened since; some few tall branches have been removed entirely where they have become crowded, and a young shoot encouraged at the point of cutting, which ensures the healthy healing over of the cut and is essential in this mode of management, to take the place of future removals.

During the second and third years' growth, young shoots of three, four and five feet in length were not uncommon, and it required some firmness to repress the inclination to prune, but the pruning resolution had not been lightly formed and was not to be lightly abandoned; and even the longest of these shoots became thickly studded with fruiting spurs, and in due time furnished with blossoms, and subsequently with fruit.

Gardener's Monthly.

EUCALYPTI LEAVES.—The following extract from a letter just received from Cannes, will interest many of our readers: "We have had one hundred men sent us, some wounded, others invalids. Dr. C. Bukersley has sixteen bad cases in a hospital, with two French doctors; they are nursed admirably by the *petites sœurs*, and what is very interesting, is the new method of dressing the wounds one of these two, Dr. Gimbert, has introduced. He has tried, instead of lint, Eucalyptus Leaves. The leaves have a catty smell; they are merely laid on the wounds. The balsamic nature of them not only cures, but, after a few hours, all the unpleasant odor of the matter ceases."—*M. J. B.*

FLORAL RETURNS.—It is said that the Florists in and around Boston sold \$20,000 worth of Flowers on the Saturday and Sunday before Easter last.

YERBA BUENA PARK.

Our last Legislature took the responsibility upon itself to pass an act for the erection of a new City Hall, and for the sale of a part of Yerba Buena Park, to meet the expense of said City Hall building.

It was the right and the duty of our citizens to operate upon this measure immediately after the passage of said act, and either to signify their willingness to endorse it, or their determination to oppose it. We think that all such important questions in relation to our city should really be decided by its own citizens in accordance with our republican principles. But a few fast individuals, instead of leaving a matter of such vital importance to the vote of the inhabitants, either prompted by ignorant and overweening assurance, or by crafty greed after the dollars and cents, and presuming upon their accidental positions, assume the power to make laws antagonistic to the views of their constituents.

That we must have and should have a new City Hall, is a conceded point; but the question arises, whether our citizens are willing to permit the cutting up of Yerba Buena Park for that purpose. If the inhabitants of San Francisco are opposed to the scheme, why did they not make some demonstration against the measure while it was under consideration in our last Legislature? But nothing was done; the Commissioners were appointed to carry out the work; a portion of the Park is graded; a certain part of the land is advertised for sale; all this and other work is done by the Commissioners in good faith, but not until the present time have a few individuals shown discontent; and it is only very recently that the Committee of Retrenchment appointed by the Board of Supervisors reported in direct opposition to the prosecution of the work.

We are of the opinion that the Commissioners will not stop their work, but will go on as they propose without paying any regard to the few, who are discontented. If the work is to be stopped, it should be done by a popular vote, and not because

Mr. so-and-so happens to entertain a different opinion.

We should have much preferred to have Yerba Buena Park devoted to the purpose for which it was originally intended. The city is in need of a Park there, but we are unwilling to exhibit a disposition to interfere with any and every public improvement in this city, merely because we happen to differ in opinion on the matter.

We subjoin an extract from *Carter's Real Estate Circular* on this subject, although we may differ in regard to the remarks upon the postponement of further action by the City Hall Commissioners. The *Circular* says:

"The Market Street front of Yerba Buena Park, with other portions of the same property, are advertised to be sold by the City Hall Commissioners on the 11th instant. We sincerely regret that a penny-wise and pound-foolish policy is to be adopted in the erection of our new City Hall. The concoctors of the scheme which dragged it out to Larkin and Market Streets thought the bill would meet with less opposition in the Legislature if the money for the erection of the new building were provided by the sale of the Market Street front of the land to be used, instead of by the issuance of bonds by the City; but in this we think they were most certainly mistaken. Indeed, we feel satisfied that, if the matter were brought to a vote of the tax-payers, a large majority would be found in favor of issuing bonds and preserving the Park intact. A large public building—the finest, in fact, on the Pacific coast—should not be put away in the background, but should be placed in the center of Yerba Buena Park, facing Market Street, where a commanding view of the whole building may be had.

The right of the Legislature to sell a public street would, we presume, be seriously questioned, and a public park is as much devoted to public use as a street. For this reason, the legal power of the Legislature to order the land sold, has been called in question.

Nothing so mean as a city selling the best inside city park it owns, with the shabby

object of providing money for the erection of a City Hall, has ever before come to our notice. The breathing-places in the San Francisco of the future will certainly be few and small enough, without depriving it of this, our largest and best one. If the Hall were erected in the center of Yerba Buena Park, it would then be an ornament, and would not greatly lessen its size; but as the matter is now projected, the Park will be ruined and the building crowded comparatively out of sight.

The City Hall Commissioners have power to postpone the sale until the next Legislature meets, and still continue the erection of the Hall, at least as far as the foundation, the building of which will occupy some months. We hope the Commissioners will adopt this course. We believe the sale of the land is viewed with disfavor, because it will place the City Hall in the background and ruin the Park."

OUR NEXT HORTICULTURAL EXHIBITION.

To judge by the exertions now being made for the Horticultural Exhibition in August next, it should eclipse everything of the kind yet undertaken on the Pacific Coast. The object is a very laudable one, creating taste, affording knowledge, and stimulating efforts to cultivate the best and most useful.

The Horticultural Society is as yet in its infancy; it has not been more than six months in existence, but is untiring in its efforts to make the next Exhibition what it should be, and is assisted by every individual who is able to present something worthy of public notice. The Society labors under difficulties this, its first year. A Horticultural Exhibition ordinarily should occupy one week, and no more; but various circumstances made it apparent that if the Exhibition was connected with the grand Industrial Exhibition, it would be an accommodation to the public, and would be less burdensome to the young Society. By this arrangement the Horticultural Society agrees to keep up its Exhibition during the

time of the Industrial Exhibition, and when we bear in mind that the articles exhibited by the Society are of perishable character, it is certainly a sacrifice on the part of the exhibitors. To keep up an exhibition of this kind for one month, requires a replenishing of various classes from time to time, and we appeal, therefore, to the public in general to come forth liberally and contribute such articles as may be at their disposal, to fill and keep filled the space to its fullest capacity.

There are many amateurs who can contribute articles of special interest, and they can rest assured that whatever they may place in the care of the Committee of Arrangements, will be returned in good condition. What a magnificent sight can be produced by a display of Cut-flowers alone, if our amateurs will contribute their share, and how much satisfaction will it give them to see their own flowers, comparing with those cultivated by others!

The same principle applies to Pomologists and amateur Fruit Raisers; every orchard in the State produces some fruit worthy of a place in a collection.

The Vegetable Garden should be well represented, and we have enough of them here to make the finest exhibit in the world.

All that is necessary, is some public spirit and a small sacrifice on the part of those who are able to produce the material worthy of public exhibition, and we are satisfied that their co-operation will result in an immense amount of good.

PERSISTENCE OF LIFE IN BULBS.—When a young man, I was in the employ of Mr. H. Groom, (of Walworth,) one of the most celebrated bulb growers of that day, and it was his practice to have his Tulip ground trenched about thirty inches deep every third year. When this was being done, any surplus stock of roots, or those that had got mixed, so that he was not sure of the names, he would throw into the bottom of the trench, ordering them all to be chopped up, he at the same time standing by to see the operation properly performed. By some means, on one occasion, two bulbs escaped, for, in three years after, in trenching the ground again, these roots were found to be plump, and in good condition. They were at once planted, and bloomed well, but late, the following spring.—*J. Dale.*

WORK FOR JUNE.

From present appearances, we may expect that the soil will dry out to a greater depth this coming season, than has been the case for a number of years, in consequence of want of sufficient rain during the past season; we may also fairly expect that springs, wells and other resources for water will furnish a less quantity during this coming summer, than is usually the case. Extraordinary precautions should therefore be used to prevent loss from deficiency.

In our last issue we advised mulching of trees, shrubs and vines, which were planted out during the latter part of the season, as the best remedy against drought, and, inasmuch as we have had no rain of any consequence since, this mode of treatment impresses itself very forcibly on every intelligent mind. It is an easy matter to obtain straw or litter of some kind, to put around trees and vines, and the time required for such labor is of small consideration compared with its beneficial results. In the Old Country, and in the older States of the Union, farmers have at times covered their entire orchard-grounds with hay, straw or litter of some kind, and the results have been highly satisfactory in every case. Copeland, one of our ablest writers on Horticulture, says: "Salt hay is the best; rain washes the salt into the earth; the hay or straw packs closely over the earth and shields it from the sun's rays; evaporation can take place but slowly, and no matter how dry the season, land so protected will be cool and moist." He says, further: "A thick mulch of old chips and river waste was found by Mr. Cleveland, formerly a large Pear-grower in New Jersey, to be a preventive against cracks in the fruit, to which it also imparted superior flavor, at the same time that it increased the smoothness of the bark." He found, too, that native Grapes, previously much injured by rot and mildew, were saved from such diseases by the mulch. It should be, when settled, five or six inches thick. If the orchard is set, where no orchard should

be—in a wet, undrained place—a mulch will be injurious, as it will keep the earth too wet; and in springy land, well drained, it will be less valuable, as the springs will give water enough, and the sun's rays are desirable, to warm the earth.

Besides taking these precautions, we must be careful in the use of water for irrigation. It is no exaggeration, when we presume that more than one-half of the water used for irrigating purposes, is wasted; and this should be avoided, when we have good reason to expect a scarcity of water. When the supply of water is limited, it will be much better to do the necessary watering of newly planted trees and shrubs, and such plants as are in want of frequent irrigation, with the watering-pot, instead of the hose.

In the established Orchards and Vineyards very little can be done during the coming month, except looking after insects of all kinds, and keeping such suckers cut down as make their appearance near the trunk and stems of trees and vines.

In the Kitchen Garden nothing is of more importance than to keep the ground in a highly cultivated condition; frequent hoeing is necessary, and if it can be done once a week around Tomato-plants after a good watering, it will help them very much; the same may be said in regard to Cabbages, Cauliflowers, etc. Where ground of sufficient moisture can be had, late Peas may be planted, which pay generally better than early ones; it is also time yet for late Cabbage and Cauliflower. For the destruction of insects, we can only repeat the article recommended in our last issue—whale-oil soap in a thin solution, nothing better has yet come to our knowledge.

Flower gardens are now in their glory, a profusion of flowers everywhere; but we have frequently noticed while the beautiful display of flowers during this month gives much pleasure and satisfaction, that the little tender plants, which have just made their appearance from some choice seeds, are entirely neglected and uncared for, and in many cases they will perish. It will not do to bestow

all our care and affection upon a vigorous Rose-bush which dazzles our eyes with its bright and beautiful flowers, while we leave the tender little Aster or Balsam to its own chances. The latter requires the nursing, while the former certainly affords us encouragement for our labor and toil in the flower garden; before long the blossoms which fill our hearts with delight, will have died away, and unless we have nursed the little ones with proper care, the garden will look destitute.

Frequently we notice the effect of the flower garden marred by neglecting the cutting away of faded blossoms; this should always be done as soon as they lose their freshness; faded and decayed flowers are a nuisance, and also an injury to the plant.

Greenhouses and Conservatories should receive a thorough overhauling and cleaning up. Many plants would do far better in the open air during the next four months, and the space thus made vacant may be used for the propagation of plants and the planting of choice seeds.

House-plants kept in windows should be placed and kept in the open air, and may be replaced by Cacti, Begonias, Calladiums, Calceolarias, Gloxinias, etc., all of which will bloom during the next two or three months.

Although there is a superabundance of flowers now for our floral establishments, choice flowers are very scarce, Camellias are almost entirely out of season, and Tuberoses and Cape Jasmines will come in later; all we have now in the market for choice bouquets are Orange-blossoms, Spanish Jasmine and a few Wax-flowers; Stephanotus we may expect in bloom soon.

THE UTILITY OF SHEEP TO THE FARMER.

An Exchange says: "The Turnip crop of England, which some have estimated as of more consequence to that country than its Wheat crop, is not so much so for the Meat and Wool it produces, as for the great fertility that mode of sheep pasturing gives to the soil. The largely-increased crops which fol-

low the sheep track over a Turnip field would in many cases pay expenses, even if the Mutton and Wool were given away." Why do not our farmers add a few sheep to their farming stock?

ABOUT WATERING.

"How often shall I water my plants?" asks the purchaser of a small bill at the nursery. In window gardening the water question is also one of the anxious ones, and even in the regular operations of gardening, under the treatment of quite practised hands, the relation of water to plant life is not as clear as it might be.

We shall understand better how to water, if we correct first some impressions derived from old works on physiology. It is said that plants want water. This is not strictly true. Water is found in plants, but it enters rather in the form of vapor. A soil that is wet will grow only water plants; and it is a remarkable fact that these water plants seem to have very little water in them. A Reed or Bulrush grown in water, has far less water in its structure than a nearly allied species grown on dry land. The plants which have most fluid matter in them are those grown in the driest places. The deserts of Africa abound in Euphorbias; while on the plains of Mexico the only moisture wild cattle can often obtain is from the large spiny Globe Cactuses, which they manage to cleave open with their hoofs.

A wet soil is totally unfit for plant growing. A plant standing twenty four hours in water is often irreparably injured. A Hyacinth, to be sure, will live one season in water; but all the matter which goes to make up the flower is prepared the year before, and after flowering, the bulb is exhausted and almost worthless.

A good soil for plant growing, therefore, is not one which will hold water; but one in which water will rapidly pass away.

The soil itself is composed of minute par-

ticles, through which air spaces abound. The water must be just enough to keep these particles moist, and the air in the spaces is thus kept in the condition of moist air. The roots traverse these air spaces, and it is therefore moist air which roots want, and not water.

If it were water simply which plants wanted, we should cork up the hole in the bottom of the flower-pot, and prevent the water getting away. Instead of this we try to hasten the passing of the water through as much as possible, by not only keeping the hole as clear as possible, but often by putting pieces of broken material over it.

A plant will generally be the healthiest, therefore, which wants water the oftenest. This will show that there are plenty of air spaces, and that the roots are making good use of them. If it does not often want water, it is in a bad way, and more water will make it worse.

How often to water then, will be according to how easy the water passes away. If when you pour water on earth it disappears almost instantaneously, it would be safe to water such plants every day.

And now for open air work. We often hear good men say about a piece of ground rather low, that it is wet in winter to be sure, but a few open ditches at that time to carry off the water will make all things right. But water in winter does not hurt things much. It is water in summer,—water while plants are growing, which hurts them. And the reason why land is wet in winter, is because the conditions are such that water cannot pass rapidly away, and such land is of course the same in summer. Every shower takes several days to soak away, meantime the plants suffer.

So the constant aim of the cultivator, whether of plants in pots or things in the open ground, should be to make water always pass rapidly away, and yet to have the soil of such consistence that a moist atmosphere should be always present in the air spaces existing through it.

In its relation to moisture, we might say a little about the consistence of the soil. If the

earth, for instance, were composed of all sand, there would be little moisture except in the air spaces. The particles of flint of which sand is composed are not capable of absorbing moisture, any more than we can get water to soak through a glass bottle. For moisture retaining purposes, therefore, sand is useless. But it is useful, sometimes, to add sand to clayey soils, which otherwise would lie so close that there would be no air spaces. It indeed helps to make air spaces, and has no other use.—*American Gardener's Monthly*.

A WORD TO OUR POMOLOGISTS EAST AND WEST.

Much has been said about Californian fruit compared with that of the East, and many of the varieties cultivated here and sent to the Eastern Market have been pronounced inferior in flavor to those raised in the East. The Horticultural Society should make a strong effort to induce some of the fruit growers in the East to send some collections of their fruits to be placed side by side with our Californian products at the Horticultural Exhibition. Nothing would be more gratifying and give more general satisfaction to fruit growers in particular, and the public in general, than to have an exhibition of that kind. Our Eastern Pomologists are as a class high minded and public spirited men, who would delight in forwarding a small collection, if the application was made to them in due time; and our transcontinental Railroad Companies may be induced to carry such collections free of charge, if the matter is properly laid before them.

THE CROPS.

While reports from some localities show a total failure of the crops this year, we hear from others that the yield will be above the average; it is difficult to form a correct idea of the exact condition of the fields, but we venture an opinion that the average yield will fall short of that of last year, although in

many districts the area under cultivation is larger than that of last season.

No intelligent man will dispute that many of the failures of crops must be attributed to careless and imperfect cultivation, yet we know of a few cases where the ground was well prepared and the seed sown early, and yet in spite of all this the crops have failed. But even in this case our farmers who are suffering, must shoulder a great deal of blame themselves. The more careful observer will not be satisfied alone with the fact, that his crops have been and are suffering for want of rain, which it was his good fortune to enjoy in sufficient quantity during many years past, but he will avoid a similar recurrence in the future, and he will study to ascertain what has been the immediate cause of the failure; if caused by bad management of the soil, he must improve his mode of cultivation, but if caused solely by want of moisture, he will come to the conclusion, that certain localities cannot always be depended upon for good crops, and he must in future be more careful in the selection of land for farming purposes.

Stanislaus County has been one of the heaviest Wheat producing counties in the State; reports from thence during the latter part of April were encouraging.

Santa Clara County does not produce so much Wheat as the former, but the class of Wheat it produces is much depended upon for home consumption. The flour made from Santa Clara Valley Wheat is comparatively strong, and is preferred by our bakers to all others. The prospects of the crops there, are, we believe, below the average.

From San Joaquin Valley we have very discouraging reports, the crops between the river bottom lands and the foothills of the Coast Range having completely died out.

Sonoma and Napa are good for their usual returns.

The Napa *Register* claims that Napa County, though small, is the first Wheat-growing county in the State. It admits that Sonoma County, with its 150,000 acres sown in Wheat, will produce more than the 50,000 acres de-

voted to the culture of that cereal in Napa; but it is confident that no county in the State will raise so many bushels of good Wheat to the acre. It claims that there are, in Napa County, 50,000 acres in Wheat, which will average nearly or quite twenty bushels to the acre. This gives 1,000,000 bushels of Wheat, worth at the threshing-floor, say \$1,500,000. Farmers say there never was a more promising prospect for a large crop in that county, at this time of year.

From Solano, also a very heavy Wheat-producing county, reports are discouraging; probably not more than one-third of the usual crop can be expected.

Colusa has suffered also, and will fall short.

From Monterey County the prospects are satisfactory. Of the crop prospects, the *Standard* says: "From all we can learn, after the most diligent inquiries, the prospects of a full crop in the Salinas Valley are as good, if not better than in any other part of the State. We have conversed with many gentlemen on the subject during the week, gentlemen who have been over the grain districts of the State, and from them and private letters we have received, with the information we have gained from our farmers, we can safely say that the yield in the Salinas Valley this season, will equal, if not surpass, that of any other year."

Alameda will almost come up to its usual yield, while San Mateo and Contra Costa have suffered to so great an extent that not more than one-half of the usual crops are expected.

Speaking of the crop prospect in Kern County, the *Courier*, of Bakersfield, says: "Crops here look as well as Nature can make them. We depend here entirely upon irrigation, and as far as the farming interest is concerned, we are independent of rain, and fearless of drying winds, or any other of the usual contingencies affecting the growth of crops as far as moisture is concerned. Our crops are always abundant—more so, perhaps, in dry seasons than in wet. The soil is rich, the climate warm, and water plentiful.

Failure here never enters the calculation of farmers, unless in so far as it may result from the depredations of wild cattle, a nuisance we do not propose to suffer from much longer." We believe that in a few years there will be few localities in California, where any attempt is made to raise grain, in which irrigation will not be resorted to for the purpose of securing a crop.

Placer, Calaveras, Amador, and El Dorado Counties may be counted upon for larger returns than former years have shown.

CROPS IN NEVADA COUNTY.—The *Grass Valley Union*, of April 11th, says:

We have seen several farmers from the lower and western part of the county, and they inform us that crops never looked better than they do at the present time. In Penn Valley, grain and garden productions are very forward. The grain planted in hard ground, with a harrow which scarcely scratched the surface, does not look so well. Careless, lazy planting will not make crops in any county.

All these reports show that the fields of the foothills of the Sierra Nevadas and those of the Coast Range, with the exception of San Mateo and Santa Clara, have suffered less, while our extensive central valleys, between the foothills of the Sierra Nevadas and the Coast Range, present a very discouraging aspect.

As for the fruit crops, the prospects have never been brighter, and they will make up in many localities for the deficiency in the cereals.

We concur in the opinion of the *Pacific Rural Press*, which says: "Though the season will undoubtedly be disastrous to many, and will bear especially heavily on those in the great interior valleys, who, being deeply in debt were depending on this year's crops to help them out, yet there is no doubt, from the above showing—(to say nothing of the Oregon surplus, which will be larger than ever, this year,)—that we shall have not only an abundant supply for home consumption and next year's seed, but also a small surplus for export."

BEE NOTES.

BY M. QUINBY.

When the weather is wet or cold for a few days, light colonies will need especial care to prevent starving. In favorable springs a small proportion of stocks will swarm during the blossoming of apple orchards. Many will swarm about the time when these blossoms disappear, but not generally until clover comes. Bees that do not gain in honey during the season of apple blossoms, will be quite sure to need feeding before that time. A knowledge of their natural history is quite as convenient this month as any other. The appearance of the queen-cells indicates when to expect swarms. With the movable-comb hive it is only necessary to quiet them with smoke or sugar water, when the frames can be lifted out and seen. The box hive must be inverted. The examination is more difficult and the results more uncertain, but with smoke it can be done. The queen-cells are generally found on the edge of combs, from three to twenty in number. The open end being downward, the contents are easily seen. They are sealed up when about an inch long, when, if the weather is warm, the old queen leaves with the first swarm. The advantage of being tolerably sure when the first swarm will appear, is obvious. They will be a little in advance or behind this period, in proportion as honey is plentiful or scarce. If through neglect it is uncertain whether a hive has swarmed, and none of these cells are found occupied, it is evidence that they have not. Second and third swarms, hived now, will be likely to get enough honey to winter them, unless the season is very poor. This may be done when increase of stock is more desirable than box honey. Have all hives clean and somewhat rough inside. Swarms should be hived immediately after clustering. Get all in, if possible; stir them gently, or sprinkle with water, if obstinate; set them on the stand at once; raise the front, and protect

from the sun. I much prefer artificial swarming, being careful to do it only when the bees are getting honey and seem prosperous.

Any time before the 25th of May, in this latitude, the box hive may be treated as follows, and the best results realized: The hives, frames and comb being ready, proceed to raise the hive a little and smoke just enough to keep the bees quiet; bring into a warm room, the windows all darkened but one, so that the few bees which fly will gather to the light, ready to be brushed into the hive when that is arranged; turn the hive bottom upon a table; with a long, thin knife loosen the combs from the sides; split each of the sides in several pieces with an axe, and remove three of them, leaving the combs standing upright. Very many of the bees, by this time, will creep to the top of the combs and collect in little clusters, showing no disposition to sting. The outside comb is cut off at what is now the bottom, and lifted out and laid on a flat surface, and the bees brushed back—the edges trimmed until they just fit the frame. The combs are held in frames by splints, as described in "Bee Keeping Explained." When arranged, it is put in place in the new hive. The drone comb should nearly all be rejected.

The bees on the second comb taken out may be brushed into the new hive, where they will gather on the first comb. All the combs containing brood must be placed in the same relative position that they occupied before, as the same number of bees can better protect them from the cold. When all is done, the scattered bees on the window are brushed down into the hive, which should be placed directly under it. All should be made to go among the combs.

The hive is now to be closed and carried to the stand.

The chances are that there will be room enough to hold all stores that are gathered until next month; yet, if they seem crowded, give another comb or two.

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Editorial Portfolio.

Among the many customs and practices that have had a marked influence upon our civilization, that of Fairs and Exhibitions occupies no small space. Their importance and value have always been recognized, both by individual and State, and each has given liberally to sustain them.

Fairs, out of which our more modern exhibitions sprang, have long been in existence in Europe and Asia, where in former times they were not only used for the display of all kinds of merchandise, but were also annual markets for the sale and purchase of various commodities. Although fairs as at first conducted are becoming obsolete, and the word applied in a newer and wider sense, still in some parts of Europe they retain their old character; as is the case in the Easter and Michaelmas Fairs at Leipsic, and the St. Peter and St. Paul Fair, at Nishnij-Novgorod, in Russia.

The first exhibition proper was held at Paris, in the year 1798, and although on a moderate and somewhat restricted plan, yet it served as the model upon which all of the subsequent exhibitions have been based. For a time France was the only nation that gave its attention to these displays, but finally the custom spread to England, and culminated in that most famous of all exhibitions, the "World's Fair" of 1851. Since that time there have been a number of exhibitions in various parts of the world; Dublin, New York and Paris have each in turn had a world's fair; and though they may not have assumed such magnitude or achieved such a success as the one held in London, still they had an influence which was productive of good.

It is by means of fairs and exhibitions that people of different nationalities are brought

into closer and more friendly relations, all striving for the palm of victory, bought by no blood-stained fields, or the bitter cry of widows and orphans. It is their province to humanize the people, and to elevate and ennoble the great class of producers, incorporating them into that grand army at whose head is borne the banner of progression, and where the drum is replaced by the anvil, and the *mitrailleuse* by the steam engine.

In the settlement and building up of a new country, fairs and exhibitions are an essential part of the people's work; for by them they not only see their own advancement, which stimulates them to still further exertions, but others from abroad are thus enabled to see and judge of the capabilities and products of that country. These reasons, which apply in a general way to all the world, come to us with a double force. We have here a new country, rich in all things that are essential to the building up of a great and wealthy State, and it is our duty to encourage and develop these advantages, both for ourselves, and for the good of our common country.

We have been led to make these remarks in regard to fairs and exhibitions, from the fact that the Mechanics' Institute will hold its Eighth Annual Exhibition during the month of August, in the present year. The exhibitions held under the auspices of this Institute, have always ranked high as to their character and usefulness, and it is intended that the coming one shall excel its predecessors, partaking as it will somewhat of the character of a world's fair. Besides the efforts made in our own State to encourage and invite exhibitors, the Institute has addressed circulars to Australia, China, Japan and the Sandwich Islands; believing as they do, that the entire Pacific side of the world is to be our domain, and within which we have a special field to cultivate.

In conjunction with the Institute's exhibition, the Bay District Horticultural Society of California will hold its First Annual Fair, which at the present outlook promises to be the grand feature of the exposition. We hope and trust that our Agriculturists and

Horticulturists will take hold of this matter, and make such a display as shall do credit to themselves and the State.

REMOVAL.

The office of the CALIFORNIA HORTICULTURIST has been removed to No. 514 Kearny Street, where we shall be happy at all times to see our Horticultural and Agricultural friends, who may call upon us. All communications intended for this Journal must be addressed to the above number.

BAY DISTRICT HORTICULTURAL SOCIETY
OF CALIFORNIA.

The first gathering of members of this Society, for the purpose of discussing matters pertaining to Horticulture, took place on Saturday, April 15th.

The subjects under consideration were: Which are the best Roses for pot culture? and, Which is the proper mode of treatment in order to achieve success with them? After a lengthy debate on the subject, the following varieties were agreed upon as being the best adapted for that purpose in California:

Tea Roses.—Safrano, La Sylphide, Lyonaise, Eliza Sauvage, Devoniensis, White Daily, Triomphe de Luxembourg, Vicomte de Gazes, Bougère.

Bourbon Roses.—Mrs. Bosanquet, Bourbon Queen.

China Roses.—Agrippina, Louis Philippe, Eugene Beauharnais, Semperflorens, Sanguinea, Minature Rose.

Hybrid Perpetual Roses.—Jules Margottin, Lord Raglan, General Jacquimenot (Pauline Lanzezeur), Geant de Batailles, Madame von Houtte, Baronne Prevot, Prince Noir (Black Prince), Emperor Napoleon, Louis Odier, Louis de Arc.

Noisette Roses.—Solfaterre, Marshal Niel, La Marque, Madame Hyman, Gloire de Dijon.

In the treatment of Roses under pot culture, it must be distinctly understood that forcing roses for the market is not the mode applicable to pot culture in general. In fact, the majority of roses which are forced under glass by our florists are unfit for that purpose. The discussion having been much protracted, the conclusion of the subject was unavoidably postponed until a future time.

The above list of Roses can be strongly recommended for open-ground culture.

The eighth regular meeting of the Society was held on Saturday, April 29th, for the transaction of business.

The agreement between the Mechanics' Institute and the Horticultural Society, relating to the next exhibition, was read and approved.

The following new members were elected: J. Doyle, Thos. Scott, C. Seitz and William Dose, of San Francisco, and William Meeks, of San Lorenzo.

The matter of incorporating the Society was laid over until the next regular meeting.

ACCLIMATIZING SOCIETY OF CALIFORNIA.

This Society (formerly the Ornithological and Piscatorial Acclimatizing Society of California) was incorporated last month, under the name of the "Acclimatizing Society of California," with a capital stock of \$50,000, divided into 5,000 shares of \$10 each. At a meeting held April 27th, the following named gentlemen were elected as Trustees for the ensuing three months: W. A. Newell, M. M. Estee, S. B. Clark, John K. Orr, D. J. Mills, J. B. Green, E. H. Nevill, C. A. Stivers, Penn B. Horton, Alexander Badlam, John Williamson and John C. Green. At a subsequent meeting of the Board of Trustees, held May 5th, the following officers were elected: *President*, W. A. Neil; *Vice President*, Alexander Badlam; *Secretary*, John Williamson; *Treasurer*, D. J. Mills.

The object of the Society is the importation of all the practicable varieties of choice Game Birds and Fish into this State, which

will be carefully preserved, and are specially protected by Act of Legislature for a period of four years.

All communications should be addressed to the Secretary, No. 632 Mission Street, San Francisco.

MEDICAL CONVENTION.

Our city has been graced during the first part of this month, by the presence of a number of medical gentlemen from the Eastern States, who with the aid of those resident on this coast, have been busy holding a National Convention. We are much pleased to see our State commanding attention enough to draw so many professional gentlemen within its borders; but we are of the opinion that the late Convention was more of an excursion party, than an actual working assembly. They had many important committees to report, but with a few exceptions they failed to do so. One of the most important, that of Cinchonia Plantations, we had looked forward to with expectant interest, but it did not make its appearance.

In its last hours the Convention was thrown into utter confusion by the apparition of the "Coming Woman," who, genii-like, rose up before their eyes in the dual shape of a "sister and brother." Gentlemen, a little more dignity and attention to the essential business of the profession, and less of "isms" and idle talk, would better the standing of the American National Medical Association.

"THE RURAL CAROLINIAN."

The May number of this Journal comes to us replete with good and valuable articles upon Southern Agriculture and Horticulture. It contains a fine plate of General Johnson Hagood, President of the South Carolina Agricultural and Mechanical Society.

MILK AND MEAT.—Boiled Peas greatly increase the milk of cows and the growth of pigs.

STATE AGRICULTURAL SOCIETY.

The Premium List to be awarded at the 18th Annual Fair of the California State Agricultural Society, to take place at Sacramento on the 18th of next September, is before us. We feel sure, from the preparation made, that the coming fair will redound to the credit of the Society, and also to the State. Over \$20,000 have been appropriated for premiums.

SANTA CLARA VALLEY AGRICULTURIST.

We have received number one of this new monthly paper, published at San Jose, by Brand & Holloway, and edited by S. Harris Herring. It is gotten up in a very neat form, and, judging from its contents, it promises to be a valuable addition to the agricultural literature of the State.

CATALOGUE.

We acknowledge the receipt of Hovey's Illustrated Catalogue of New Plants, for 1871; also a notice and description of a new seedling Camellia, the "Mrs. Anne Marie Hovey."

DOMINICA.

We are indebted to the Hon. Cornelius Cole for a copy of his speech on the subject of "San Domingo"—a subject upon which too much has already been said, and the sooner it is laid to its final rest, the better for all concerned.

A SUGGESTION.

We shall endeavor to comply with the request of our correspondent who writes to us under the above heading. He is evidently a lover of the Horticultural Art, and therefore we shall "in all our best obey."

INJUNCTION ON SALE OF PARK LOTS.

Since the article on the Yerba Buena Park was handed to us, and placed in type, the Park Commissioners have been enjoined by the City from selling the land advertised. The sale has therefore been postponed until June 15th, when the Commissioners state that it will be consummated. We shall see.

OUR FRUIT AND VEGETABLE MARKET.

Strawberries are plentiful, and they retail at 10 cts. per pound—cheap enough for everybody who can appreciate that delicious fruit.

Cherries have just made their appearance in quantities, although the first installment was brought in on the 1st of May. They sell readily at 50 cts. per pound, retail.

Oranges, Lemons and Limes we have in abundance.

Gooseberries have made their appearance, and sell at from 10 to 15 cents per pound.

Ripe Currants are just coming into market at 50 cents per pound.

Rhubarb is in abundance.

Apples of last year's growth are still plentiful, and can be bought for 12 cents per pound.

Of Bananas, Pineapples, Mangoes, Plantains and Tamarinds, we have a fair supply from the tropical regions.

Vegetables are plentiful. Although Cabbages, Cauliflowers and old Potatoes are going out, there is a fair supply of new Potatoes, Peas, String Beans, Broad Beans, Artichokes, Summer Squash, Cucumbers and Lettuce, etc.

We are pleased to see that both Fruit and Vegetables are superior in quality to the produce of last season.

The soil and climate of Los Angeles, for the growth of the Sugar Beet, will be fairly tested this season; the result, we may fairly anticipate, will be another Beet Sugar manufactory.

NEW AND RARE PLANTS.

According to the London *Field*, several new and promising varieties of Lilies have made their appearance during the year 1870.

Lilium Leichtlinii, having much recurved pale yellow flowers, deeply spotted with dark.

Lilium longiflorum albo-marginatum, the leaves distinctly margined with white.

Lilium tigrinum flore pleno, a double form of the Tiger Lily, with several tiers of petals overlaying each other.

Lilium purum, a remarkable hybrid obtained from a cross between *L. auratum* and *L. speciosum*, sensibly perfumed, all of which are "decided acquisitions," as the florist says.

Exochordia grandiflora, which is pictured and described by the New York *Horticulturist* is a very remarkable shrub, but little known. It grows about six feet high, is of a graceful habit, and produces its large, pure white flowers in spring. It is a native of China, and somewhat difficult to propagate.

Solanum ciliatum, a branched annual, twelve to eighteen inches high; bearing exceedingly beautiful berries of the size of a Tangerine Orange, and of an intensely pure scarlet color, overlaid by a glaucous bloom. Nothing more brilliant can well be imagined.

Gardener's Monthly.

Spirea japonica aurea variegata, is an extremely beautiful variety, one of the most popular plants in cultivation. It differs from the green-leaved plant, with which all are familiar, in its elegant leafage, being traced with golden veins, and borne on rosy-tinted stems.

Croton cornutum.—An interesting member of the large group of new Crotons introduced by Messrs. Veitch & Son. It is characterized by a peculiar extension of the midrib, which forms a horn-like process at the apex of the leaf. It is a compact growing variety, with leaves, which vary slightly in form and are richly spotted and blotched with yellow.

Gardener's Chronicle.

New Double Wistaria.—Mr. Francis Barkmann, of Jamaica Plains, Mass., received a small plant of *Wistaria* from Japan, several years since, which bloomed last summer, when it was discovered to be a new and valuable variety, with double purple flowers. The plant is perfectly hardy, resembling the old *Wistaria sinensis*, so well known as one of the most beautiful of all our climbing plants.
Rural New Yorker.

Clematis patens, John Gould Veitch.—This beautiful and evenly double-flowered variety of that well known family of climbing plants, the *Clematis*, was introduced direct from Japan by the distinguished collector and horticulturist whose name it bears. It produces its fine porcelain blue flowers in great abundance; they are four inches in diameter, and of nearly perfect form. It is like other *Clematis*, perfectly hardy.

“*Van Houtte's Flores des Serres.*”

Hydrangea stellata prolifera.—A very ornamental semi-double flowered variety of this well known, hardy, flowering shrub; colors, pink and white. It is likely to be an acquisition.
Flores des Serres.

CORRECTION.—In our notice of the “Acclimatizing Society of California,” on page 215, second column, we see that two errors have occurred, but too late for remedy: as one of the Trustees, the name of E. H. Nevill should have read *E. H. Neil*; and, in the sixth line below, it should read, for *President*, *W. A. Newell*, instead of *W. A. Neil*.

APPLES AS FOOD.—The importance of Apples as a food, says Leibig, has not hitherto been sufficiently estimated or understood. Besides contributing a large proportion of sugar, mucilage, and other nutritive compounds in the form of food, they contain such a fine combination of vegetable acids, extractive substances and aromatic principles, as to act powerfully in the capacity of refrigerents, tonics and antiseptics.

DON'T spread Manure over too much ground. It is better to raise one hundred bushels of potatoes upon half an acre than upon two acres—you save mileage in planting and digging; besides you have one and a half acres to put into clover.

Editorial Cleanings.

REARING GRAPE VINES IN POTS.—A Horticulturist in Stuttgart has devised an ingenious method of rearing grape vines in pots so as to obtain grapes with very little trouble in a room or other sheltered place. For this purpose a vigorous healthy cutting of the late growth of the wood is taken, from three to five feet in length, having at the upper end two fruit buds. The cutting is to be entirely enveloped with moss, and bound with bast, but so as to leave the extremity bearing the fruit buds uncovered. The cutting thus prepared is to be inserted spirally into a sufficiently large flower-pot, leaving the fruit buds projecting above the edge of the pot, which is then to be filled with rich hot-bed earth well moistened, and placed in the sun behind a window and kept uniformly moist. The water applied should never be cold, but rather lukewarm, so as to stimulate to the utmost the development of the young roots. When the weather is such that there is no danger from night frosts, the pot may be placed outside the window or against a sunny wall, or even inserted in the ground in order to secure a more uniform moisture and temperature. When the two fruit buds have produced branches, having bunches of grapes upon them, these shoots are to be trimmed so that two sound leaves remain over each grape shoot, in order to keep up the circulation of the sap, since without this the grapes would not develop. A single leaf would be sufficient, but two are better, for greater security. An occasional watering with a liquid manure is advisable in order to stimulate the growth of the plant, although this must be applied with care, since an excess will do more harm than good. In one instance a grape shoot treated in this way produced nine large bunches of fine grapes, although such a number would be rather more than could be conveniently supported by the plant.

POTATOES.—Wood ashes make an excellent and reliable manure for potatoes.

LOVE OF FLOWERS IN NEW YORK.—Flowers enter very largely into all the solemnities, fetes and events of New York life. The gentleman who wishes to testify his devotion to a young lady, does so daily by offerings of magnificent flowers. Statesmen, orators, opera-dancers and divines, are alike accustomed to receive these floral tributes. The bride is married beneath a magnificent floral bell; the coffin is decorated with exquisite crosses, crowns and wreaths of flowers. The Rev. Henry Ward Beecher preaches with a floral basket by his side. George Francis Train has also tributes of flowers, which he waves in the course of his denunciation of British influence and the old fogies of the Bible. On the occasion of a benefit night to a favorite actress lately, a basket of choice flowers was brought on the stage, as an offering from some of her admirers, which had to be carried by four men.

“BELGRAVIA.”

SMALL FARMS.—Small farms make near neighbors; they make good roads; they make plenty of good schools and churches; there is more money made in proportion to the labor; less labor is wanted; everything is kept neat; less wages have to be paid for help; less time is wasted; more is raised to the acre, because it is tilled better; there is no watching of hired men; the mind is not kept in a worry, a stew, a fret all the time. There is not so much fear of the drouth, of wet weather, of a frost, of small prices. There is not so much money to be paid out for agricultural implements. Our wives and children have time to read, and to improve their minds. A small horse is soon curried—and the work on a small farm is always pushed forward in season. Give us small farms for comfort, aye, and give us small farms for profit.

NEAT WALKS.—A source of much discomfort during the winter and spring months, around a large majority of farm-houses, lies in muddy and undrained walks. From the house to the road, the barn, and other out-buildings, well

kept walks should be the rule. No matter how neat fences and buildings may be, with this matter neglected, an untidy and uncomfortable aspect is presented. With many farmers we have visited, especially in the Western States, a lot of old boards of various lengths and widths are distributed along the paths in the muddy season, and these, with no attention paid to drainage, tilt and splash and bespatter disgustingly. Why is it that farmers do not take more pains with their immediate surroundings? A well raised path of gravel rolled and rounded, when the material can be had, forms the best and cheapest walk, but in all parts of the country there are various resources to remedy the evil of muddy paths, and only simple ingenuity is required to apply them.—*Journal and Farm.*

THE PRODUCT OF ONE WEED.—A person desiring to know what would be the influence of a single weed upon the agriculture of a field or garden, selected a plant of purslane, (pusley, or pursley, as called by some,) the meanest plant, and carefully counted the number of pods. It was a large sized plant from a rich spot of ground. The number of its seed-pods was 4,613. He then took fourteen of the pods—seven small ones, four mediums, and three of the largest, and counted the seed in them. The result gave an average of ninety seeds to the pod. Thus in this single plant we have the enormous number of 415,170 seeds! If these were spread over a plat of ground, and should germinate, and a man should attempt to cut them with a hoe, and should average six plants at a blow, and make thirty strokes of the hoe per minute, it would take him thirty eight hours and twenty three minutes to cut them out! Or, if these weeds were equally disseminated at the rate of four to the square foot, they would cover two and a third acres of ground! Again, allowing that only one-third of these seeds germinate, and that the product should be one-half as rich in seed as this one, yet they could produce the enormous number of 28,727,528,150 seed—enough to cover broad fields the third year from one seed! Do not these figures show

the immense importance of cutting and destroying every weed before it goes to seed? There is no doubt that many other weeds are fully as prolific as this. It has been known in the wet weather to grow and mature its seed long after it had been entirely severed from the root.

INCREASING THE FLAVOR OF FRUITS.—For a number of years past there has been a decided tendency on the part of fruit-growers, and more especially those who cultivate for market, to grow only large fruit, or rather varieties of small fruit of a large size. We are not surprised at this, from the fact, that however insipid and flavorless a strawberry may be, it will always command the highest price in the market. Hence, with the cultivator, it becomes a matter of dollars and cents. Fruit-growing for profit is his business, and it is to such, generally, a matter of indifference whether the fruit is of fine flavor or otherwise, so that it finds ready purchasers at good figures. It would be simply folly to argue against such a spirit, and as long as people are content to sacrifice the sense of taste for that of sight, we have no right to object.

But it does not follow, necessarily, that large fruit is obtained at the expense of its flavor. Every Horticulturist knows that a wet, cloudy season invariably produces greatly increased acidity in small fruits, and this is especially noticeable in the Peach and the Strawberry. The result is, of course, beyond human control. But not so in some other cases. We believe that it is in the power of a cultivator, who has not too keen an eye to profit, to command a flavor. "The method," says a first-class authority on this subject, "is to thin out severely."

The same writer assumes that if a Peach or Plum tree is allowed to mature five or six dozen of fruit where only one-half that quantity should have been permitted, the result will be a flavor of decidedly inferior quality. A case in point is cited: A favorite Plum tree in 1861 bore a light crop of fruit, all of which

was carefully preserved. The aroma of the fruit, when made into puddings and tarts, was delicious. In 1862 the crop of Plums on the same tree was so abundant as to hide the leaves. The usual quantity was preserved, but the fine aroma of those of the previous year was wanting. From all of which he insisted on the following: "By thinning you make indifferent fruit good; by crowding you make good fruit bad." We are aware that it is asking a great deal of an amateur to thin out fruit, but it will pay in the end when quality and not quantity is desired.

Farmer's Journal.

EFFECT OF PINE TREES ON THE SOIL.—A remarkable instance of the effect of pine trees on the soil in which they grow, has been published in the *Wood and Water Reports* of the north of France. A forest near Valenciennes, comprising about eighteen hundred acres of scrub and stunted oak and birch, was grubbed up in 1843, and replaced by Scotch firs (*Pinus sylvestris*). The soil composed of silicious sands mingled with a small quantity of clay, was in some places very wet; it contained two or three springs, from one of which flowed a small stream. The firs succeeded beyond expectation, and large, handsome stems now grow vigorously over the whole ground. It was in the early stages of their growth that the remarkable effect above referred to was noticed. The soil began to dry; the snipes that once frequented the place migrated to a more congenial locality: the ground became drier and drier, until the springs and the streams ceased to flow. Deep trenches were dug to lay open the sources of the springs and discover the cause of the drying up; but nothing was found except that the roots of the firs had penetrated the earth to a depth of five or six feet. Borings were then made; and six feet beneath the source of the spring, a bed of water was met with of considerable depth, from which it was inferred, the spring had formerly been fed. But in what way its level had been lowered by the action of the firs, could not be determined.

ALMOND TREES.—Col. W. W. Hollister, of Los Angeles, has set out, this season, 50,000 Almond trees. Of this valuable tree, the *Santa Barbara Press* says: "Even our own people have a very inadequate knowledge, at least many of them, as to the growth and productiveness of the Almond. In the kitchen yard of Mr. Forbush stands an Almond tree which is only thirteen years old, and measures forty inches in circumference a yard from the ground, while it casts a shadow at noonday fifteen feet across, and the tree stands now twenty feet high. Last year it bore eighty pounds, worth \$35; while this year it promises to bear eighty pounds worth \$40. Quite a valuable shade tree, is it not? Yet how few have even one growing! So we said last year of this fine tree. It is now April 1st, 1871, forty-nine inches in circumference, twenty five feet high, and full of young nuts and blossoms."

JUTE IN THE UNITED STATES.—Mr. E. H. Derby, of Boston, writes to the Commissioner of Agriculture:

"It is obvious that Jute has been successfully introduced into this country, and that it flourishes in the moist bottom lands of the Southern States. I entertain no doubt that it will grow wherever the cane grows, on the moist soils of the South, and I believe that the India plant is best suited to our requirements. I trust you will urge your correspondents to preserve and circulate the seed which they have raised, and to plant it when they plant the cotton. If the Department of Agriculture had done nothing else, it seems to me it has earned all the Government has appropriated for it by introducing and acclimating this valuable plant.

I deem it almost as great an acquisition to the country as cotton itself. It yields one of the cheapest fibres nature produces. It is raised in India, and I presume it can be raised here for less than one-half the cost of hemp, and for one-fourth the cost of cotton. It has been produced in India for one cent per pound of fibre. It is woven not only into

gunny cloth and gunny bags, but enters very largely into carpets and many kinds of tissues. In India jute has been steadily gaining upon cotton. England has imported from India of this article more than 120,000,000 pounds in a single year; and we last year imported more than 19,000,000 pounds, which cost more than \$3,000,000, and sold at the South for \$5,000,000. It is used there chiefly to envelop cotton. If we had diverted that amount of labor from cotton to jute we might have raised a much larger quantity at home, and at the same time have increased the value of our cotton crop. The jute seems to me to be a plant admirably adapted to the wants of the South. The South requires it for bale cloths, also to divert labor from cotton, and to employ the operatives during inclement seasons in the manufacture of cloth. I presume that the mechanism used in Kentucky, for spinning and weaving hemp, will be appropriate for jute."

SUFFOCATING SQUIRRELS.—Many hundreds of persons who have suffered loss by the countless numbers of squirrels which infest their lands, will appreciate the following from the *Contra Costa Gazette*:

"We are told by Dr. Carothers that he has lately been trying, with complete success, a method of destroying squirrels by suffocation, which we believe has been tried with satisfactory results in Santa Clara and some other localities. The method of procedure adopted by our informant is somewhat as follows: A liberal sprinkling of dry sulphur is spread upon a piece of old bagging of suitable size, and as much coal oil poured carefully over it as the sulphur and cloth will fairly hold without dripping. The cloth is then lighted at the mouth of a squirrel hole, and thrust in with an iron rod as far as it may be practicable, the combustion being maintained and the smoke and fumes driven downward from the mouth of the hole. After sufficient time is allowed for the combustion of the charge, the mouth of the hole is well stopped with earth, and also the mouths of any other holes

from which smoke is issuing, indicating an underground connection. The stoppage of the holes will not only retain the poisonous fumes, and make the work effective, by excluding the restorative elements of the atmosphere, but will be likely to defeat any such effort as a partially suffocated squirrel might make to escape from the death doom of a poisonous dungeon. He has not found, out of several hundred holes, a single one that has been re-opened since it was stopped with earth, after the sulphur and coal oil fumigation; and he believes it the cheapest and most certain mode of destroying squirrels that has yet been discovered."

BORING AN ARTESIAN WELL THROUGH A SALT MARSH—FRESH WATER OBTAINED!—An experiment has been successfully tried in irrigating the salt marsh and tule lands. It has been adopted on the property of Mr. John Reagan, proprietor of the California Restaurant, on Montgomery Street. The lands are situated on the Petaluma and Lakeville Creek, about four miles from Lakeville. Mr. Reagan has reclaimed four hundred acres, and wishing to irrigate a small orchard, started to bore an Artesian Well for the purpose, about nine days ago. When reaching a depth of sixty five feet, a stream of water began to flow. This was stopped by inserting a close-fitting pipe to a depth of one hundred and seventy feet, which was subsequently replaced by a perforated galvanized pipe. The earth excavated by the borer was mingled with decayed vegetable matter. When at a depth of one hundred and ninety eight feet, a stream of pure fresh water began to flow, about an inch in diameter. As Mr. Reagan wished to obtain an eight-inch stream, the workmen tried to exhaust the water by using a six-inch pump; but after four men had labored on it for a day, they were only enabled to lower the water eleven feet, and on stopping work it ran over again. The boring apparatus was applied a third time, and at the depth of two hundred feet a piece of bark was ejected from the pipe. The cost of boring has been

four dollars a foot, including the pipe, etc. This experiment will prove of great service to those who own tule lands throughout the State.—*Call.*

RAMIE PRODUCTION.—Mr. William Hall, President of the "Ramie Plantation Company of Louisiana," states that great improvements have very recently been made in the machinery for preparing the Ramie. The plant may now be cleaned on the field, the refuse being left for manure. The fibre is then dried, becoming comparatively pure, white, and silky, divested entirely of gum, and prepared for baling and for spinning. The improved machinery was, unfortunately, not perfected till late in the season, when the ramie had become harsh from a growth of eight months, the tops having been partly killed by frost. It was therefore found impossible to produce the fibre in bulk this season. With these improvements, and one laborer to clean the product of ten acres, Mr. Hall thinks one acre will yield at least two tons, making a product of twenty tons to the hand, estimated to be worth \$200 per ton.

Two joint stock companies for the planting and manufacture of Ramie have been organized in Louisiana, one with a working capital of \$45,000, the other with a capital of \$165,000.

THE GRAPE SUGAR INDUSTRY.—The manufacture of Grape Sugar has assumed large proportions. In Germany there were in 1868 sixty establishments in operation, which produced that year 22,000,000 lbs of syrup, and 8,800,000 lbs of sugar. Since that time other and more extensive factories have been established, and a large extent of territory is now being planted with potatoes for that purpose. The potato plantations are usually in sandy districts adapted to their growth. The method pursued, is nearly identical in all the refineries. The wet starch is first put into a large washtub, where, under constant stirring for an hour, it is entirely dissolved in water and diluted acid. From the washtub it is run

into vats where it can be boiled by steam; there it remains, for sugar four or five hours, for syrup two or three hours. It is then put into the neutralizing tanks to be treated with lime; and left until the sediment—chiefly composed of gypsum—has settled, this usually requires six hours. The sweet liquor thus obtained is evaporated in vacuum pans, filtered and manufactured into syrup, or is left to crystalize, in case sugar is to be made. The process does not essentially differ from that pursued in the United States, where corn starch is chiefly employed. The great increase of the wine-growing districts in America has occasioned an enlarged demand for glucose, and the manufacture of this article appears destined to assume large proportions in the United States, where corn can be obtained in an unlimited quantity,

Journal of Applied Chemistry.

THE DAISY AND ITS VARIETIES.—The Daisy, so frequently mentioned in the books and journals of England, is almost unknown in this country, while in England, it is a common and annoying weed in lawns. It here requires no small amount of care to cultivate it successfully. What is popularly known with us as the Daisy is a very different plant from the true Daisy. Our meadows—at least in the older portions of the country—are every summer white with what is in some parts called Daisy, and in others “White-weed.” This is *Leucanthemum vulgare*, and its proper name is Ox-eye Daisy. The European Daisy is *Bellis perennis*, and is quite different from our troublesome plant. The true Daisy is found all over Europe, excepting in the extreme north. In its ordinary form, it is a small white single flower, with a yellow centre. It has produced a number of varieties, the double white and pink being the best known among us. A curious form in which the head of flowers produces other flowers is known in England as “Hen and Chickens,” and in France as “Mother and Children.” Still another variety has the leaves finely veined with golden yellow, and

marked. A well-grown plant makes a very handsome appearance. The great trouble in growing the Daisy in this country is the intense heat of our summers, and it is useless to attempt its cultivation unless shade can be afforded. It is a plant which forces readily, and is always to be found in our city markets in early spring, among the numerous things that are offered for sale by suburban gardeners.

The genus *Curcuma* is known as furnishing the yellow powder called *Turmeric*, which is used as an aromatic ingredient in the preparation of curry powder, and also in various branches of Eastern cookery, as well as in medicine, and as a coloring matter and a test for alkalies. The young tubers, which are colorless, also yield a kind of arrowroot, that known as East India arrowroot being the produce entirely of species of this genus, such as *C. angustifolia*, Roxb., *C. rubescens*, Roxb., etc. In Borneo, *C. purpurescens*, Bl., is a common plant, and the older rhizomes are dug up, beaten to pieces, and washed to separate the farina from the fibre. The powder is not only used in the preparation of native dishes, but, mixed with water and perfumes, it is smeared over the faces and bare arms and necks of brides and bridegrooms when they sit in state before marriage, or receive their first visits of ceremony. Perhaps our perfumers may take a wrinkle.

HOW RAIN IS FORMED.—To understand the philosophy of this phenomenon, water being essential to the very existence of plants and animals, a few facts, derived from observation and a long train of experiments, must be remembered. Were the atmosphere everywhere, at all times, of a uniform temperature, we should never have rain, hail or snow. The water absorbed by it in evaporation from the sea and the earth's surface, would descend in an imperceptible vapor, or cease to be absorbed by the air, when it was once fully saturated. The absorbing power of the atmosphere, and consequently its ca-

pability to retain humidity, is proportionately greater in cold than in warm air. The air near the surface of the earth is warmer than it is in the region of the clouds. The higher we ascend from the earth, the colder we find the atmosphere. Hence the perpetual snow on very high mountains in the very hottest climates. Now when, from evaporation, the air is highly saturated with vapor—though it be invisible—if its temperature is suddenly reduced by cold currents descending from above, or rushing from a higher to a lower altitude, its capacity to retain moisture is diminished, clouds are formed, and the result is rain. Air condenses as it cools, and, like a sponge filled with water and compressed, pours out water which its diminished capacity can not hold. How singular, yet how simple, is this arrangement for watering the earth!

Scientific American.

OSAGE HEDGES.—The whole secret of raising a perfect Osage Hedge consists—first, in properly preparing the ground; second, in setting out none but plants well started; third, in puddling the plants, setting with a spade and tramping the dirt down as you go along; fourth, in close cultivation; fifth, in covering up well in the fall; sixth, in keeping the ground mellow the second year, and again putting straw on each side of the hedge in the fall. By observing these rules you will have a start for a fence that will be the admiration of all—and will afterwards make a fence in spite of you, and a substantial and permanent one at that—one which will not rot down, burn up, or break like wire; nor will it have to be renewed every ten years at a cost of one dollar or more per rod; but will, if kept properly trimmed, ever be a “thing of beauty,” as well as of service.

Prairie Farmer.

NEW BLACKBERRY.—The *Sable Queen* is a new Blackberry just brought to public notice. Its size, beauty and productive qualities are superior to the Lawton and Dorchester. It originated in Exeter, Massachusetts. The

Horticulturist says of it: “The flavor is excellent, pleasant, and sweet, entirely free from the acidity of the Lawton, and, as it is a very late variety, it will be a valuable market fruit.”

A TEST FOR WATER IN MILK.—It is, as is well known, a remarkably difficult matter to detect water in milk, so as to say for certain that it has been added. A test which appears likely has been devised by Dr. A. E. Davies, F. C. S. Such a test he believes, we have in the specific gravity of the serum, or liquid portion of milk, from which the caseine and fat have been removed by coagulating and straining. The gravity of this liquid he has found to be remarkably constant, ranging, in that obtained from genuine milk, from 1.026 to 1.028; and, by carefully ascertaining the specific gravity of the serum of genuine milk diluted with various quantities of water, we may obtain a standard of comparison which will enable us to say, within a few per cent., what quantity of water has been added to any sample of milk that may come under our notice.—*Chemical News.*

CENTRAL PACIFIC RAILROAD.

Passenger, Sunday Excepted	Express Train Daily	May 1st, 1871.	Express Train Daily	Passenger, Sunday Excepted
4:00 P. M.	8:00 A. M.	San Francisco	5:45 P. M.	12:30 P. M.
4:42 “	8:40 “	... Oakland ...	5:12 “	11:58 “
	7:30 “	... San Jose ...	5:40 “	
7:58 “	12:15 P. M.	... Stockton ...	1:43 “	8:35 “
9:35 P. M.	2:10 “	... Sacramento ...	11:15 A. M.	7:00 A. M.
	4:10 “	... Marysville ...	9:10 “	
	9:00 “	... Sesma ...	4:20 “	
		... Sacramento ...	11:45 “	
	2:20 “	... Colfax ...	8:45 “	
	5:25 “	... Reno ...	1:00 “	
	1:15 A. M.	... Winnemucca ...	4:05 P. M.	
	9:10 “	... Battle Mount ...	1:25 “	
	12:00 P. M.	... Elko ...	8:45 A. M.	
	4:40 P. M.	... Ogden ...	5:15 P. M.	
	6:10 A. M.			

OAKLAND BRANCH.—Leave SAN FRANCISCO, *6 50, 8 00, 9 10, 10 20 and 11 10 a. m., 12 00, 1 50, 3 00, 4 00, 5 15, 6 30, 8 30 and *11 30 p. m. (10 20, 11 10 and 3 00, to Oakland only.)

Leave BROOKLYN, *5 15, *6 30, 7 40, 8 50 and 10 00 a. m., 1 30, 2 40, 4 55, 6 10 and 10 10 p. m.

Leave OAKLAND, *5 25 *6 40, 7 50, 9 00, 10 10, 11 00 and 11 50 a. m., 1 40, 2 50, 3 50, 5 05, 6 20 and 10 20 p. m.

ALAMEDA BRANCH.—Leave SAN FRANCISCO, 7 20, 9 00 and 11 15 a. m., 1 30, 4 00, 5 30 and 7 00 p. m. (7 20, 11 15, and 5 30 to Fruit Vale only.)

Leave HAYWARDS, *4 30, 7 00 and 10 45 a. m., and 3 30 p. m.

Leave FRUIT VALE, *5 25, 7 35, 9 00 and 11 20 a. m., 1 30 *4 05 and 5 30 p. m.

* Trains do not run on Sundays.

T. H. GOODMAN,
General Passenger and Ticket Agent.

A. N. TOWNE,
General Superintendent.

THE
CALIFORNIA HORTICULTURIST
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No. 8.

THE TUBEROSE, (*POLIANTHES TUBEROSA*.)

This highly esteemed bulb is a native of the East Indies, and is universally cultivated in the Orient.

Although, doubtless, all our readers have seen the flowers of the Tuberose, which are extensively used for fine bouquets, on account of their fragrance and their pure white color, but very few of them are familiar with the plant and its proper cultivation. Since it has been introduced into our gardens, we have heard of many failures in the attempt to cultivate it and to obtain a good flower stock. We shall give such information on the subject as will secure better results in the future.

The Tuberose is a bulbous plant, which produces a number of long, narrow leaves near the surface of the ground, and sends forth a flower-stock from three to four feet high, forming at its top a spike of fifteen to twenty five single or double flowers, which come into bloom one after another. The flowers are pure white, but sometimes we find the edges of a pale rose-color.

Although the Tuberose can be cultivated successfully in the open air, the flowers produced under glass are much purer and far more fragrant. While we advise their cultivation in San Francisco under glass, in order to obtain the very best flowers, we can recommend them for outdoor cultivation in such

localities as Oakland, San José, Sacramento, and similar climates.

The first essential to success in bringing a Tuberose into flower, is a sound and well kept bulb of a matured size. It is not sufficient to keep the root in a warm temperature after planting; it should have been kept in a warm storeroom during the winter, and before being planted. If the bulb is permitted to lie in a cold, damp place during winter, the flower-germ is very apt to decay, and nothing will be produced except a number of leaves. The same result will follow if the roots are planted out too early, and lie in the ground for a long time before any signs of vegetation appear. A good flowering bulb should show a green heart, and if such a bulb is planted in a greenhouse or in the open air, after the season is well advanced, the leaves will make their appearance in about a month, and the flowers in about two or three months after that time. While in a growing state they should receive a good supply of water, which should be, if possible, of a moderate temperature. A sub-tropical atmosphere is the best and safest.

After the Tuberose bulb has done flowering, it will not flower again, and is therefore of no more use except to obtain offsets from; these are formed on the old bulb, and can be taken off, in the fall of the year, kept in a dry and moderately warm place during winter, and planted out in nursery-rows in the following spring; during the coming summer

many of these offsets will grow large enough to make flowering bulbs for the following year.

The ground around the Tuberoses should be well cultivated, frequently hoed, and kept entirely clear of weeds.

The bulb should be planted four inches deep, at least, in a well prepared and well manured soil.

The Tuberose can be forced at almost any time of the year, and a succession of flowers may be obtained in this way throughout the whole year.

When we take into consideration how much the flowers of the Tuberose are appreciated by the public, we would advise our florists to plant them consecutively, so that flowers may be obtained continuously.

The bulbs which are for sale here are imported annually, and as no one has yet undertaken to raise them on this coast, we must advise all who are in want of good flowering bulbs, to purchase imported ones in preference to all others. The only reason why bulbs should not be raised and cultivated here, is, that they can be imported cheaper than they can be raised.

EUCALYPTUS GLOBULUS (BLUE GUM.)

[From the German.]

This remarkable tree has lately attracted the attention of Botanists, Landscape Gardeners, and also of Medical men, Shipbuilders, Architects, etc., and promises to be of great importance. A native of Australia, the *Eucalyptus globulus* is now extensively cultivated throughout Europe. In its native country this tree grows from sixty to one hundred meters (199 to 328 feet), and in its other dimensions compares favorably with the Big Trees of California. The trees grow very rapidly, sometimes four meters (13 feet) within one year. Yet its wood is so durable and hard, that it is advantageously used in Australia for house and ship building, and is equal to the well known Teak-wood.

The blossoms and also the capsules, which are as hard as the capsules of the acorn,

(much harder, according to our experience—Ed.), contain an ætheric oil. The bark also contains a small percentage of this oil, and is spotted like that of the Platana.

The oil contains very remarkable qualities, which make it equal if not superior to that of turpentine. It does not undergo oxydation as quickly as the former. If taken as medicine, it is worked off through the lungs, and is therefore used very effectively in cases where the breathing organs are affected.

In Spain the oil already appears in commerce, and has been well known in that country for some time. It is used there as a preventive as well as a cure for fever. Its application for this purpose is rational, as the oil of the *Eucalyptus* is a powerful stimulant; its effect is similar to that of alcohol and the well known pepper.

A peculiarity of this tree is, that the leaves are broad during the first three years, but assume after that the appearance of those of some Willows. In Europe great efforts have been made to acclimatize this beautiful tree, and in the southern part of France the experiments have been very successful. The *Eucalyptus globulus* can be seen in Paris, and although under protection now, it is believed that the tree will thrive there in the open ground in sheltered places.

In Nizza the *Eucalyptus* has been planted for shade trees along the principal promenades, and the people also make use of the tree for medical purposes. For persons whose lungs are affected, the powder of the blossoms is very good and effective. A patient who had taken four grammes daily, felt much improved after a very few days; the expectoration was easy and copious.

In Central Europe and in the same latitude of America, this beautiful tree with its bluish-green color would make a very desirable ornamental tree, and on account of its rapid growth it is preferable to many others.

Although an immense tree its seeds are very small, and must be planted in pots or boxes under glass. The young trees are protected in cold houses during winter, and the following spring, when they have attained a

height of several feet, they are planted in the open ground. In the coming autumn they will have attained a height of eight to nine feet, and they have a very good effect as single specimens on the lawn.

The tree does well in any ordinary soil, but thrives best in a deep, light loam. For the South of Europe and the North of Africa it will become a tree of great practical value and importance in the course of a few years. In Toulon this *Eucalyptus* is cultivated in order to cover the rocky hills which surround the city. The young trees have been planted four feet apart, so that they may protect each other against the high winds. From Nizza to Marseille, and also in Algèze thousands of the *Eucalyptus globulus* have now their existence. They are also cultivated in the gardens of the Viceroy of Ægypt, where a much faster growth has been obtained by scoring the bark perpendicularly. This method has the effect of removing all obstacles to the rapid increase of the body of the tree.

OUR CALIFORNIA BULBS.

California is rich in many kinds of bulbous roots, some of which deserve to be placed in the highest rank with those from other countries.

Early in spring the different varieties of *Brodicæa* make their appearance, and some of them should have a place in every collection. The first one in bloom is the *Brodicæa congesta*, of a purplish-blue color; next comes the *Brodicæa coccinea*, a very worthy plant, and the *Brod. grandiflora*, the flowers of which are of a beautiful fine blue, resembling in color and size of flowers the well-known *Agapanthus*. All of these are easily removed, and well adapted for forcing under glass.

Another beautiful family is the *Cyclobothra*, of which we have several colors and varieties—the white, the yellow and the light purple. These grow about two feet high.

The *Calochortus* is now in bloom, and the flowers are certainly beautiful gems; some of

them yellow, with dark blotches towards the centre, while others are of a white, marked with dark blotches.

The *Seubertias* are also favorites with us and growing something like the *Brodicæa*, resembling their flowers, also, to some extent.

We have the *Fritillarias*, the *Lilies*, and many other bulbous roots, hardly recognized as yet by our California florists, but we are in hopes that very soon the cultivation of California bulbs will be taken up by our amateurs as well as by our practical gardeners.

We shall endeavor to give a description of the different varieties of bulbous roots as we may be able to obtain fair specimens of the flowers.

ORCHID CULTURE.

The June number of the ever welcome *Gardener's Monthly* has a beautifully executed frontispiece, representing the *Dendrobium nobile*, of the Orchid family. This class of plants is very little known in California as yet, and as no one denies the peculiar attractions these plants offer, we copy the following from said Magazine:—

“The *Dendrobium nobile*, we may say, for the information of those not well learned in the higher branches of Horticulture, belongs to the *Orchid* or Air-plant family. This species is a native of the East Indies; but orchids are found in all regions from the arctics to the equator. There is, however, a great difference in their habits in different temperatures; for though in the tropics they are mostly “air” plants, as we get further north the number of those which live in the earth greatly increases. Those which grow on trees or stumps are called *Epiphytal* orchids, and those are *Terrestrial* which live in the ground. Those which live on trees, simply attach themselves by long, worm-like roots, and probably derive but little support from the dead matter among which the roots run. They live chiefly on the air and moisture, of which this half-dead matter about old bark affords a pretty regular supply.

The Epiphytal orchiaeda do not extend far into the United States. There are two found in Florida—*Epidendrum conopseum* and *E. venustum*. In our northern States the handsomest orchids are the Moccason flowers, (*Cypripedium*,) but these are becoming very scarce. Indeed orchids are seldom very plentiful anywhere, as the flower is so constructed that it cannot fertilize itself, but is dependent wholly on external aid. It is to Mr. Charles Darwin we owe this knowledge. His work “*on the fertilization of orchids*” will probably be one by which he will be remembered longest. It completely reversed old opinions. It was thought most plants had arrangements especially adapted to self-fertilization. Writers on the *Fuchsia*, for instance, were sure to tell us that the flower was made pendulous especially that the pollen might easily drop on the stigma; but now it is universally conceded that plants in general avoid self-fertilization, and in some cases, as this of orchidaea, it is impossible to be fertilized at all without insect aid, which carries the pollen from one flower to another. Mr. Darwin’s theory of the “origin of species” may not ultimately be accepted, but this on the fertilization of orchids will always mark a great historic phase in Botany and Horticulture.

Orchids are peculiarly interesting to the plant cultivator, from the fact that almost all of them are delightfully fragrant, while most of them have particularly handsome flowers. These flowers seem to delight in simulating the forms of the insects which aid in fertilizing them. Some are like bees, others moths and butterflies, and some like birds. The Dove plant of Panama is so called from the resemblance of the flower to this bird; and “Flower of the Holy Ghost” follows from this in the natural habit of Spanish-America to associate such resemblances with their spiritual ideas.

Their peculiar service in the economy of nature from a human standpoint is not clear. With the exception of the *Vanilla Bean*, which is the seed vessel of an orchid called *Vanilla planifolia*, they are of no immediate service to

the wants of mankind, as we usually understand them; but if we believe that human wants are not limited to food and medicine and raiment, but that the mind was destined to crave for the lovely and the beautiful, as the “hart panteth after the living waters,” surely these wonderful flowers are amongst the choicest necessities of life.

As for their cultivation, it is not near as difficult as it was once supposed to be; though to be sure, if one wishes to excel in their culture, the highest skill is requisite. Thousands, for instance, could grow the *Dendrobium nobile* we have figured; but not one in ten thousand could grow it as a Newett or a Taplin has done.

In former times the orchid house was a very expensive affair. A thousand dollars was but a drop in the bucket. Hot-water, tanks, peculiarly constructed glass, and, we know not what, were thought to be essentials. In such places orchids were “coddled;” but now it is enough to hang them from the rafter of any well constructed greenhouse; and if the plants in winter do not get a temperature lower than fifty-five, they will for the most part grow and do well.

POPULAR BOTANY.

CHAPTER VIII.

In this chapter we shall continue the consideration of the leaves, their mode of development, and the relation which they bear to the rest of the plant. We have before said that a part of systematic Botany is founded upon the form of the leaves; which form, we now state, is dependent upon the arrangement of the veins (woody fiber) and the amount of cellular tissue which the leaves contain.

Leaves are divided into simple and compound. In the former, there are no articulations but the one at their insertion into the stem, or they are composed of but one piece, which may be entire or divided into numerous forms. The latter, on the other hand, have a

number of articulations besides those at their points of insertion into the stem, or at times we find them to be made up of several leaflets each of which are attached to the stem by a separate petiole or leaf-stalk. During their first period of growth, all leaves are simple, and it is only in the after development that they assume the various divisions.

If the cellular part of a leaf is developed in a regular manner, on both sides of the mid-rib, (which it will be remembered is only the prolongation of the petiole through the center of the leaf,) it is said to be *equal*, while if it is not so developed, having more upon one side than on the other, it is termed *unequal* or *oblique*.

A leaf to be *entire* must have its margin even and without divisions; while if the cellular tissues project beyond the margin, the leaf is *not entire*. If these projections are irregular and more or less pointed, the leaf is then said to be *dentate* or toothed; when the points are so arranged as to present somewhat the appearance of saw-teeth, the leaf is called *serrated*, and when they are rounded, the leaf is termed *crenate*.

All these terms have reference to the margin of leaves only, and therefore another class are used when the divisions extend beyond the margins into the blade of the leaf. As when the leaf is cut in an irregular manner, deep into its blade, it is said to be *incised*, but when these divisions bear somewhat of a regular character the leaf is said to be *lobed*; thus we have two-lobed, three-lobed, five-lobed, etc., to express into how many parts the leaf is cut. When the incision extends to the center of the leaf, or even deeper, it is then said to be *cleft*; and we express the divisions in the same manner as we did in the case of the lobes, two-cleft, three-cleft, etc. When the segments extend very near to the base of the leaf, or to the mid-rib, it is said to be *parted*; and if they reach the base or rib, the leaf is then termed *divided*. To designate this form we have the terms two-parted, three-parted, etc., as in the previous cases.

When we come to examine the division of

leaves, we find that it depends somewhat upon the arrangement of the primary veins; the divisions and lobes of a feather-veined leaf being unlike those of a radiated one. In the former the divisions pass towards the mid-rib, and in the latter they are (at least the main ones) directed to the base of the leaf. By uniting the terms applicable to the divisions with those used to designate the venation, botanists are enabled to describe in a concise manner the form and character of a leaf.

Leaves that are feather-veined, (*pinnately-veined*,) that is, having a well marked mid-rib which runs directly through the center of the leaf-blade, from the petiole to its apex, with lateral veins passing from the petiole to the margin—when divided by fissures or sinuses reaching half way to the mid-rib, are called *pinnately-cleft*, or *pinnatifid*; when the fissures almost reach the mid-rib, they are said to be *pinnately-parted*, and when they extend to the mid-rib, they are termed *pinnately-divided*. A pinnately-parted leaf having regular and numerous divisions is said to be *pectinate*, from its resemblance to the teeth of a comb; feather-veined leaves more or less pinnated, with the lobes lessening in size at the base, are called *lyrate*, or lyre-shaped, while a lyrate leaf with sharp lobes which point towards the base is called *runcinate*.

Palmately-veined or radiated leaves, are those having radiating venation, and the several fissures or divisions being united by an expansion of cellular tissue, giving them somewhat the appearance of the palm of the hand. When these leaves are divided by fissures, clefts, etc., they are said to be *palmately-cleft*, *palmately-parted*, and so on, as in the cases before mentioned.

Leaves are said to be *orbicular* (from *orbis*, a circle) when the stalk occupies the center, and the veins spread on all sides of it at right angles, being united by the cellular tissue; if, however, the stalk or petiole is not in the center, but to one side, the leaf is called *peltate*, (from *pelta*, a buckler.) The leaf of the Castor Oil Plant is an example. A *linear* or *acicular* leaf is one where the veins do not

spread out, but pass at once from the base of the leaf to its apex, having but a narrow connecting strip of cellular tissue; the Pines and Firs belong to this class. If the veins are so disposed that those in the middle are the largest, and those at the base and apex are shortened as they approach their respective ends, the leaf is then termed *lanceolate*, (*lancea*, a spear.)

An acute leaf is one that ends in an acute angle, but when the apex terminates in an obtuse angle, or is rounded, it is called *obtuse*; and an obtuse leaf, when the apex is slightly indented in the middle, is termed *retuse*, and if more strongly cut, *emarginate*. An obovate leaf having a pointed notch at its apex, is called *obcordate*. If the apex is cut by a straight line, it is then said to be *truncate*; but if it terminates by a small projecting point, it is *mucronate*.

The following terms are employed in Descriptive Botany chiefly to denote the modifications of surface of leaves; they are, however, applicable to the surface of any other organs:—*Glabrous*, smooth, denoting the absence of all hairs or bristles; *Pubescent*, covered with soft hairs or down; *Rough*, with hard, short even points; *Pilose*, with short, weak thin hairs; *Hoary*, white, with very short dense hairs; *Villose*, with long thin hairs; *Woolly*, with long dense matted hairs; *Tomentose*, with dense, short and rather rigid hairs; *Rugose*, the tissues between the reticulated veins being convex from its superabundance; *Punctate*, dotted with pellucid glands.

THE ROSE.—The oldest Rose bush is said to be one which is trained upon one of the sides of the Cathedral of Hildesheim, in Germany. Its age is unknown, but documents exist proving that a Bishop Hezilo, near one thousand years ago, protected it by a stone roof, which is still extant. The largest Rose bush is a white *Banksia*, in the Marine Garden at London, which was sent there, the first of its kind, in 1813, by Bonpland. Its numerous branches, some of which measure eighteen inches in circumference, cover an immense wall to a width of nearly sixty feet, and, at times, in early spring, as many as fifty thousand flowers have been counted on this queen of Roses.

ORNAMENTAL AND LANDSCAPE GARDENING.

SECTION VIII.

In our former numbers we have offered our ideas on the manner in which a garden should be formed, which we have elected to call a fourth-rate—i.e., of small dimensions, and connected with a city residence, where ground is valuable, and where building lots are of small area.

In laying out and fitting up around a country residence for similar purposes, many new ideas would suggest themselves, and many new features would naturally be introduced. The objects in making a home in the country, instead of in a large city, are manifold. One prefers the country on account of its purer air; another for the rural scenery; another that he may raise his own vegetables or his own fruits there. Many, however, seek the country because they desire more room, and don't like to be crowded into a small city lot.

If the principal object in selecting a country residence is pure and fresh air, and the principal consideration is health, the operations recommended for a city residence of the fourth class would not need much modification for a residence of a similar class, excepting that, as the garden would very likely be larger, it would admit the planting of a larger number of ornamental trees. The preparation of the soil, the selecting of plants, and the general management of beds, walks and borders, would be nearly the same. If the place be exposed, it may necessitate the planting of screens, or the grouping of ornamental trees in such a manner as to protect the ground which is intended for the more delicate flowers, or which may be frequented by the inmates of the house.

The ground occupied being more extensive, the walks should be wider, say from six to eight feet.

The trees best adapted for screens, and at the same time which make a good appearance as ornamental trees, are *Cupressus macrocarpa* (Monterey Cypress), *Pinus insignis*,

Libocedrus decurrens, *Thuja gigantea*, *Ficus*, *Eucalyptus* (this should be cut back when young, so as to throw out more lateral shoots near the ground), *Acacia lophantha*, *A. armata*, *A. linearis*, *A. mollissima*, all of which are evergreen, and some of them produce good flowers.

The deciduous trees adapted for the same purpose, and equally as good for ornament, are: Locust, Ash, Maple, Oak, Black Walnut, Elm and California Buckeye, Laburnum, Chestnut, Catalpa, Ailanthus and others.

But in selecting a home in some rural district, there are generally other considerations, such as the raising of vegetables for home use, the planting of a small Orchard which shall furnish the table with fresh fruit, and a small assortment of Vines, which may help to make up a variety. These features may be introduced as extensively as the ground occupied will permit. It is hardly necessary for us to say that the Vegetable Garden and Orchard should be situated in the back-ground, so that the flowers and ornamental trees and shrubs may occupy the front garden; unless the ground is very extensive, when the Vegetable Garden may be located on one side and a small Vineyard on the other, while the centre should be devoted to flowers, shrubs and trees, and the back-ground to the Orchard. In this case, however, we should advise a separation of the kitchen garden and vineyard from the ornamental grounds. This may be effected by the grouping of shrubs and trees, in such a way as not to remove the impression that all is one.

An arrangement of this kind would not be admissible on the grounds of a first-class residence, and our readers must bear in mind that we are now confining ourselves to a rural residence where a limited amount of capital is employed to furnish those necessaries of life and that comfort which cannot be had in a large city for the same amount of money, and where the productions of the soil will fully compensate for the loss of time in traveling a greater distance to the place of business.

If, in the fitting up of a country residence, no other considerations exist than pure air and variety of scenery, the locality should be selected in accordance with this desire; but where it is expected that the soil should furnish variety for the table, a sheltered and warm situation must be obtained. Fruits and vegetables of good quality require a certain amount of warmth, which the climate of San Francisco does not afford; although we admit that some few varieties of vegetables are grown to perfection in its immediate vicinity.

BAY DISTRICT HORTICULTURAL SOCIETY OF CALIFORNIA.

The ninth regular meeting of this Society was held at the rooms of the Academy of Sciences, No. 622 Clay street, on Saturday, May 27th.

After the transaction of the regular business, Mr. G. M. Miller was proposed as a new candidate for regular membership.

It was resolved to hold a special meeting on the second Saturday of June, for the purpose of incorporating the Society.

The seed of the Juniper growing near Mount Diablo was offered gratuitously to members of the Society, by the President, Professor H. N. Bolander. The same gentleman made an interesting statement based upon personal observations, in regard to the cones of the *Pinus Coulteri*. Heretofore it was generally believed that the cones of this pine never opened; however, Mr. Bolander now finds that they open in the third year, and discharge their seeds.

LECTURES ON THE CONIFERÆ.

At this meeting Mr. Bolander completed his remarks upon the Coniferæ of California, and commenced with the *Juniperus occidentalis*, which is found growing in the northern part of this State. This tree is most beautiful in appearance, attaining a height of 25 to 40 feet, is seven feet in diameter, and tapers very rapidly. It thrives well in the higher

mountains, stands mostly isolated and scattered, and deserves extensive cultivation.

The *Juniperus* which grows near Mount Diablo is without a name as yet. It does not exceed 15 to 20 feet in height, its foliage is of a light green color, and it combines every quality to make it a valuable ornamental shrub for our gardens.

The *Juniperus pachyphloea* is found in the southern part of the State. It is a large spreading tree, of fine appearance, with a very glaucous foliage. It is well worthy of cultivation.

The *Juniperus communis* grows extensively in Oregon and in the extreme northern parts of this State. It is a low, spreading shrub, and of very little use.

The *Cupressus macrocarpa* (Monterey Cypress) is found in Monterey county exclusively, and it is there confined to the locality called "Cypress Point." The tree is spreading, its branches overhanging each other, and forming a dense mass. It grows fifty feet in height. This *Cupressus macrocarpa* is so well known here, and so extensively cultivated, that it is unnecessary to give a full description. It is one of the easiest cultivated, and is in many respects a deserving tree.

The *Cupressus Goveniana* is found in Monterey and San Diego, it growing from five to ten feet high. Small trees, of from six to seven inches in height have been found cone-bearing.

Another *Cupressus*, which is found near Mendocino, is as yet undetermined.

Also the *Cupressus* growing near Clear Lake, is in want of a name and full description.

Mr. Bolander now proceeded to describe the—

Torreya Californica, (Nutmeg,) which is found near Ukiah and in Marin County, [also near Napa—Ed.] The foliage is very large and of a shining dark green color. The berries, are as large as a pigeon's egg, and are enclosed in a husk. The nut resembles the well known Nutmeg.

The *Taxus brevifolia* (Yew) is a beautiful

evergreen, growing near the Coast Range and on the Sierras two thousand feet above the level of the sea. This graceful tree, with its light, vivid green foliage and its drooping branches, grows to the height of thirty feet. The berries containing the seeds are, when ripe, of a red color. It is a tree worthy of very extensive cultivation.

Ephedra antisiphilitica is a new species, resembling the well known *Cytisus*; it is a spindling growing shrub of from five to ten feet high, and found principally near San Diego and Mono Lake.

This concluded the remarks of Professor Bolander upon the *Coniferae* of California. He enumerated in all thirty-four different and distinct trees.

The speaker announced his intention of describing the Oaks and other deciduous trees of California at our next meeting.

WORK FOR JULY.

The Grain Fields keep the farmer hard at work, and little can be done for Horticulture except where it is made a specialty.

Wherever irrigation is available, water should be made use of during the coming month. For young Orchards and Vineyards, if mulched, one or two good waterings are quite sufficient to insure success. Where mulching has not been adopted, a good watering once a-month will meet all requirements. In case of very rapid growth, it will be advisable to score the bark lengthwise so as to allow the trunk of the tree to expand. This treatment is said to be very beneficial for Cherry, Peach and Plum trees.

In small Orchards, where the principal object is the production of large and well-developed fruit rather than quantity, the trees must not be permitted to be overloaded, and the time is well employed in picking off and thinning out the young fruit, wherever they would overtask the strength of the tree. The same rule applies to Grapes, when quality is considered of more importance than quantity.

The fruit crop of this year will be larger than ever before. The strawberry season has been very satisfactory; prices were low, but the quantity made up for it. They are now on the decline. Cherries are now in full season, and retail at from 15 to 50 cents per pound. Gooseberries and Currants are becoming plentiful, and the latter are very fine. Apricots have made their appearance, but so far nothing but inferior fruit has been offered.

In the Kitchen Garden, continual watering and frequent hoeing are the best stimulants to good growth. Late Peas might be sowed now, and Cucumbers for pickles can be planted yet. Keep everything free from weeds. The flower garden affords much enjoyment at the present time, and although the Roses have ceased to be the leading feature, they still add much to the brilliant display of the Carnations and other Pinks; though the Pansies are less attractive during the warm weather, they yet form a beautiful contrast to the Lobelia and Nemophila. The Verbenas are in their glory, and the Petunias and Pelargoniums add much to the attractions of the flower garden.

In the latter part of July, layers and cuttings may be made of the different varieties of Pinks.

Cineraria Seed should be gathered as they are going out of blossom, and the best varieties should be selected for that purpose.

Annuals require particular care yet; frequent watering and hoeing is necessary to insure success. The watering is better done with the watering-pot, as the hose is apt to injure or destroy the young plants by its forceful stream.

During the coming month the propagating of plants is the principal work for Florists in the East and Europe. Here we do not confine ourselves so much to any particular time, yet this and the coming month is a good time to propagate many green-house plants by cuttings, and all soft-wooded plants, such as Geraniums, Pelargoniums, Fuchsias, Heliotropes, Petunias, etc., will be ready for market next winter and spring. The month of

July is also favorable for the propagation of Pinks, by layers or slips.

Graperies must be watched very closely to keep them free from insects, and the berries should be thinned out in order to obtain well-developed fruit and well-formed bunches.

To keep a lawn in good condition, it should be mown at least once a-month; and if it can be done twice, it will be so much the better. The walks leading through the Ornamental Grounds should be kept clean and free from weeds.

GORSE (FURZE) AS FOOD FOR STOCK.

The *Ulex Europæa*;—European Furze, Whin, or Gorse—is a branchy, spinous shrub, evergreen, with yellow flowers; it grows freely in any dry soil, and is readily propagated by seeds, or by cuttings planted in sand. There are several varieties, as the—*Ulex Europæa*, of England and Scotland; *U. Nana*, Britain and France; *U. Provincialis*, Provence, France; and *U. Stricta*, Ireland. The latter sometimes grows to the height of ten feet; it is easily propagated by cuttings; is spineless; the branches are soft and succulent; sheep and cattle are very fond of it. We believe this shrub would be found very useful for fodder if planted in any rough, coarse, dry spot on a farm. It is useful for hedges as well as for fodder for cattle. We subjoin a few extracts from the *North British Agriculturist*, hoping they may be found worthy of attention.

“For several years Gorse has been cultivated to a considerable extent by many persons in Ireland, and its use as green food for horses and cattle, and as a substitute for Hay during winter and spring—not ‘during the summer and autumn,’ as stated in your reply—is steadily extending in that part of the kingdom. It is just possible that some of your readers may not think the more highly of the practice because it is followed in Ireland—like the men of old, who thought that no good thing could come out of Galilee. But when Gorse is cultivated in

Ireland, it is not by the ordinary class of farmers. It is chiefly found on farms where there is nothing to be ashamed of in the shape of management; and I know that some who grow it in Ireland, and prize it highly, are Scotchmen and Englishmen. I have also seen Gorse grown in England for the same purpose, with much satisfaction to those who cultivate it.

The description of stock which thrive best upon Gorse are horses, milch cows, and young stock. When given to horses no Hay need be used, unless a little put in the rack the last thing at night. In fact, horses accustomed to Gorse, and getting it regularly during the winter as the chief part of their food, do not care much for Hay. It is well known that Carrots give horses a nice coat, but even Carrots do not surpass Gorse in this respect. I know that some do not give their horses as much Oats when feeding on Gorse as when fed on Hay, but I consider it more advisable that farm horses should get their regular allowance of Oats when fed on Gorse.

When milch cows are fully fed on Furze or Gorse, which is the same thing, certain results follow: the cows give more milk, and it is richer in quality than that yielded by them on ordinary food. But this is not all. The winter color, and too often the winter flavor of the butter is well known as something very different from the color and flavor of butter made during summer and early autumn, when the cows are out on good pasture. Now, the butter obtained at this season from the milk of cows fed wholly on Gorse has as rich a color and flavor as if the cows were grazing on the finest old pastures. This, I need scarcely say, is a very important point.

Store cattle getting plenty of Furze during winter keep good coats of hair, and are in fresh, forward condition for the Grass. I know a gentleman who feeds cattle for the butcher regularly on Furze and what you may call half Turnips. His cattle are much liked by the butchers who kill them, and on one occasion he showed a heifer, fed as described, at a show of fat stock held in spring, and took a prize, although opposed by ex-

hibitors who had used both roots and cake freely.

What I have stated is not done on a limited scale, for I know of many instances where eighty to one hundred head of milch cows, young cattle and horses are fed on one farm, I may say, solely on Gorse—that is to say, with the exception of Oats for the horses. The Turnips are reserved for the fattening of cattle and sheep.

Gorse thrives on poor land. I have known it grown with success for years on land not worth five shillings an acre—but, of course, like everything else, it is most luxuriant on good soil. It is, however, a crop well suited for a poor soil, provided the land is dry, and made clean and fine before sowing the seed. The best manure to apply is Bone-dust, and next to that, Super-phosphate, but Bone-dust is preferable. The proper time for sowing is March or April, or even May, and the quantity of seed is from thirty five to forty pounds an imperial acre. Some sow less, but I invariably find the best crops where plenty of seed has been used. Oats are usually sown along with the Furze seed, but the Oats should be sown thin. The kind sold by seedsmen for sowing is called 'French Furze,' and it is believed to be finer than British Furze, although I confess I cannot perceive any marked difference.

The crop is ready to be cut for the first time eighteen months after the seed has been sown; that is, the crop grown from seed sown in April 1870, would be ready by November, 1871. After that it is a permanent crop, requiring only to be mown each year, and yielding every winter a large quantity of green food at a season when such food is not to be had, unless in the shape of roots. A friend of mine, now deceased, who had a large herd of valuable Short-horns, well known in the showyards, grew Furze on land worth forty shillings an imperial acre, with which he fed his cattle to a considerable extent, and his cattle had always a beautiful bloom on them in spring.

Old, self-sown Furze produces growths which may be cut off with a hook and given

to stock; but cultivated Furze is much superior, that is, when regularly cut, so that each year's crop consists of fresh shoots.

In preparing Furze for the use of stock, many persons are in the habit of putting it once or twice through a straw-cutter. This answers well enough for horses, but cows prefer it when better prepared, and the best machine for the purpose is Walsh's Bruiser, which was exhibited by Mr. J. Pringle, Victoria Street, Edinburgh, at the late show of the 'Highland and Agricultural Society.' In fact, wherever Furze is largely used, and power required, it is advisable to get Walsh's machine.

In conclusion, allow me to say, that if Furze had been a difficult crop to grow, its value would perhaps have been better appreciated. It is best known in the form of old bushes, which often occasion considerable trouble in the improvement of land, and this, too, may have led to the plant being undervalued; but I trust I have said enough to induce those who, like your correspondent, have poor land which they find difficult to turn to profitable account, to give some consideration to the subject."

Gorse Hedges.—Clean off Grass or any Weeds that may appear, loosening the soil with the hedge-spade where necessary. The plant ought to be more largely grown, for hedges and for a forage crop, than it is, for, grown on waste ground in rows, it affords both food and shelter for sheep at a season of the year when both are of the greatest value, and it is the best of our winter forage plants for milch cows.

Winter Keep.—Gorse will grow everywhere in France, except on chalk soils. It still covers large areas in Bologne and Brittany, and in the last named locality, the young shoots of the plants are frequently used as fodder for horses and cows. Where the Gorse is cut every year, and grows thickly, the scythe is the implement used to cut it.

In the case of old and detached plants, however, the shoots are best cut off with a sickle—the left hand being armed with a

leathern glove or wooden fork. The Whin, before being given to stock, should either be bruised in a trough or cut by a chaff-cutter, and then, after remaining some time in water, crushed by a wooden pestle in order to destroy the thorns. The green shoots of Gorse thus prepared make a capital fodder.

DEEP PLOUGHING.

Few persons, even among practical Agriculturists, are aware of the depth to which roots of wheat, corn, oats, etc., penetrate the earth when placed in circumstances favorable to their full development. Careful measurements have been often made, and we have before us results which would be fabulous, were they not substantiated by actual proofs of the facts. Corn roots have been found to measure six feet in length and four feet in depth; Wheat, upwards of nine feet long; tap-roots of Cotton, six feet in depth. This of itself would suggest a sufficient proof that deep plowing and thorough pulverization of the soil are essential requisites in good farming. By deep plowing we must not be understood to mean a complete upturning of the subsoil to a depth of from fourteen to twenty inches, as this would prove of itself to be injudicious. Soils of shallow depth of surface soil, especially, must not have more than a couple of inches of their subsoil brought to the surface at once. A gradual increase in depth of tillage must take place, so as to enable the texture of the upturned subsoil to become well disintegrated by the influence of exposure to air and sun. For shallow soils, a turning plow running at a depth of eight inches is sufficient; but let this be followed by a subsoil running in the same furrow that will break and loosen the subsoil to a depth of from eight to ten inches more without bringing it to the surface. This may seem to many farmers a useless waste of time and of animal power, but it is really a difficult matter to make these same parties believe that deep plowing is one of the best preventives of drought. It is nevertheless a

fact that well subsoiled land is capable of furnishing more moisture to growing plants during dry weather than that which has been plowed shallow.

Routine has killed many operations and avocations, which for a little judicious observation of natural laws, would otherwise have proved successful. We have entered an era in which progressive knowledge alone can lead the farmer to success. We use the term in contradistinction to retrogressive knowledge, which, unfortunately, seems to be the rule in agricultural pursuits. It has been said that it was lucky for a man to be born late. If this is true, he should keep his knowledge on a par with the march of progress in sciences relating to his avocation in life, or better for him to have been born in the time of his grandfather.

We cannot forbear this little digression from our subject by noticing the almost general use of antiquated plows, which, for efficiency in their work, are scarcely better than the implement described by Virgil. At a recent plowing match, out of twenty-three plows entered, eighteen were of the primitive pattern, as used by the first settlers of the country. We make all due allowance for necessity, especially in an impoverished country, but the continued use of implements constructed against all rules of traction and scientific principles is injudicious, if not suicidal. The common rooter, half shovel, twister, or whatever name is given to the old pattern plow referred to, is a more expensive implement, at a first cost of two or three dollars, than one of the late improved plows is at ten, or even fifteen.

The average depth of the work of this plow is not over *three inches*. Upon this pretense of plowing, a crop, and a good one at that, is expected to grow. The roots of the corn, when two weeks old, will reach the undisturbed subsoil; lateral roots are necessarily forced to grow in greater number than when the tap-root is enabled to penetrate the soil to a greater depth. The first drought of summer is immediately visible upon the crop. The whole root structure of the plant being

superficial, all the moisture of the soil is absorbed by a few days warm weather. The waste of tractive power in these implements is incredible. More labor is required by the animal to even stir the ground at this shallow depth than would plow it well to a depth of eight inches, by using a plow constructed upon correct principles of dynamics.

Deep plowing is necessary to lay the foundation of any crop. It is much easier for man and team to spend a few days more, during spring or winter, in plowing the land thoroughly, than to devote this extra time in performing that operation in warm weather when the crop is growing. If the useless labor of trying to break up the land after the crop is planted was spent before planting, the result would be more to the advantage of the farmer. It is time that old-fashioned ideas should be abandoned. Filial duty does not require us to take pattern after our parents in all cases. If our grandfather's plows suited him and the ideas of his period, it is evident that the present era requires a different and improved implement, as well as a better system of husbandry in general.—B.

Farmer and Gardener.

OUR HAY CROP.

It is now believed that the Hay Crop of the present season will come fully up to the average. Wherever any doubt prevails as to the maturing of the grain, the fields are mowed down for Hay. It is well for our farmers to be on the safe side, yet we like to see them working for their own interest and their neighbors' a little more faithfully. During this last month we frequently saw farmers cutting their Hay and leaving it lie scattered for days and weeks to be bleached by the sun, by which treatment the Hay loses much of its strength and value, as well as of its sweetness. Hay should not be allowed to lie scattered on the ground any longer than is necessary for drying.

Another great mistake is made in cutting Hay too early or too late. The best time to

cut Grass is shortly after flowering, when it contains the largest amount of sugar, gluten and starch, and consequently is most nutritious. If Wheat, Oats or Barley is permitted to stand too long before cutting, the Hay will weigh heavier, and something is gained by the producer in the way of weight; but the quality of such Hay is much inferior, and the farmer will deceive himself as well as those who purchase from him. We regret to see so little difference made in the price of good and inferior Hay, and we do not see why a farmer should not receive a better price for his Hay cut in time and well managed, than one who goes about the business carelessly or ignorantly.

Copeland says, in regard to the cutting of grain for Hay: "Do not leave it till fully ripe; the straw should be yellow at the bottom, but not all along the stem. Try the grain, squeeze a kernel between the thumb and finger; if the contents squeeze out in a dry and mealy condition, it is fit to cut; if quite milky, it should stand longer. Barley and Oats may be allowed to stand later than Wheat and Rye, because they ripen more slowly and are less valuable."

NORWAY OATS.

A correspondent of the *American Agriculturist* writes:—"Last spring I got of Ramsdell & Co. one bushel of Norway Oats, for which I paid seven dollars, and sowed them on three-fourths of an acre of good, black flint loam; early in April, yielded twelve bushels of poor oats—as nice a swindle as ever was got up. To which the *Agriculturist* replies:—"We never had any faith in Norway Oats; but it is evident, in this case, that there was something wrong either in the soil or season. People swindle themselves when they imagine that there is any breed of animals or variety of plants that will give great returns without food and care. All that can be claimed for the Norway Oats is, that in favorable conditions of soil and season they give a large return of a somewhat inferior product."

PERMANENT MANURE HEAPS.

The best farmers are distinguished by the careful husbandry of manure. "Gather up the fragments that nothing be lost," is their motto. These are always saving the pieces, and looking out for next year. No sooner is the last of the old compost heap spread in the spring than they begin a new one upon the field next in rotation. A large supply of muck is the foundation of their perpetual manure heap. They mix the fresh manure with this as it accumulates. If they take a load of wood to market, they bring back a load of stable manure, butchers' offal, ashes, manufacturers' waste, oyster shells, or gas lime, to increase the heap of compost. The oyster shells are easily reduced to quick-lime, upon a pile of brush, and will pay any man for carting home when he returns with an empty cart. Some farmers go to the village market with a load every week, but never think of bringing back any of the cheap refuse that is to be found there. Our thrifty friend has a keen scent for anything that will make his crops better. The spoiled meat or fish from the grocers barrels are just the thing for him. Not a horse dies but he hears of it and has a lien upon the carcase. If he is a shore farmer, he is hungry for seaweed. The dreadful storms are music to his ears, for they roll up the sea-weed in great heaps upon the shore. The village boys know him as the bone merchant. He buys every barrel he can get them to pick up, and is not at all troubled about a process for reducing them. He has better than a bone mill or a carboy of sulphuric acid in that sweltering compost heap. It glows like a furnace even in zero weather, and the bones are melted like wax, and come out in the spring thoroughly rotted, so that they all go to powder under the touch of the shovel. The slow fires of the compost heap never go out upon his farm. The advantages of this perpetual manure heap are manifold. He is making money always, when he is coming home, as well as when he is going to market. He has a ready sale for everything he can raise, for he has a large circle of customers,

all ready to barter their refuse for his well fed products. He never has an idle day from necessity. If nothing else is on hand, manure making is ready. Leaves, brush, bog-hay, salt grass, sea-weed, muck, peat, loam, all have a money value for him. He is never at loss for a few loads of good manure to put into a successive crop. His land is well fed, and he gets paying crops every time. A good many have failed this last season of paying crops, but our friend with the perpetual manure heap ploughed so deep, and got so much of the stuff worked into his soil, that his crops never found out there was a drought until it was too late to make a fuss about it. They are kept too busy to grumble. His fields grow fat, his cattle look sleek, and his poultry cackle in an emphatic, pronounced way that charms all listeners. His neighbors call him manure crazy. I wish that every one of them had his disease as bad as he.

Hearth and Home.

GUARANA.

Lately a new article has made its appearance in commerce, serving a similar purpose to tea or coffee. It is known under the name of Guarana, and although it has been used almost exclusively for its medical properties, it is now relished by many as an article of food. In Brazil the Guarana is used instead of coffee or tea.

The first information received of this article was through Spix and Martius, who traveled for some time in Brazil. There they were told that the Guarana is made out of a vine, known as *Paullinia sorbilis*. The seeds which ripen in October, are taken out of their capsules and dried in the sun; after which they are roasted over a slow fire, ground into a fine powder, mixed with a very little water or exposed to the dew, which gives sufficient moisture to work the mass into a dough. To this a few whole seeds are added, and the mass is then formed into a cylindrical or round form, and sold.

To some of the Indian tribes in Brazil, the Guarana is a necessary and highly appreciated article of food. They make also a very good drink of it, which is used very extensively, and is said to be very nutritious.

In the province of Amazonas there are three different kinds of *Paullinia*, found growing wild. Of these only the *P. sorbilis* is cultivated, and from this the Guarana of commerce is produced. The *P. sorbilis* grows from twenty to thirty feet in height, and is propagated from seed or from cuttings. In the third year the vine begins to bear. It is pruned in the same way as our Grape Vines. The fruit is ripe in November, and each vine bears about eight pounds of seed.

The annual production of Guarana is about six millions of pounds.

RAMIE AS A FORAGE CROP.

A correspondent of the *Rural Carolinian* says:—

“This is the third year since I planted some of the Ramie seed, which I got from the Department of Agriculture at Washington. The bunches have increased from a single plant until now they cover about four feet of ground, and have from eighty to one hundred stalks each, which are now three feet high and leafy. From this I would infer that single plants, at a distance of six feet each way, would soon cover the ground, and without expense in cultivation, as mine has had little or none. The soil in which it is planted is good, and it is so vigorous that it outgrows everything else and rapidly takes possession of the locality.

I have not used it in any way except to feed my milch cow, and it is on this account I trouble you with this communication. It is eaten as rapidly as the Fescue Grass, a fine patch of which I have also, and which herds and cattle are very fond of. The Ramie seems to be preferred by the cow, and she keeps in fine condition, giving a quantity of rich milk. It may be that in time, after

long use, its effects will be otherwise than at present indicated; but if it continues to be as good food as I now think it is, we shall have in this plant an article for stock-feeding which the South has been needing for many years, and has not as yet discovered.

The growth is very rapid after cutting; and its strong hold on the soil, and tendency to spread, with its suitability to a warm climate, make it just what we need; and if it should not prove profitable for its fiber for want of cheap machinery to prepare it for market, it will certainly pay well for grazing purposes.”
J. A. D.

Taking for granted that the above notes are correct, we should judge that no better forage plant could be found for our California dairymen and stock-raisers. The matter should receive immediate consideration and trial.—Ed.

GARLIC.

The common Garlic (*Allium sativum*) is propagated usually by offsets known technically as “cloves”—that is, the old bulbs are pulled apart and the small divisions planted in spring. They are usually planted in rows eighteen inches apart, and the sets four to six inches in the rows; plant with a dibble, or by thrusting them into the soil with the fore-finger and thumb. Give the same culture as Onions, gathering in autumn, and tie in bundles, the tops being left on for this purpose. The young bulb will throw up long stalks, and, if not checked, are very likely to run to seed, which must be prevented by breaking down the stems, or tying them in a knot, which is the practice of European gardeners. Garlics are mainly used by foreigners, especially the Germans, and by our people for medical purposes. They are extensively cultivated in the vicinity of New York City, and large quantities are sold in our markets.—*Moore's Rural New Yorker.*

A PROFITABLE CROP.—A farmer in Ohio, recently, picked four hundred bushels of Cranberries from three acres, and sold the lot for \$1,520.

CAULIFLOWER.

This fine and much appreciated vegetable is found in our markets at all times, summer and winter, spring and autumn, and it may well be said that probably no climate in the world is better adapted to the growth of the Cauliflower.

When we take into consideration how much care this vegetable requires in the East to bring it to perfection, and how extensively it is grown there in spite of all the obstacles, we wonder why it is not cultivated in every garden here.

The seed should be sown under glass, and in order to have Cauliflowers throughout the year, seed should be sown twice or thrice a year. In the East a hot-bed is necessary not only to sprout the seeds, but also to keep the plants from freezing. Here a cold frame is quite sufficient for all purposes. We would advise the first planting early in the spring, and the second about the months of July and August. The seed which is sown in February, will furnish plants in the fall and early winter; and that which is sown in July and August, will be ready for use in the following spring and early summer.

The young plants are fit for transplanting into the open ground as soon as they have formed from three to four leaves. It is better to keep the plants in a rather dry condition before transplanting, by which method very few plants will be lost. Plant in a deep, rich, light loam, if you have it; water well after transplanting and until they have established themselves in their new quarters; then water sparingly for a month or two. Plants which have been retarded in their growing by such treatment, will form good heads much more promptly and the heads will be far superior. Two or three months after transplanting into the open border, they should receive a plentiful watering, and while the heads are forming hardly too much water can be given. After the heads begin to form care should be taken not to pour water on them, as this will have a bad effect upon the Cauliflower.

While in a growing state the ground should receive a frequent hoeing. The severe heat of summer is injurious to the Cauliflower, and for this reason, to the comparatively moderate climate of the neighborhood of San Francisco, we attribute much of our success in its cultivation.

It is our practice, in order to afford the Cauliflower some protection from the intense rays of the sun, to break or cripple some two or three of the larger leaves that surround the head and to fold them across it.

In the East, Cauliflowers have to be placed under shelter during winter, while here they do equally as well during winter, in the open air, as during the summer time.

The cultivation of Cauliflowers is a very profitable business here, but although easily raised, the price in our markets is high.

We do not see why this wholesome and much relished vegetable should not be grown more extensively by all who have space for it in their gardens.

WEEDS.—It is stated in the *Philadelphia Ledger* that there are no less than 214 varieties of Weeds, which have been introduced into the United States from foreign countries, and principally from England. As a proof of the rapidity with which useless plants are accidentally brought over the seas, it is said that in 1837 there were only 137 varieties of foreign Weeds known in this country. As far back as 1672, a curious little volume, called "New England's Rarities," gave a list of 22 varieties of plants which the author considered had sprung up since the English had kept cattle in New England. The author mentions the "Plantain," which, he says, the Indians call the "Englishman's Foot," as though produced by the tread of the white settlers. The common "Yellow Toad-flax," it is stated, was originally introduced into the Province of Pennsylvania, as a garden flower, by a Mr. Ranstead, a Welshman, residing in Philadelphia, from which it has derived the name of "Ranstead's Weed." In 1758 this Weed had overrun the pastures in the inhabited part of

Pennsylvania, and was the cause of bitter complaints from the agriculturists of that day. Chickweed, it is stated, was introduced in South Carolina as food for Canary birds, and in ten years spreads for upward of fifty miles, and now occupies the outposts of civilization. The "Scotch Thistle" is said to have been brought to America by a clergyman, who carried with him a bed stuffed with thistle-down, in which some seed remained. Feathers being cheap in the new country, were substituted for the down, which was emptied out, and the seed springing up, soon filled the country with Thistles.

THE SCOTCH THISTLE—WHY IT IS SCOTLAND'S EMBLEM.—One time the Danes invaded Scotland, and they prepared to make a night attack on a sleeping garrison. So they crept along as still as possible until they were almost up to the spot. Just at that moment a bare-footed soldier stepped on a great Thistle, and the hurt made him utter a sharp, shrill cry of pain. The sound awoke the sleepers, and each man sprang to arms. They fought with great bravery, and the invaders were driven back with much loss. Thus the Thistle saved Scotland, and ever since it has been placed on their seal as their nation's flower.

POULTRY MANURE.—The best way is to mix Poultry Manure with twice its bulk or more of dry earth or coal ashes, turning the heap several times to mix it thoroughly. Then give it a good wetting, make it into a compact conical heap, and cover it with two or three inches of fresh earth. It will soon ferment and the manure will disappear, diffusing itself throughout the mass. This compost may be used in the hill, but should not be allowed to touch the seed, lest it cause it to rot.—*Exchange.*

AN ANTIDOTE TO POISON.—No matter what kind of poison may be taken into the stomach, it will be neutralized and rendered harmless by swallowing a half pint of Sweet Oil. Of course it should be taken immediately, or at the earliest possible period after swallowing the poison.

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Editorial Portfolio.

During the last session of Congress, a petition was presented by a number of the citizens of New Jersey and Pennsylvania, praying for the abolition of the Department of Agriculture. Such action upon the part of intelligent men (though we have serious doubts of their intelligence) is inexplicable to us, and must, we think, be equally so to the majority of people throughout the country.

The mechanical, commercial and general laboring interests of the land have had—and still do claim—their share of legislation, and why should not the farmer receive a like amount? Is he of all classes (and one of the most important) to be entirely neglected, receiving nought from a government of which he is in fact the strongest support? We hope such is not to be the case, and that instead of abolishing the Department, Congress will extend and widen its field of influence.

To show the falsity of the petition presented by the *citizens of New Jersey and Pennsylvania*, wherein they state that the Department has already cost the government over \$3,000,000 without a corresponding benefit, we have only to quote from the report of the Committee of Retrenchment, of which the Hon. Martin Welker is chairman—a committee which, be it said, held more liberal views than the memorialists and reported adversely to their petition.

The report states, that from the year 1839 (when the first appropriation was made from the Patent Office fund) to, and including the year 1870, the total amount appropriated was \$1,810,668, and for permanent improvements, such as the erection of new buildings, etc., the sum of \$194,225 has been expended since the year 1867. So much for the expenditure of “*over three millions of dollars.*” Before the *citizens* above mentioned made their state-

ment, they should have examined into the true condition of the financial part of the Department, and so they would have come much nearer the truth. Equally untrue is their statement that there had been no adequate benefit conferred upon the country at large. True, *they* may not have seen or felt the immediate good done, but every Agriculturist and Horticulturist can well testify to its great worth. It is to the latter class of citizens that the Department speaks directly, and it is for them that it more immediately works; in every sense it belongs to them, and at present it is the only share which they have in the government, if we except the *privilege* of paying their taxes.

We extract from the report the following statement to show to our readers what has been done, and let them judge of its value.

“In 1847 the number of agricultural patents granted was but 47; in 1863 it had increased to 390; in 1865 to 642; in 1866 to 1,778; and for each of the last two years it has reached nearly 2,000. These improvements are rapidly revolutionizing the agriculture of the West, and reducing to the lowest point ever attained the proportion of manual labor employed in the operations of farming, saving at least 50 per cent. of the manual labor required in agricultural pursuits.

Under its present able head the Department has distributed the last year nearly six hundred thousand packages of seed, including upward of thirty thousand sacks of winter wheat imported by the Commissioner, besides new varieties of oats and other cereals, which have been sent into every congressional district in the Union; thus affording at once a more general diffusion of new and valuable kinds of grain than would or could be done by private enterprise in many years. As the result of this distribution of seed by the Department from year to year, there are now raised hundreds of thousands of bushels of oats, incomparably superior to the old varieties, and in many instances nearly doubling the crop. And so of the increased quantity and superior quality of the wheat in many of the States. The same might be said of sev-

eral of our other products. This increase has contributed millions to the wealth of the country, and alone establishes the utility and great benefits resulting from this Department.

It is said that he who makes two blades of grass grow where but one did before, is a public benefactor. This Department has done this, and more, in many varieties of agricultural products. It has established relations with organized associations for agricultural improvements, whether governmental or otherwise, making exchanges of seeds, plants, and publications. Through an extended correspondence with foreign societies and our consuls abroad it is searching the world for new and valuable plants to acclimatize, new varieties of cereals to test, and, when found valuable, to distribute, thus finding and introducing into our agriculture the valuable products of all countries suitable and profitable for our cultivation."

To facilitate the work of the Department, it has been divided into several divisions; first of which comes *Statistics*, being in fact the publication office of the Department, from whence have been issued nearly a quarter of a million copies of annual reports, and over twenty five thousand of monthly ones. These reports are made up from data furnished by many thousands of correspondents in all parts of the country, and even from abroad. They have given us more general knowledge of the agricultural condition and resources of the United States than any other work has, or ever can. The division of *Agricultural Chemistry*, has disseminated invaluable information in regard to soils, minerals, springs, etc., and also valuable advice respecting an ever-important subject to agriculturists—that of fertilizers. The division of *Botany*, which is of a more scientific character, has still conferred vast benefits upon the people; given location, properties and the manner of growth, of a large number of plants useful both for food and medicine. The division of *Natural History*, has devoted a large share of attention to illustrating type specimens of fruits and grains; the various metamorphoses

of insect life, pointing out those of benefit to the farmer, and warning him against his enemies. The same has been done in the case of birds. The division of *Horticulture* has been instrumental in introducing plants for ornament, as well as shrubs and trees for general usefulness. It has been the constant and oft-repeated articles on arboriculture, from this Department, which has at last convinced our agriculturists of the great importance of tree cultivation; and now we see the good seed so persistently sown by it, taking root in the general tree planting that is going on all over the country.

Such is a brief outline of the Department's field of labors; who can say that they have not been productive of good? The increased area, and better modes of cultivation, speak a thousand fold in favor of its continuance. Outside of its more special work, the Department is also connected with our system of public lands—of which we still have a large amount—which it is desirable should be brought under cultivation. We are constantly striving for immigration from other countries, and yet here we have a few irresponsible persons asking for the abolition of the only governmental means of disseminating information in regard to this land, its location, value and productions. In Europe, where the land is already well occupied and brought into a high state of culture, the governments expend a vast amount annually for the spreading of agricultural and horticultural knowledge among the people. Russia alone, (a country somewhat similarly situated as our own, inasmuch as she has more land than citizens,) expends every year a larger sum for this purpose than we have done since the Department was first organized, in the year 1839. In the paroxysm of economy that seems to have taken hold of the "citizens" of these two States, we see another illustration of the old proverb, "penny-wise and pound-foolish."

The *Rural New Yorker* says the stalks of the Jerusalem Artichoke, cut when green and cured like Hay, make excellent food.

 DELAY.

We feel it our duty to apologize to our subscribers for the great delay in issuing the present number of the Magazine. This was occasioned by the impossibility of obtaining in the city the quality of paper we are accustomed to use. Notwithstanding our anxious waiting, we have been compelled to substitute a much lighter paper than we approve, none of the kind we required having arrived when we went to press. We shall endeavor to guard against such mishaps in the future.

 CORRECTION.—“ERICA.”

Number two of this Journal contained an article on the “Erica,” (page 37,) which it seems is not quite correct. It is stated there that the Erica is indigenous to the Cape of Good Hope and Australia. Such was supposed to be the case by the writer of the article, but we have received a letter from a correspondent writing from Sydney, (New South Wales,) calling our attention to the error, and pointing out wherein it may have occurred. He says: “Now, although we have the order represented by the *Wittsenia*, *Pernettya* and *Gaultheria*, yet there has not been a true *Erica* found in any of the group. Our *Eparidaceæ* which may be termed *Australian Ericas*, are pretty closely allied to the genus, and are often mistaken by new arrivals for *Ericas*.”

 THE “CALIFORNIA MAIL BAG.”

A copy of this publication, issued from the office of the *San Francisco News Letter*, has been laid upon our desk. It is to be published once a month, and is sold at the low price of 25 cents per copy. It contains a solid repast of literary food, seasoned with the *Town Crier's* wit. We noticed several articles bearing upon the agricultural interests of the State, one of which, “Vinciculture and Wine-making in California,” is exceedingly good.

 “POMOLOGIST AND GARDENER.”

The *Western Gardener* and the *Western Pomologist* have been consolidated, and the resulting Journal will bear the name of the *Pomologist and Gardener*, the proprietorship remaining in the hands of Mark Miller. From the well known character and ability of the editorial staffs of these two leading Horticultural and Pomological journals heretofore, we can safely expect that the consolidation will result in great good to the interests for which it will labor.

 THE “GILROY TELEGRAM.”

We have received the first number of this Journal, and hope friend Cipperton will have better luck in his new field of operations than he had in the old one. We always greeted the *Mayfield Enterprise* with pleasure, and hope to do the same by the *Telegram*.

 OUR TRIP TO SAN LORENZO.

Taking passage by the Alameda Ferry boat and the cars connected with that boat, we enjoyed one of the pleasantest trips which Californian enterprise and perseverance can afford to the excursionist. Passing along this line the gradual change of climate, which grows perceptibly milder, is very apparent; everywhere we saw fields covered with luxuriant vegetation, and the land in a high state of cultivation.

At Ashland Station we quitted the cars to pay a visit to Mr. Lewelling, the well-known Horticulturist, whose residence is but five minutes' walk from that station. Entering his grounds, we were surrounded by improvements, which reflect the highest credit upon the owner. We found Mr. Lewelling superintending and assisting a large force of men in packing Cherries and Currants for the San Francisco market, and through his courtesy we very soon felt perfectly at home. From the short conversation we had with him, we were enabled to gather many items of un-

usual interest, and many of his suggestions are worthy of extensive perusal. But time and space compel us to be concise on this occasion.

Mr. Lewelling has 150 acres of land under cultivation, 40 of which are planted in Currants, and the greater part of the balance is laid out as a Nursery and in extensive Orchards. His leading and most remunerative products are Cherries and Currants.

He cultivates the Cherry-currant almost exclusively, and we never have seen them in better condition. This year's crop he estimates at 150,000 pounds, which bring from 8 to 15 cents per pound.

He has 5,000 Cherry trees in bearing condition, which will yield 50,000 pounds of Cherries this year, which are sold at from 6 to 25 cents per pound.

The following are the varieties principally cultivated, and after a long experience of sixteen years, considered by him the best and most profitable.

Werder's Early Black, a Cherry of medium to large size, and very fine flavor; it is an abundant bearer.

Monstrous de Mazel, a black Cherry of very large size and firm flesh; prolific. It will crack in wet seasons, but is one of the finest Cherries for market in dry weather.

Jenny Lind, a beautiful light red Cherry of medium size, but almost too tender for market; highly flavored.

Royal Ann, so called on the Pacific coast, but in the East known as *Napoleon Bigareau*, a very large Cherry of a light red color in the shade and dark red in the sun; highly flavored and very fine for shipping.

Graffion, (or Yellow Spanish,) a large red Cherry; highly flavored and fine for market.

Early Purple Guigne, a black Cherry of medium size, highly flavored; it is a shy bearer, but sells well.

Elton, large red Cherry, fine flavored; good bearer.

Black Eagle, a medium sized Cherry of the highest flavor; bears a fair crop when the tree is of age.

Reine Hortense, a Duke Cherry of bright red color; a prolific bearer, large, and finest of the Dukes; does not thrive well in some localities.

Pontiac, dark red, almost black, firm flesh, high flavor; an abundant bearer.

Black Tartarian, large Cherry of fine quality; a prolific bearer.

Rockport Bigareau, highly colored red and amber, fine flavored; very good bearer.

Coe's Transparent, a large, finely flavored Cherry, mottled, very tender and too delicate for market.

Mr. Lewelling cultivates many other new varieties, but their merits are as yet doubtful. He intends to set out a goodly number of Cherry trees during the next planting season, and considers his grounds much better adapted for the cultivation of Cherries and Plums, than for Apples and Pears; besides the former are much more profitable to him.

Some of our readers may feel astonished when we state, that Mr. Lewelling has a very fine lot of Orange trees on the ground, some of which have now ripe Oranges of unusual size and beauty; he intends to plant a good number of them between his Apple trees, to take their place after the Orange trees have attained a good size.

We noticed an English Walnut tree full of fruit, also a Mulberry tree with some ripe fruit, and many other trees and plants, which form an unusual attraction for visitors.

The ornamental grounds contain fine specimens of the *Thuja gigantea*, *Crataegus*, *Camellias*, *Dracenas*, *Loquats*, *Pomegranates*, *Oleanders*, and many other ornamental trees and flowers.

After critically inspecting all the different varieties of Cherry trees, and fully appreciating their most delicious fruit, we proceeded to pay a visit to Mr. Meek, whose grounds are within five minutes' walk of Mr. Lewelling's. We found Mr. Meek's men busily engaged packing Currants and Cherries, but, unfortunately, Mr. Meek was absent from home, and as every one seemed to have his hands full we made our stay short, and turned to Mr. Hathaway's place, which is

also a very short walk from Mr. Meek's. We were met by our old friend, Mr. P. Ford, who introduced us to Mrs. Hathaway, who made our stay very pleasant indeed. Mrs. Hathaway loves flowers, and takes great delight in the care of them. This new place possesses all the advantages needed for landscape; and our friend Meyer, who had charge of the arranging and planting of the ornamental grounds, has displayed much taste and perseverance. Considering the late planting of trees and shrubs, everything looks very promising.

On our return we visited Mr. Cane, who has a very elegant place in the vicinity filled with highly cultivated fruit trees and vines. Mr. Cane's Currants are of extraordinary size and quality. The ornamental grounds are managed under the supervision of Mrs. Cane, who succeeds in keeping the beds literally covered with the most elegant flowers.

We were obliged to make for the cars in double quick time, and returning, we recorded the day as one of the most pleasant we had experienced in California.

HINTS TO AMATEUR GARDENERS.

Over the signature of "R. W.," we published, in our last issue, a letter containing some very important suggestions to this Magazine, and referring to the utility of certain practicable hints which we might give to our Amateur Gardeners.

To some extent we have endeavored to meet the expectations of our readers, and shall continue to do so from time to time, with pleasure.

In regard to the propagation of plants, it is next to impossible to give positive and definite rules of a general character, as the treatment in propagating differs almost as much as the plants themselves do. Our correspondent refers in particular to the propagation of Roses, Pinks, Geraniums, Daisies, Pansies, etc., for instance, and to please him, we will give a few hints in regard to these same flowering plants.

Roses are propagated in various ways, and our mode in California differs very much from that of the East or in Europe. In the fall of the year, when the wood is ripe, florists make their cuttings from Roses, three to five inches long, plant them out in regular nursery-rows close together, and 75 per cent. of them will make roots in a few months. In making Rose cuttings, care must be taken to cut below a good and sound eye with a sharp knife. In planting them, no more than one or two eyes should be allowed above the surface. Some florists bundle up the cuttings after preparing them, 100 to 300 in a bundle, keep them in moderately moist ground and plant them out in nursery-rows after a month or two, while others plunge the bundles into charcoal dust for a few weeks or months. All this we found unnecessary labor. We simply cut off the cuttings as above described, plant them out, and Nature takes care of them.

Some varieties, such as the La Marque, Cloth of Gold and Solfaterre, do not thrive so well under this treatment, and are therefore frequently budded.

In Europe it has been the practice to cut off young shoots in their growing condition, plant them in pots or boxes and place them close under glass, care being taken to shade them for a few days; but we are under the impression that the former treatment is the best and surest, and that only Tea-roses can be propagated successfully by the other treatment; in the latter case we would recommend a little bottom heat.

Many varieties are propagated by budding into the stock of the Castilian or other inferior Roses.

Pinks are also propagated by cuttings or layers; the best time to make cuttings is soon after they have passed the first flowering season. Some florists plant the cuttings under glass; we prefer the open ground culture, provided the ground can be kept moist—in a month or six weeks they will be rooted.

Geraniums may be propagated at any time in this country, but the cuttings must be placed under glass and sparingly watered; in less than thirty days they will have rooted.

Care should be taken to use the tops and ends of the branches, as they will make better plants than a long branch divided into a number of short cuttings.

All these young plants must be placed in three inch pots, and kept in the shade for a day or two; as the plants grow up the tops should be cut off so as to make them branch out and become bushy.

The Daisies are propagated by dividing the old roots in autumn after the first rains have fallen. The oftener Daisies are transplanted the better they will thrive, but unless the ground is moist, they will not do very well.

Pansies are best raised from seeds, which should be collected from the best flowers. The seed may be sown in the fall of the year, and the young plants will come into flower during the early part of spring. Unless the weather prove very cold, the seed will come up well in the open ground. Old plants should be thrown away to make room for young ones; but if there are certain varieties in a collection which it is desirable to preserve, the old root may be divided, the tops cut off, and the sections planted a little deeper than before, where they are intended to remain. The soil for Pansies should be deep loam, well manured.

OUR NEXT EXHIBITION.

Heretofore Pomologists and Florists have made strenuous efforts to exhibit as many varieties of fruits and flowers as possible, and although these efforts to do so are highly commendable, yet we would prefer seeing every one striving to excel in quality rather than in quantity.

The majority of fruit-growers and amateurs will be able to exhibit from six to twelve varieties of excellent Apples, Pears or Grapes, while an attempt to display fifty varieties, may not be so successful.

One of our horticultural friends told us, the other day, that on account of the very dry season his fruits seem to be much smaller than usual, and he did not like to exhibit

unless he could come up to the expectations of the public. We would advise him to exhibit his very best, and not fear the result. The drouth is general, and doubtless every orchard is similarly affected; we believe his fruit to be fully up to the average. Any orchard can produce a few varieties of Apples or Pears suitable for public exhibition, and if only one out of every fifty will send in a small assortment of his very best, the exhibition will be a complete success, while a few extensive collections would fill up much space, but would give an inferior average.

Let every one interested in Horticulture contribute his share, and the show will be very satisfactory to the exhibitors and to the public in general.

HEALTHY NURSERY-STOCK.

We noticed, the other day, the extensive stock of fruit-tree seedlings at M. Lewelling's grounds, in San Lorenzo, which he has imported from Messrs. Ellwanger & Barry, of Rochester, in New York. These young trees look fine, and will be ready for budding during the coming season. The lot consists chiefly of Pears, Apples and Cherries, and all of them came up to the most sanguine expectations.

BAY DISTRICT HORTICULTURAL SOCIETY.

A special meeting of this Society was held on Saturday, June 10th.

The requisite number of members being present, the motion to incorporate the Society was passed unanimously.

Trustees were elected in addition to those already serving, so as to make the new Board consist of seven; the names of which are—C. A. Stivers, M. D., E. L. Reimer, F. Luedemann, F. A. Miller, C. Schuman, R. Turnbull and F. A. Herring.

It was decided to incorporate the Society for a period of fifty years, with a capital stock of \$25,000, divided into 1,000 shares of \$25 each.

A letter was read from F. Von Mueller of the Botanical Gardens, Melbourne, in which this gentleman informed the Society, that he had sent for distribution a quantity of tree and plant seeds.

Dr. Mueller is untiring in his efforts to help the cause of Horticulture, and great credit is due him for the introduction and cultivation of many valuable plants.

NEW AND RARE PLANTS.

Our European and Eastern exchanges describe some new plants which we believe of interest to our florists and amateurs.

Achimenes nœgelioides diamantina, a charming stove perennial, producing gloxinia-like flowers, of a pleasing rosy purple color, marked down the lower side of the tube with a cord; a garden hybrid, which was raised in Van Houtte's nursery.

Callipsyche mirabilis, a new and interesting amaryllis, from Peru. It is a greenhouse bulb, and produces two oblong spatulate green leaves a foot long, and a scape three feet high, bearing an umbellate head of about thirty small, pale, greenish-yellow flowers, with stamens three times as long as the perianth, and spreading out on all sides, so that the general contour of the flower-head may be compared to that of an expanded parasol.

Deutzia grenata albo plena, a fine dwarf, hardy, deciduous shrub, valuable for forcing, flowers a pure white.

Hyacinthus candidus, so different in many respects from the ordinary Hyacinth, that some doubt has been raised as to its classification. It has a large bulb with sub-erect leaves two and a half feet long and recurved, flowerscape four feet long, with a raceme one foot long, consisting of fifteen to twenty large, drooping, funeral, bell-shaped, pure white flowers; a native of South Africa.

Rhodora canadensis, a low growing shrub, from one to three feet high, producing clusters of showy, rose-purple flowers, somewhat like an Azalea; a native of the Eastern States, but can be obtained in some of the nurseries.

Leucothoe racemosa, (clustered Leucothoe,) found north of Virginia, a shrub from four to six feet high. Its flowers are borne in racemes three or four inches long at the ends of the branches. The flowers are pure white, cylindrical and contracted at the mouth, arranged with great regularity and all turned downward. The shrub, when in bloom, is very attractive and the flowers very fragrant.

Giant crimson mignonette, mentioned in the English exchanges, is described as a very robust grower, with large spikes of handsome flowers of exquisite fragrance, and a free and perpetual bloomer.

OUR FRUIT AND VEGETABLE MARKETS.

Our Fruit and Vegetable markets now present a very pleasing appearance, and well repay a stroll through them before breakfast, the effect being most refreshing and appetizing.

The supply of Cherries is abundant, and the quality superior to those of last season, while the varieties are greater; the better sorts retailing at 25 cents per lb.

Currants are plentiful, and very fine.

Apricots are small but juicy, retailing at 12½ cents per lb.

A small supply of Cherry-plums are also in the market at 12½ cents per lb.

Of green Gooseberries there is an abundant supply and of better size than last season.

Blackberries and Raspberries (at 40 cents per lb) are just appearing.

A few new Apples, some indigestible-looking Pears, and a few Almonds, are also on sale.

There is still a supply of old Apples at \$1 per box, and we noticed some Bell-Pears of last season averaging 4 lb 6 oz. each.

Of Tropical Fruits there is a very fair exhibit. Pines and Bananas, Oranges, Limes and Lemons are plentiful, and Nuts are abundant.

Vegetables, also, are plentiful. New Potatoes, Cabbages and Cauliflowers are in full supply, and the quality good.

Peas, String-beans and Squash are abundant, and Asparagus of superior quality, in quantity to meet all demands.

Lettuce and Celery, Tomatoes, Onions, Carrots, Turnips and Beets are also in good supply; and a fair show of Sweet-corn, Egg-plant and Artichokes, with an exhibit of Capsicum and Gumbo, and sundries too numerous to mention.

Correspondence.

WASHINGTON, June 10th, 1871.

Editor Horticulturist: The warm summer is upon us, 80 to 90 degrees of temperature, with frequent refreshing showers; plenty of berries and vegetables in the market, and a very promising prospect for good crops of grass, grain and fruits. Most of our prominent officials, politicians and leisure-loungers have started off—from the President down to the messengers—to make their “summer swing round the circle” of those attractive resorts where congregate the grave, gay and gamblers, as at Long Branch, Saratoga, and other places. Yet base-ball matches, regatta sports, and picnic excursions keep Washington pretty lively, although the arena sports of Congress and lobbyists are gone from the city. The greatest attraction to visitors is the grounds, gardens, conservatory and museum of the Agricultural Department. Gen. Horace Capron, the Commissioner, who, like Napoleon, has chosen around him suitable and efficient men as aids to make the place useful and attractive to a high degree; and yet very few persons of all who come here ever visit, or even think of, this most interesting institution; its experimental, botanical and propagating gardens, with the arboretums and green-houses, under the management of Professor Saunders and his assistants, Messrs. Glass and Brummel, constitute the most pleasing as well as profita-

ble resort in the city, particularly for farmers and horticulturists; and only second to this, is the museum in the large building in charge of Professor Glover, the Entomologist, and assistants. Much is due to the obliging efficiency of the Chief Clerk, R. T. McLain, Esq.; but one of the most hard-working men is J. R. Dodge, Esq., the Statistician of the Department. Let all visitors to Washington go to this Department before they leave.

Next in interest to the visitor, is the Patent Office, with its long lines of cases and shelves filled with ingenious models, the products of American invention and labor, worth the attention of all mechanics who come to the Capital.

Visiting the pleasant home of Esquire Clarke, one of the city justices, the other morning, I saw a fine show of flowers, fruits and plants; but what I wish particularly to speak of is the great profit he makes from a small patch of ground, working the hours he is not engaged in his office, for the benefit of others; in propagating and selling grape cuttings, small fruits, flowers and garden plants, he clears about one dollar the square foot of the ground he cultivates; instance, from one spot of ground, ten feet by two—twenty square feet—he sold in one season \$22 worth of small grape-cuttings, and does nearly as well on other patches with other plants. I call special attention to this as proving what vast profits can be realized from a little land if skillfully and seasonably tilled.

One of the most interesting and useful institutions in this District, is “The Poto-mac Fruit Growers’ Association,” a Society composed of the most respectable growers in Virginia, Maryland, and the District of Columbia, which meets the first Tuesday of each month, to discuss matters and examine and test such specimens as may come before it. The June meeting was a pleasing and profitable one; and as some of the matters developed are of general interest and utility, I will incorporate a portion of the published proceedings into this letter for your readers.

A letter was received from a grape grower in Fredonia, N. Y., stating that he finds that business profitable when properly done.

Friend Gillingham presented some Apples of both last year and new ones of the present season's growth.

Some fine Cherries were also placed on the table by Mr. Munson, and running conversations were indulged in by the members in regard to these fruits.

The Apples on exhibition were the *Abram* of last year, and the *Astracan* of this present season. The Cherries were specimens of *May-dukes*.

The morning hour expired; the President announced a paper on Grafting, by Friend C. Gillingham, in which he also gave a brief account of the early effect of this mode of propagating the Apple and other fruits.

Some debate followed the reading of the paper by different members in regard to the Effect of the Sun on Trees, showing the benefit of excluding scorching sun from the body of the trees, and in which Messrs. King, Curtiss, Smith, Snodgrass, Bryant, and others engaged, which greatly resulted in proving the advantages of low pruning and shading the body of trees.

Mr. Bryant spoke of Mulching having caused his Raspberries to be injured by frost, and the reason therefor was a query.

Dr. Howland thought the mulching prevented the warm earth from radiating warmth to dissolve the frost, while the warm ground not mulched gave off heat and prevented frost.

Mr. Saunders concurred in this opinion, and illustrated it. He said we must understand and follow Nature's laws.

Some facts from successful growers were presented by Col. Curtiss showing that berry growers in New Jersey make from \$200 to \$300 per acre net profits in growing Strawberries and Blackberries; and also in regard to Potatoes free from the ravages of the beetle in Iowa, showing the Peachblows with the Peerless and Chili to be most free from the beetle.

Some fine black Cherries were placed on the table by Mr. A. E. L. Keese, of this city, who made a statement of his manner of applying air-slacked lime to his trees to keep off insects, as also does whale oil soap-suds.

Professor Taylor spoke about whale oil soap and lime, and asked if both were used together?

Mr. Keese said where lime and soap were both used together on his Plum and Cherry trees, there were no insects.

Prof. Taylor explained the effect of heat and light on the sap of trees, and showed how, chemically, injurious effects will be prevented.

Mr. Byrant asked if salt was a good preventive to save Strawberries from destruction by worms, and many members thought it was a remedy.

The President and others spoke of salt and salt fish, which killed plants as well as worms when applied alone. He said, by mixing plaster the plants were not injured, and a fine growth of Potatoes was realized.

Col. Curtiss stated that salt brine would kill the worms; it would also kill plants, if applied without mixture, but if mixed with manure or lime-water, the worms would be killed, and the plants benefited.

Prof. Taylor said the question of salt was not sufficiently understood by farmers. He said, he believed salt had decided action on lime, which makes an excellent food for plants.

Mr. King spoke of the use of salt in compost, by his father, which killed the worms and benefited his crops.

Dr. Snodgrass replied to Professor Taylor with some fear that at times there is danger from these chemical gentlemen; and Prof. Taylor responded.

Prof. Wm. Saunders spoke of salt dissolved in lime-water, as a good decomposer of vegetable matter, and hence becomes a very useful ingredient in fertilizers. It holds and attracts moisture, and for this reason is also useful among fertilizers. It is very much used among some composts in Scotland.

The Chair announced that the Strawberry was the order for discussion at this time, and asked if any one wished to speak upon the subject.

Mr. J. Hoffman Smith gave his experiences and failures in the cultivation. His failures in the cultivation were principally on cleanly cultivated lands; he kept the runners down, and his *Triomphe-de-grande* grew well. The rust struck those cleanly cultivated, while where the grass stood thickly there was no rust. Where he gave his plants liberal mulch, with leaves or short straw he got good yield, and had no rust.

Mr. Saunders thought perhaps the cause was the *red spider*, which prevails in dry seasons, but is destroyed and prevented by moisture.

Col. Curtiss thought the theory of Mr. Saunders well sustained by the facts stated by Mr. Smith.

Prof. Taylor thought the same, and that spiders, not rust, was the trouble.

The Chairman asked Col. Curtiss if he thought thorough culture produced drought or dryness.

Col. Curtiss answered no; but deep, thorough culture greatly prevents the evils of both, drought and excess of wet.

Dr. Howland, upon being asked, stated that his *Hale's Early* and *Troth's Early* varieties of Peaches show no signs of insects or curculio thus far, and promise very finely for a good yield.

Judge Gray said if he had not a good crop it will not be his fault, as he gave his trees the chance to do the best they could.

Mr. Saunders and Friend Gillingham both stated that Peaches and Cherries will rot from wet without being stung by insects.

Mr. Saunders said that dry soil and dry seasons are favorable for *Hale's Early* Peach.

Dr. Snodgrass concurred in the same opinions, that mulch was needed where it was desired to preserve moisture.

After some desultory conversation, the Chairman announced, as the special orders of business for the next meeting, a paper by Col. D. S. Curtiss, on the Necessity of effi-

cient association among producers; also, by Prof. Wm. Saunders, an Essay on the Raspberry and Blackberry; and, by Chalkley Gillingham, on the Deterioration of varieties of fruits.

One of the very pleasing and rare floral novelties introduced into our community, is the *Clianthus Dampieri*, or Glory-pea, of Australia—a most beautiful, showy flower and plant, imported by one of our members, John Saul, the distinguished florist.

The mechanics and other laborers in the city begin to manifest lively feeling and activity for labor and land reform, and to maintain the rights and interests of industry; while the "*Patrons of Husbandry*" are equally awake to elevate agricultural industry; not that any of these classes have any inimical feelings toward corporations or capital, but desire simply to protect or aid themselves against undue monopolies of land and capital in combinations detrimental to the true rights of labor.

The *Order of Patrons of Husbandry* is one of the noblest and most beautiful ever devised by men; it is rapidly growing in the middle and prairie States, and will ultimately work the elevation and salvation of the producing classes.

D. S. C.

PALMS ON SAN BERNARDINO MOUNTAIN.—The *Los Angeles Star* says it is not generally known that a species of native palm grows luxuriantly in the canons on the eastern slope of San Bernardino mountain. It bears a small black fruit of a sweetish taste, which is highly prized by the Indians as an article of food. The fruit grows in a single cluster, about the size of a bushel basket.

GREAT SUCCESS IN GROWING CABBAGE.—The *Russian River Flag* says: "William Kee, of Bodega Point, raised and sent into the San Francisco market last season, from three and a half acres of land, \$3,000 worth of Cabbage. Mr. Kee's success, it is said, has been the means of inducing several of his neighbors to go into the business this spring."

Editorial Cleanings.

HOW TO DESTROY INSECTS IN GENERAL.—I have used the following mixture for some years with success in the destruction of such pests as mildew, scale, mealy-bug, red-spider, and thrip; in fact, it is my only remedy in the case of trees, shrubs, and stove and greenhouse plants, but much care is required in its use as regards strength, and thorough syringing afterwards: 2 oz. Flowers of Sulphur worked into a paste with a little water, 2 oz Washing Soda, $\frac{1}{2}$ oz. common shag Tobacco, and a piece of Quicklime about the size of a duck's egg; put them all into a saucepan with one gallon of Water, boil, and stir for a quarter of an hour, and let the whole settle until it becomes cold and clear. It should then be poured off, leaving the sediment. It will keep good for a long time. In using it, add water, according to the strength or substance of the foliage. I formerly used one ounce of Soft Soap with the other ingredients, but I find it is effectual without, and it does not now leave any marks on the leaves. I would simply suggest a fair trial, and I think no one who uses it properly will regret its use, or very seldom be without a good jar of it. In a nursery among young fruit trees subject to American aphids, or curled and mildewed foliage, I do not know its equal; even black-fly on Cherries will not stand it. I can point to some fruit trees in a gentleman's garden which two years since were fast dying when I was called in. I had them syringed, and the shoots untacked from the wall, and dipped in this mixture. This was done three times during the season, and they are now strong, healthy, and vigorous.—*D. J. Northwood.*

THE CULTIVATION OF THE QUINCE.—Of all our fruit trees there is scarcely any so easily grown as the Quince, and very few persons pay it the least regard, more than to place it in some unfrequented spot where it becomes a subject of complete neglect, where, choked

with grass and incumbered with weeds, it makes a slow and mossy growth, and generally yields an annual crop of fruit, though the quality is often poor indeed; for—like any other product of the soil—it requires care and cultivation to perfect its fruit; but never to my knowledge has this tree, when properly cultivated, pruned and annually fertilized—as all fruit growers consider necessary in the cultivation of the Pear—failed to produce abundant crops of very superior quality.

Public opinion needs to be changed in regard to the Quince. It delights in a somewhat moist soil, as most fruit trees do, and for this reason is often planted where the ground is constantly wet, which is a decided mistake. Any deep, rich soil annually mulched with three or four inches of leaves, straw or coarse litter, will be found sufficiently moist for the Quince, and the best of care will bring about astonishing results with this much neglected fruit.

Cor. Dutchess Farmer.

THE TUBEROSE.—A successful florist gives the *Country Gentleman* the following mode, which he adopts for this bulbous plant. He says:—"Take the flowering bulbs and break off all the offsets—do not leave one; put them in a light, friable loam, with a liberal mixture of leaf-mold and well rotted cow-manure. In case of drought, give them plenty of water, and the work is done, and you will soon be amply rewarded by delicious perfumes. There is nothing in my garden does better with this management, or gives me less trouble."

VALUE OF LIME.—A writer in the *Journal of the Royal Agricultural Society*, describing the permanence of the action of Lime, says he knows of a piece of land containing 166 acres, which formerly grew nothing but heath. A good dressing of lime was applied to the surface of the sward, which has nearly doubled its value. This was done several years ago, and totally eradicated the heath.

The lime to this day appears in full condition, as its effects usually testify, from the richness and sweetness of the herbage, the texture of which has been entirely changed by the application of lime.

ASHES FOR PEAS.—The *Rural New Yorker* says, a woman sends us the following from her Market Garden. Diary:—"In the spring of 1866, in sowing Peas we ashed some in the row, leaving other rows unashed. The difference was very remarkable. Those that were ashed were more thrifty, of a darker, richer color, producing at the time of picking larger pods and a superior quality of peas. The same is true of turnips."

THE TEA AS AN ORNAMENTAL SHRUB.—A lady from North Carolina sends to the *American Agriculturist* some tea nuts, and states that she highly prizes the shrub as an ornament to her garden. It grows ten feet high with her and is an evergreen. It has endured the severe cold of the past winter without injury. With protection it would be hardy further north. Mrs. E. prepares from the leaves tea of satisfactory quality.

ONION SETS require a light, fine, and not very rich soil. The seed should be sown thickly in rows, nine inches apart; to facilitate working, every eighth row should be omitted in planting, so as to leave a walk. The plants require to be kept free from weeds during the season. The sowing should be done in April, and the sets will be ripe in August. It is estimated that about forty pounds of seed are required for an acre, and that a pound of seed will, under favorable circumstances, give from three to four bushels of sets.—*American Agriculturist*.

DISCOVERY OF NEW GUANO FIELDS.—From good authority we understand that extensive deposits of Guano have been discovered in Peru, of several miles in length.

BRANCHED TRUSSES IN GERANIUMS.—A correspondent of the *Gardener's Monthly* writes the following:—

"I enclose you a flower-stock of a Geranium, a seedling raised by me more than nine years ago. It is a seedling of the Queen of Summer, and resembles the parent somewhat in foliage, which is a rich light-green on the edges of the leaf, shaded almost to entire white in the centre; but the growth and habit of the plant are entirely different. This plant is disposed to be bushy; the body of it frequently entirely white, striped with green. This constitutes one great beauty of the plant. Another beauty and peculiarity is, that after the first cluster of flowers is past its best, (but not yet out of bloom,) out of the cluster of flowers there spring one or two small green leaves and another flower-stock: in a day or two another, and frequently a third; these bloom quite as finely as the first, giving the plant a very unique appearance. After testing it two years, and finding this to be the regular habit of the plant, I gave a plant of it to Mr. Charles Allen, who propagated and sold it under the name of 'Madam Balfour.' I have always called it 'Louise.' The *Gardener's Monthly* considers this something like the thyrsoïd character of allied species, and as occurring very rarely in this species."

VARIEGATED CROWN IMPERIAL.—The Crown Imperial is the monarch of spring bulbs. It lifts its stately head far above the Tulip, Narcissus, and other humbler plants, and wears its floral crown with a royal air. Kings are but mortals and Crown Imperials are not all perfect. The large bulb which we plant in autumn is about as repulsive in odor as a Skunk-cabbage with the Cabbage omitted. The bulbs of the Crown Imperial should not be left too long out of the ground, as they dry up and become weakened, and probably this strong odor is a hint that they should be promptly earthed. In spring this bulb throws up a robust stem, clothed part of the way with luxuriant leaves; then a bare space of stem, above this a large whorl or crown of

pendant tulip-like red or yellow flowers, and above all a tuft of smaller leaves. These flowers do not show all their beauty until we examine them closely. Turn one of them up and there, at the base, are six pearls—at least they look like pearls; but they are only of honey-like liquid, in a round cavity at the base of each petal. We have been much pleased this spring with the variegated Crown Imperials—the Golden and Silver-striped, as they are called. The variegation is well marked, and appears very lively in contrast with the dark-green foliage of the ordinary form. The plants with variegated foliage do not flower as freely as the others, sometimes failing to bloom altogether, and often producing flowers much reduced in size. Yet their foliage is so bright that they are worth growing, even if they do not flower at all.

American Agriculturist.

SILK CULTURE.—The business of Silk Culture in the vicinity of Sacramento, says the *Union*, appears to have passed to a great extent into the hands of Frenchmen and Italians, who are thoroughly acquainted with the business. I. N. Hoag has rented two of his cocooneries for cash in advance, and the third on shares. A. P. Smith has also rented his, and the two Davisville companies have also leased theirs.

HOW TO MAKE A FARM POOR.—Cultivate Wheat and Oats largely. Sell all you raise. Have your grain thrashed in the field, and burn your straw when it is in your way. That is the way to make a farm poor. This is the way to make a farm rich: Cultivate wheat, oats and other crops, and feed the straw to the stock. Take all care of manure; manure your grain fields and your fruit trees. Change crops by rotation—not forgetting the great value to lands of clover. We are quite sure that more stock should be raised on farms than is now done. There is greater profit in raising horses, cattle, hogs and sheep than in growing wheat.—*Western Farmer.*

BEAUTY vs. DEFORMITY.—The *Southern Farmer* says: “Beautify your home. It is astonishing to see how much can be done year by year to adorn and beautify the farmer’s home and its surroundings. A few trees set out here and there; a few old decayed trees grubbed up, perhaps, and removed, an unsightly wall or fence taken out of the way; in a thousand ways, indeed, beauty may be made to spring out of deformity, and that too without any serious expenditure of time or money.”

WATERING PLANTS WITH IRON.—It is stated as a new discovery, that wonderful effects may be obtained by watering fruit trees and vegetables with a solution of sulphate of iron. Under this system beans will grow to nearly double the size, and will acquire a much more savory taste. The pear seems to be particularly well adapted for this treatment. Old nails thrown into water and left to rust there will impart to it all the necessary qualities for forcing vegetables as described.

British Medical Journal.

INJURY TO VEGETATION FROM GAS.—It is by no means an uncommon assumption that illuminating Gas, in escaping from pipes into the soil, exercises a poisonous influence upon vegetation; and a suit was recently brought at Aix-la-Chapelle, by the city authorities, against a gas company for recovery of supposed damage to the shade trees of the city, resulting from their careless method of laying the pipes. This was the cause of a detailed series of experiments in regard to the assumed fact, and somewhat to the surprise of every one, it was ascertained that purified illuminating Gas had really little or no injurious effect of the kind asserted. The experiments were conducted by eminent chemists, and included trials with pure hydrogen, light carburetted hydrogen, and heavy carburetted hydrogen, as well as purified illuminating Gas. A discharge, during an entire day, of these various gaseous substances into the soil of vessels containing growing plants was

found to produce little, if any, hurtful result. It was different, however, when these same gases were impregnated with the constituents of coal tar, especially with carbolic acid, in which case, after a few days, a very decided injury to the vegetation was found to have taken place. The effect seemed to be that these impurities, coming in contact with the roots of the plants, deposit tarry matter upon them which ultimately caused death by a kind of asphyxia. The smallest quantity of carbolic was found to have a very decided influence; so that the principal caution to be observed, as far as injurious results are concerned, is to see that the carbolic acid is entirely eliminated. In one experiment a discharge of Gas was allowed to take place for three hours daily, for a period of an entire year, and the effect, if anything, was to secure a fuller development of the plant.

All that those experiments appear to prove, however, is that perfectly pure illuminating Gas is not injurious to the roots of vegetation, the fact remaining demonstrable that ordinary Gas does have a marked noxious effect. The elaborate communication in 1858 to the Philadelphia Academy of Natural Sciences, by Mr. Fahnestock, shows this very clearly, in a case where the contents of a large greenhouse were destroyed. In another instance a stroke of lightning, passing along the street gas-mains in Racine, in 1867, disturbed their joints and caused a leakage which resulted in the death of nearly all the shade trees along the entire square.

LEACHED ASHES AS A MANURE.—An agricultural journal of Germany calls renewed attention to the great value, as a Manure, of Soap-boilers' Leached Ashes, which, as is well known, are prepared by mixing wood-ashes with fresh burnt lime, and boiling or leaching the two together for the purpose of obtaining a caustic lye. Although the soluble salts are removed from these ashes, the insoluble parts remain, namely, the carbonates, sulphates, and phosphates, principally lime salts, accompanied generally by a little caustic

lime. Experience has shown that there is no substance equal to leached ashes of this kind for manure, not excepting even the richest guanos; the vegetation of the cereals becoming broader than common by its use, and the stalks more tubular, while the leaves grow of a dark, bluish-green. The value of this application is seen more particularly in meadows, where, curiously enough, nearly all the ordinary grass disappears in consequence, and instead of it a thick vegetation of red clover is met with, which will be renewed year by year for a long time, without additional supply.

DARLINGTONIA CALIFORNICA.—Mr. Worthington G. Smith calls attention in "Nature" to certain living plants of *Darlingtonia Californica*, or the American Pitcher Plant, described many years ago in the Smithsonian Contributions, by Dr. Torrey, from specimens brought by General Fremont from what is now Nevada. According to Mr. Smith, the plant possesses an irresistible attraction to insects, the nature of which is entirely unaccountable. When in bloom the flower is said to resemble the upraised head and body of the cobra, with mouth expanded, and prepared for a spring, the head being at right angles with the hollow, vertical body, and apparently presenting no opening by which an insect can enter. Blue-bottle or blow-flies are said to make their way immediately to this plant whenever they come into a room where it is growing, and alighting on a portion of the flower, they fly upward into the previously unseen entrance to the tube, and from this they descend the hollow body, and apparently never return alive, keeping up a buzzing noise for half an hour and then dying. This cavity of the plant soon becomes entirely filled with dead flies, so that, as a consequence, the walls decay and the insects drop out.

TO PRESERVE GRAIN FROM INSECTS.—Place in the barrel which contains Rice, Wheat, etc., etc., a few branches of the common Elder. It will prevent their attacks, or drive them off if commenced.

FOOD FOR YOUNG TROUT.—According to Dr. Slack, the well-known proprietor of the Troutdale Fish-breeding Establishment, in New Jersey, the best substance with which to feed embryo trout hatched out artificially consists of beef's heart, prepared by first being opened that the coagulated blood may be washed away thoroughly, and then using only the pure muscular fiber. This is to be finely chopped into minute fragments, so as almost to form a pulp; and then, mixed with a little water, it is to be washed through a fine sieve of twenty-four threads to the inch, to prevent any minute particles from passing through.

WATERING PLANTS WITH HOT WATER.—It has lately been shown, by careful experiment, that sickly potted plants, even some that have almost died out, can be greatly benefited, and sometimes, indeed, entirely restored to vigor, by applying warm water to them instead of cold. In certain cases, oleanders which had never bloomed, or did so only imperfectly, after being treated with luke-warm water, increasing the temperature gradually from 140 degrees to 170 degrees Fahrenheit, produced the most magnificent luxuriance of bloom. Similar results occurred with an old plant of Hoya; and also with an India-rubber tree which had nearly withered away. In all these cases the application of water heated to about 110 degrees Fahrenheit, without any other precaution, caused a new and flourishing growth.

TRANSPIRATION OF LEAVES.—Von Pettenkofer, in the course of recent researches upon the amount of evaporation which takes place from the foliage of plants, ascertained in the case of an oak tree that this increased gradually from May to July, and then decreased till October. The number of leaves on the tree were estimated at 751,600, and the total amount of evaporation in the year at 539 cubic centimeters of water for the whole area of the leaves. As the average rain-fall for the same period was only 65 centimeters, the amount of evaporation is thus eight and a

half times greater than that of the rain-fall. This excess must, of course, be drawn up by the roots from a great depth. The inference is derived from the above, that trees prevent the gradual drying of a climate by restoring to the air the moisture which would otherwise be carried off by drainage.

CULTIVATION.—Every earnest and careful cultivator must certainly know that deep and constant cultivation produces moisture. Every farmer can prove this for himself among his orchard trees or in his vineyard; in the cultivation of small fruits and of corn or potatoes, and all kinds of vegetables, he can prove in the most perfect manner the benefit of cultivation over irrigation in a climate like ours, and in the hottest and driest summers too.

We base our arguments, be it understood, upon such lands as are properly plowed to start with, and upon all such soil its cultivation can be kept up all summer to great advantage; and any cultivator can take such soil, plow it in the very hottest and driest weather of the summer—be it a cornfield, potato patch, peas, beans, or beets—and although the soil may be hot and dry as ashes when plowed, look on the crop the next morning and a heavy dew will rest upon it, giving a great refreshing, and the entire soil will seem to have been changed to one of a different kind; this continued, and it is far better for the crops than surface watering—the first keeps the soil open and fine, the other bakes the soil like a brick. Those who have never tried this had better begin.

MULCHING.—When the soil of a garden or orchard is well cultivated, one of the best means of retaining the moisture to the soil and giving it to the plants and trees, is by mulching them.

We are much surprised that when great good is so easy to be accomplished, and when a crop can be so easily enlarged and improved at so little cost, that the plan of mulching is not more universal in our dry climate. Or-

chard trees, vineyards, blackberries, raspberries and strawberry plantations could be very greatly benefited by a regular system of mulching, as almost every grower has ample means at hand of various materials that are constantly going to waste that would answer the double purpose of mulching and manuring the soil.—*California Farmer.*

CALCEOLARIA CULTURE.—I take my cuttings from good strong plants in October, (the end of the month, if the autumn is mild), about four joints in length, and prick them thickly under good hand-lights in plenty of sand and leaf-mold. I water them and shade for a few days, but never uncover them again until I pot them off in March. I have grown them in this way for seven years, and have covered them with nothing but an old sack, which sometimes was not removed for two months at a time, and I have not lost a single plant. Though they must have been frozen through this winter, I believe I can show as good a lot in 48's as any one.—*A. A., Halford House, Richmond, Surrey.*

COTTON PLANTING.—Messrs. Strong, Peck & Co. commenced planting cotton on the Buckley Brothers' Ranch, near Hopeton, on Wednesday last. They are in receipt of several tons of seed, by rail, from Alabama and Mississippi, of the most approved varieties, and will thoroughly test the question of cotton-raising in this section of the State. Theoretically, they have solved the problem to their complete satisfaction, and their efforts in the Merced bottom this season will give the matter a fair practical test. The land is of excellent quality. Those engaged in the enterprise are experienced in the business of cotton culture, and ample capital is at hand to give the experiment a fair opportunity to succeed, and we doubt not that they will settle the question by their experiment this season. Should the crop prove profitable, it will be the means of opening a traffic between California and the manufacturing States and countries of the world, that will bring to this

coast untold millions of wealth in a very few years.—*Snelling Argus.*

WASHING AND SCRAPING TREES.—Washing and scraping are of great benefit to neglected trees; and washing, at least, may be done with advantage on all fruit. It destroys the young and almost invisible growth of mosses and lichens, kills dormant insects that have hidden in the crevices, and improves the tree generally. Various tree washes have been recommended, but there is probably nothing better than good home-made soft soap, thinned with water to work conveniently with a brush. Remove the loose scales of bark by means of a blunt scraper before washing.

PREMIUM FOR FOREST TREES.—In Nebraska every acre of transplanted forest trees exempts \$100 from taxation—a wise provision, which it would be well for California to follow.

CENTRAL PACIFIC RAILROAD.

Passenger, Sunday Excepted	Express Train Daily	June 1st, 1871.	Express Train Daily	Passenger, Sunday Excepted
4:00 P. M.	8:00 A. M.	San Francisco	5:45 P. M.	12:30 P. M.
4:42 "	8:40 "	... Oakland ...	5:12 "	11:58 "
3:50 "	7:30 "	... San Jose ...	5:30 "	12:15 "
7:58 "	12:15 P. M.	... Stockton ...	1:43 "	8:35 "
9:35 "	2:00 "	... Sacramento ...	11:45 A. M.	7:00 A. M.
	4:10 "	... Marysville ...	9:10 "	
	9:00 "	... Sesma ...	4:20 "	
	2:20 "	... Sacramento ...	11:45 "	
	5:25 "	... Colfax ...	8:45 "	
	1:15 A. M.	... Reno ...	1:00 "	
	9:10 "	... Winnemucca ...	4:05 P. M.	
	12:00 M.	... Battle Mount ...	1:25 "	
	4:40 P. M.	... Elko ...	8:45 A. M.	
	6:10 A. M.	... Ogden ...	5:15 P. M.	

SAN JOSE BRANCH.—Leave SAN FRANCISCO at 9 10 a.m. daily, (except Sundays,) and 3 p.m. daily. Returning, leaves SAN JOSE at 7 30 a.m. daily, and 3 50 p.m. daily, (except Sundays.)

OAKLAND BRANCH.—Leave SAN FRANCISCO, *6 50, 8 00, 9 10, 10 20 and 11 10 a.m., 12 00, 1 50, 3 00, 4 00, 5 15, 6 30, 8 30 and *11 30 p.m. (10 20, 11 10 and 3 00, to Oakland only.)

Leave BROOKLYN, *5 15, *6 30, 7 40, 8 50 and 10 00 a.m., 1 30, 2 40, 4 55, 6 10 and 10 10 p.m.

Leave OAKLAND, *5 25 *6 40, 7 50, 9 00, 10 10, 11 00 and 11 50 a.m., 1 40, 2 50, 3 50, 5 05, 6 20 and 10 20 p.m.

ALAMEDA BRANCH.—Leave SAN FRANCISCO, 7 20, 9 00 and 11 15 a.m., 1 30, 4 00, 5 30 and 7 00 p.m. (7 20, 11 15, and 5 30 to Fruit Vale only.)

Leave HAYWARDS, *4 30, 7 00 and 10 45 a.m. and 3 30 p.m.

Leave FRUIT VALE, *5 25, 7 35, 9 00 and 11 20 a.m., 1 30, 4 05 and 5 30 p.m.

* Trains do not run Sundays.

T. H. GOODMAN,
General Passenger and Ticket Agent.

A. N. TOWNE,
General Superintendent.

T H E

CALIFORNIA HORTICULTURIST

AND FLORAL MAGAZINE.

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No. 9.

THE ORANGE-TREE—*CITRUS*.

The cultivation of the Orange (and Lemon) has of late attracted a great deal of attention on this coast, and it promises to form an important feature amongst our horticultural developments. The Orange and its kind has been cultivated for centuries past, and the fruit has always been considered highly delicious. As of all other varieties of fruit, so of the Orange, superior and inferior qualities are produced, but, while of other classes very inferior fruit can be put to some use, an inferior Orange is an entirely useless article, although some people will buy them no matter how poor the taste and flavor may be.

Very little attention has been given to the proper cultivation of the Orange, and much less to the selection of good varieties. A seedling Orange tree may produce a very fair fruit in a tropical climate, yet may not be adapted to our California climate, unless grafted or budded; and it is a fact beyond doubt, that on this coast the fruit of the grafted Orange is far superior to that of seedlings; there are also many other difficulties, such as climate and proper treatment.

About the classification of Oranges and Lemons, a considerable difference of opinion exists. We believe the most popular and the best, is that of Linne, who divided them into two groups, one comprising the Citrons and Lemons, the other the Oranges.

Of the Orange proper, the principal and most popular varieties are—

The *Citrus aurantium*, var. *dulcis*, or sweet Orange, which is supposed to be a native of China, but has been so extensively cultivated in various parts of the globe and for so long a time, that its nativity is attributed erroneously to other localities.

Citrus aurantium var. *culgaris*, a bitter Orange, (German Pomeranze,) is also supposed to be a native of China and India. The leaves are larger and of a much darker green than the former, and the tree grows thriftier and larger.

Citrus deliciosa, (Mandarin Orange, sometimes Tangerin Orange,) is a native of China, and its fruit is considered the finest in appearance as well as in flavor. Thorns grow upon its branches, while both of the former varieties are thornless.

Citrus decumana—Shaddock—is also a native of China. The fruit is larger than that of the others, and its skin is much thicker.

Besides these, we have the Sicily sweet Orange, the Italian, the Los Angeles, etc., but all of these names signify nothing more than the locality where they have been growing. However, the Oranges of Sicily have acquired some peculiarities by this time, that may entitle them to some distinction, and we are not inclined to find fault with the belief of some, that the seedling of the Sicily sweet

Orange will produce a better fruit than that of any other variety.

Oranges may be grown from cuttings, but we do not believe any more in this method of propagation than we do in the growing of Cherry trees from cuttings, which is also practicable.

The best way to obtain Orange trees is to plant the seeds of ripe Oranges thickly in pots or boxes; the young plants will make their appearance in from four to six weeks, if kept under glass. Some prefer Lemon-seed, others some other variety of Orange, but, while many of our gardeners are much in favor of Lemon-stocks, we do not consider their preference conclusive. Our readers will bear in mind that our florists do not cultivate Orange trees for the fruit but for the flowers, which are valuable for fine bouquets, (indeed there is nothing more appropriate for this purpose than the Orange-blossom,) and to sell the trees if a good price can be obtained. Now from our own experience we can state, that we have grown beautiful flowers from Orange trees which were raised from Los Angeles Oranges, in three years from the seed, and undoubtedly would have obtained some good fruit if we had permitted some of the blossoms to remain on the tree; but we also ascertained that these seedlings were not well adapted for forcing, that is, while we obtained two or three crops of blossoms from the Mandarin or the sweet Orange, we did not succeed in having more than one crop from the seedlings. This question is open to much argument. We prefer budding or grafting, and to this end we recommend potting the young plants as soon as they have attained the height of from four to six inches, into three inch pots; the soil should consist of one part of strong loam, one part of old rotten cow-manure, and one part of leaf-mould; these should be mixed with one fourth of strong sand and about one fiftieth part of bone-ashes; the plants should be kept moderately warm and receive a good supply of water. They will soon make a good start. After they have made their second growth, they should have less water, plenty of air

and a good rest. When the wood has every appearance of being ripe, which will be after four or five months of rest, the trees should be repotted into four inch pots, have plenty of water, and be kept close again. When they have made their third growth, subject them to the same treatment as after the second growth; then repot into five or six inch pots, and after giving them the benefit of another season's growth, the stocks will be strong enough to be budded or grafted. This operation must be performed after a good rest and when the young trees are about to make their next growth. After budding or grafting, the plants should occupy a shady place, with considerable warmth and moisture.

The treatment of grown-up and bearing Orange trees cannot be prescribed exactly. We must take into consideration that the Orange tree is really an evergreen and frequently blossoms, young fruit and ripe fruit are seen on the tree at the same time. This would indicate that the Orange tree is continually in vegetation, and we know of some trees in this city which are hardly ever without some blossoms; yet the Orange tree will flower and grow more in one season than in another. One rule will work well in all cases, and that is, not to water until the ground shows signs of being dry; another indication of want of water, is, that the ends of the leaves can be bent in without breaking.

Sickly Orange trees may be easily restored to vigorous life by giving bottom-heat, and cutting back the branches to sound buds.

In conclusion, we would recommend the fastest growing varieties for stock upon which to work grafts or buds, and these are undoubtedly the bitter Orange (*C. vulgaris*), and the Shaddock (*C. decumana*.)

MOSQUITOES.—These annoying insects will soon be hunting for their prey. They are effectually expelled from a room by the evaporation of a small piece of gum camphor placed in a tin vessel and held over a lamp or candle. The mosquitoes will return no more that night even if the windows are left open. The vessel should be occasionally taken from over the flame to prevent the ignition of the camphor.

CULTIVATION OF THE POPPY IN CALIFORNIA.

It is all important to the Horticultural and Agricultural people of our State that they should diversify their productions, and not, as heretofore, depend upon one or two staple articles alone. California is peculiarly adapted to a varied cultivation; as she has almost any required climate and soil. The grains and fruits of the temperate zone are here found growing side by side with the tropical fruits of the Equator. All of Nature's productions seem to find, somewhere within the borders of California, a congenial home; growing so luxuriantly and yielding so profusely as never to find time in which to realize the fact, that to them, this is a foreign land. In this paper I propose to direct attention to the cultivation of the Poppy in California, hoping thereby to induce our cultivators to add one more plant to their list of crops.

The Poppy, as is well known, is the plant from which we derive the valuable product called Opium. The plant, like many of our most useful medicinal ones, is a native of India, Persia and China, although it has readily adapted itself to many parts of the world, and is to be found growing wild in Europe, and even in the United States.

There are many varieties of it, of which the black and white are the principal ones. The black is mainly cultivated for its seeds, from which an oil is extracted by expression, having much the same properties as olive oil. Large quantities of seed are raised in Europe for this purpose. The White Poppy (*Papaver somniferum*) is, however, of most value, as from it the main supply of opium is obtained. It is an annual plant, having a round, smooth, erect, glaucous stem, which grows to the height of from two to six feet, the stem having a number of side branches which bear the flower heads, as does the main stem. The leaves are large, being variously notched and lobed, clasping the stem at their base. The flowers are terminal, that is to say, only found on the ends or apices of the stem and branches,

being very large and of a white or silver-gray color. All parts of the plant contain a white, narcotic juice, but it is in the capsule (the seed head) that we find the largest amount of narcotic sap, or juice.

The mode of collecting the opium is, (a few days after the fall of the flower-leaves,) to make a number of horizontal incisions in the capsule, which is best done with a sharp and slightly curved knife, care being taken not to penetrate the cavity of the capsule. Immediately after the incision, a white juice is poured out and appears in small drops around the edges of the wound. The plants are left in this condition for twenty four hours, and then the juice, which by this time has become slightly hardened, is scraped off by the means of blunt knives. Each Poppy-head will yield this juice but once, and then only from a grain to a grain and a half of opium is obtained. It requires no further manipulations after its collection than being beaten into one mass, and placed in jars for preservation.

The cultivation of the Poppy requires no special care, and it can be grown in almost any kind of soil, although it prefers a moderately dry situation, and where it can obtain a pretty high temperature.

We have many parts of the State well adapted to the cultivation of this plant, and we hope to see some of our horticultural friends try the experiment. On almost every farm there are some spare, waste places, which are unfit for the cultivation of grain or fruit, that might be devoted to the growth of the Poppy.

Crude opium sells in this State for about \$6 per pound, and large quantities of it are imported annually. It is an article in steady demand, and must of necessity command a liberal price.

C. A.

We have given the above article space in this Journal, not to endorse all the writer says, but to encourage, among our Horticulturists and Agriculturists, a spirit of inquiry and research as to the capability of a varied cultivation in California.

We are under the impression that the cultivation of the Poppy will in no way prove

remunerative on this coast. Our correspondent is in error, when he states that the Poppy requires but little cultivation; on the other hand it needs a great deal of care and attention, as it is naturally a delicate plant, the slightest frost or too long continued heat often destroying an entire crop in a very short time. In the Orient, from whence our opium is obtained, labor is plentiful and obtained at a very low rate, ranging from ten to sixteen cents per day; and the cost of producing a chequi of opium (one and two thirds pounds) is even then, without counting the cost of land, labor of preparing the soil, etc., about one dollar and sixty cents. With these facts before us we cannot believe that the cultivation of the Poppy plant in this State, would result in profit to the cultivator.—Ed.

REDWOODS.

(*Sequoia sempervirens*, Endl.)

Extract from a paper read before the California Academy of Natural Sciences, October 16th, 1865.

BY PROF. H. N. BOLANDER.

This mighty tree belongs exclusively to the foggy regions of the Coast Ranges and the underlying metamorphic sandstone, for wherever either of these conditions is wanting, this tree does not exist. From the northern boundary line of the State down to the head of Tomales Bay it forms a continual forest, increasing in width northward. At Tomales Bay the chain is interrupted by a small bed of lime-rock. The interruption extending from the lower foot-hills of Tamalpais down to Belmont, is undoubtedly owing to the lowness of the hills. A connecting link is found, however, on the Oakland hills. That grove of redwoods, now almost entirely destroyed, affords the strongest evidences of the dependency of that species on the prevalence of heavy mists. From Belmont to a few miles below Santa Cruz is another narrow, continuous chain, occupying mainly the leesides of the most western ranges and the deeper gulches eastward. From near the mouth of Salinas River to the head of Carmelo

Valley, another long interruption is caused by a bituminous slate. The absence of redwood in this long interval can hardly be ascribed to any other cause, for it is known that Monterey and the adjacent regions are subject to heavier fogs than Santa Cruz. *Pinus insignis* and *Cupressus macrocarpa* occupy here those portions naturally belonging to the redwood and *Tsuga Douglasii*. Further south, from the head of Carmelo Valley to San Luis Obispo, the most southern limit, redwood occurs but sparingly, forming nowhere extensive groves. Associated with the redwood we find *Tsuga Douglasii*, a tree of a wide range, *Torreya Californica*, *Arbutus Menziesii*, *Quercus densiflora*, and in Mendocino County *Abies grandis*, Dougl. There are also some shrubs and herbaceous plants truly characteristic to them, the shrubs increasing as underwood northward, belong mostly to the Ericaceous family. It is a noteworthy fact, that the arborescent growth of the leese side of the first range of hills generally consists, almost exclusively, of *Tsuga Douglasii*, and that this tree forms the outskirts east and particularly westward. In Mendocino County *Abies grandis* unites with it for the same cause; there both trees form a dense belt, facing the ocean, and are encroaching fast on the redwood. In fact, the western portion of those redwoods show this encroachment most strikingly by a total absence of young redwood, and a dense, almost impenetrable, undergrowth of the two-mentioned species. The order of things is, however, reversed wherever the redwood has been cut. Its roots are imperishable, and as soon as the tree is cut they sprout and cover the soil rapidly to the exclusion of every other species—none being of so rapid a growth. The indestructibility of the roots prevents the clearing of such land; even large trunks cut down cover themselves, within two or three years, so completely with sprouts that they are hardly seen. The entire after growth now found on the Oakland hills, is owing solely to the indestructibility of its roots and stumps. The tenacity of life in this species, which is of rather rare occurrence in coniferous trees, shows itself also in the resistance it offers to fire, so frequent in

those woods. Trees that have been bereft completely of their branches by fire, cover themselves in a few years entirely with young sprouts, giving the trunks the appearance of pillars, or reminding one of those old trunks covered with *Rhus toxicodendron* in the East. Fire is destructive to the young trees only; after they have obtained a thickness of two or three feet they are not liable to perish.

Another great beneficial feature in this species is the great power it possesses in condensing fogs and mists. A heavy fog is always turned into a rain, wetting the soil and supplying springs with water during the dry season. Springs in and near the redwoods are never in want of a good supply of water, and crops on the Coast Ranges are not liable to fail. The year of 1864 has proved my assertion beyond doubt; this fact is generally known—a great deal of land has been taken up since. It is my firm conviction that if the redwoods are destroyed—and they necessarily will be, if not protected by a wise action of our Government—California will become a desert, in the true sense of the word. On their safety depends the future welfare of the State; they are our safeguard. It remains to be seen whether we shall be benefited or not by the horrible experience such countries as Asia Minor, Greece, Spain, and France have made, by having barbarously destroyed their woods and forests. But with us here it is even of a more serious nature; wise governments would be able to replace them in those countries, but no power on earth can restore the woods of California when once completely destroyed!

ANTS.—A speedy clearance of places infested by ants may be effected by simply pouring a small quantity of paraffin into the holes and places infested by them. They disappear almost by magic.

J. Loder, Woodbridge.

I have found the following a most effectual remedy for destroying ants in cucumber houses: Place in a number of tea cups a mixture of brown sugar and warm water, sufficiently thick to prevent the ants from getting out when once in. The cups must be rather more than half-filled and placed where the ants congregate. In this manner I have destroyed all the ants in my houses in one night.

Robert Smith, Silchester Nursery, Notting Hill, W.

POPULAR BOTANY.

CHAPTER IX.

Having given a brief description of simple leaves, we shall now proceed to give a like description of those called compound. The only difference between these and simple leaves, is, that the divisions are generally supported by separate stalks united to the main stalk or petiole; and at the close of the season of growth, they fall independently of one another. These divisions are called *leaflets*, (little leaves.)

A feather-veined leaf, if compound, is called *pinnate*, and when again divided, it is said to be *bi-pinnate*, and if divided for a third time, it is termed *tri-pinnate*. In case the leaflets are even in number along both sides of the petiole, but having none at its apex, the leaf is termed *abruptly-pinnate*; when, on the other hand, the petiole has an odd leaflet at its apex or point, it is then called *impari-pinnate*. The number of leaflets vary to a great extent; some trees and plants having a large number, and others a very few. Thus we have *pinnately* seven, five, etc., in addition to *bi.* and *tri-pinnate*, according to the number of leaflets present. Pinnate leaves having three or five leaflets, are sometimes called *ternate* or *quinate*; these terms are also applied to palmately-compound leaves.

A compound palmately-veined leaf has all of its leaflets attached to the apex of the petiole, making what is called a *digitate* leaf, from its resemblance to the outstretched fingers of a hand. These leaves are termed palmately (or digitately) *tri-foliolate*, *five-foliolate*, etc., corresponding to their number of leaflets.

Leaflets have all the characteristics of simple leaves (which in fact they are) in form and division, and we use the same terms in their description. The blades of leaves as a general rule are horizontal, presenting, as we have said before, one surface to the ground and the other to the sky; and we find the cells on the two surfaces differently arranged to meet this requirement. If the leaf should be reversed, and prevented from resuming its normal po-

sition, we would have decay and death as a natural result. While this applies to the great majority of plants, there are exceptions, such as in the case of the *Eucalypti*, (Gum trees of Australia,) which bear their leaves in a vertical position, so that instead of their surfaces, it is their edges which present themselves to the ground and sky. This is caused by a twisting of the base of the leaf, or the petiole. Succulent leaves (of which the many species of *Mesembryanthemum*—Ice-plant—afford a good example) are of various unusual shapes, and have no well defined surfaces. The veins are often hidden by the great amount of parenchyma, or concealed by the thickened and opaque epidermis. Where the leaves produce no green pulp, they become scale-like, as in parasitic plants, and no longer perform the common office of leaves. The leaves of some aquatic plants are almost, if not quite destitute of parenchyma, as in the *Ranunculus aquatilis*, *Myriophyllum*, etc. Sometimes the leaf-blade is wanting, and then we find its office performed by the petiole or by the stipule.

We shall now pass on to the consideration of the appendages of leaves, such as the petioles and stipules. The petiole is the stem of the leaf, and serves to unite it to the body of the tree or plant; it is usually round and having a channel way on its upper side. At times we find it furnished with a small border, having somewhat the appearance of a wing, and often extending along its entire length; as in the Sweet-pea, a plant in common cultivation. Umbelliferous plants have the base of the petiole expanded into a broad, thin sheath, and in many of the Endogenous plants, more particularly the grasses, the petiole and leaf have no clear distinction, the lower portion of it, which is technically called the petiole, being a sheath and embracing the stem of the plant. In the Papilionaceous or Pea tribe the apex of the petiole is formed into a tendril, which, laying hold of projecting points of walls or the branches of trees, sustains the plant.

In addition to the petiole the leaf has, in certain classes of plants, another appendage

called the stipule. It is situated at the base of the petiole on each side, and is a small, leaf-like body, having all the texture, color and venation of the true leaf. Leaves having these stipules are said to be *stipulate*, while if they are absent, the leaf is termed *exstipulate*.

All leaves have their points of attachment either to the stem or trunk of trees, plants, etc.; this is called their point of *insertion*. This is the apparent relation which the leaves bear to the main plant, but it will be remembered that we stated, in a former chapter, that leaves are but the lateral expansion of the bark, and therefore the expression, "point of insertion," is not really correct. It should rather be called its "*point of departure*."

Leaves are called *radical*, when they spring from the stem at or beneath the surface of the ground; they are so called from having the appearance of growing from the roots of the plant. Those that are given off from the main stem are said to be *cauline*, and those of the branches; *raméal*. Leaves that stand upon the base of flower-branches are termed *floral*, and those directly at the base are called *bracts*.

To the first leaves of a plant the name *cotyledons* has been given, and they differ very materially from all of the subsequent ones, both in shape and texture. The next leaves which make their appearance bear,—at least to a certain extent,—the characteristics of the plant to which they belong, and are called *primordial*; both these and the cotyledons die away as soon as the ordinary leaves of the plant are developed in sufficient quantity to maintain the life of the plant,

GRAFTING ORANGE TREES.—MRS. I. writes that she had seen something in the *Rural New Yorker* about grafting orange trees, and adds:—"I acknowledge my ignorance, for I did not know that they required grafting. Will they not bloom if not grafted?" Yes, they will bloom if not grafted. But, as a general thing, they will come into bearing in less than half the number of years if grafted. If scions are taken from a bearing tree, they will usually produce fruit in one or two years; but a seedling orange tree is often ten years old before it bears fruit.

ORNAMENTAL AND LANDSCAPE GARDENING.

SECTION IX.

We have already stated that a Vegetable Garden, Orchard and a small Vineyard are very necessary and very desirable adjuncts to a country residence, wherever sufficient ground is available. We will now enumerate such varieties of fruits and vegetables as may be most successfully cultivated for home use.

In regard to the Kitchen Garden, in previous numbers of our Magazine, under the heading of Work for the Month, we have instructed as to the proper time for planting, and the necessary management, after that operation, and we shall continue to do so in the future. Success depends to a great extent on observance of the proper season for planting, on the thorough preparation of the soil, and on keeping the ground under a high state of cultivation.

It is best to divide the Kitchen Garden into four squares by convenient walks of about four feet wide. These squares should be subdivided into parallel beds of about five feet wide, with narrow paths which should be on a level with the beds themselves; an arrangement of this kind will facilitate the weeding of the beds, the working of the ground, and the gathering of the vegetables without tramping all over. The seeds should be purchased of reliable seedsmen.

The following seeds should be planted in a frame early in the spring, and the young plants should be transplanted into the open ground when four or five inches in height:

Cabbage, Cauliflower, Celery, Egg-plant and Tomatoes.

Of Asparagus and Rhubarb, it is advisable to purchase roots two years old.

Lettuce, Onions, Parsnips, Parsley, Radishes and Turnips may be sown broadcast and gently covered in with a rake.

Beans, Corn, Cucumbers, Melons, Squashes and Pumpkins should be planted in hills.

Beets, Peas, Spinach, etc., in drills.

These are the most popular varieties of vegetables, and are of easy culture.

Very useful herbs for the kitchen are—Dill, Sweet Fennel, Sage, Sweet Marjoram and Thyme, all of which may be raised from seed, or well grown plants may be purchased very reasonably.

It is well to state here that no shade or fruit trees should be grown in the Vegetable Garden, as they are in many respects detrimental to the growth of vegetables; but we have often seen Gooseberries and Currants cultivated in a row within two feet of the walks, and Raspberries and Blackberries in the outside borders, and this arrangement will do very well unless a certain piece of ground is devoted to the culture of small fruits.

The Currant requires a rather cool climate, but will do very well in a hot atmosphere, if partially shaded by a fence or a row of trees. The best variety, we believe, is the Cherry-currant; the best mode of cultivation is in the shape of a small tree with one trunk.

The Gooseberry will do well almost everywhere, unless the ground and climate is too cold. The Hawton seedling is the best and most prolific American variety; the large English varieties produce a much finer fruit, but are not so well adapted to our climate. Gooseberry as well as Currant bushes may be made very ornamental by cultivating them in the shape of a dwarf tree, which also facilitates the gathering of the fruit.

Raspberries require a warm climate and considerable moisture. The stocks make their growth in one year, and produce their fruit in the next, after which they should be cut out. The best variety is the Red Antwerp.

Blackberries require a similar cultivation. Our best variety here is the New Rochelle, or Lawton.

All small fruits will do better with occasional irrigation until the fruit has ripened, and in order to produce a good growth of young wood for the coming season.

A Strawberry-bed should not be omitted, as it is the earliest of the small fruits. Irrigation and mulching are indispensable for their successful cultivation. The best varieties are the British Queen, Longworths, Prolific and Jocunda.

One of the most desirable fruits is the Grape, and its excellent qualities for the table, for preserving and for wine-making, certainly entitle it to most extensive cultivation. Grape-vines may be planted in rows, forming a vineyard, or they may be trained over an arbor. For amateur gardeners, the best are the Black Hamburg, Royal Muscadine, Chasselas de Fontainebleau, Red Chasselas, Zinfundal and Feber Szagos. There are many more very excellent varieties, but for our purpose the above collection will be ample. For those who can appreciate a peculiar aromatic flavor, the Isabella and Catawba are very desirable. Grape-vines should not be expected to bear before the third year, and the pruning of the vines should be fully understood.

The Orchard should contain all the various fruits, and the varieties should be selected so as to have them early and late.

The first fruit of the season is the Cherry, and who would willingly be without it? The appearance of the tree is highly ornamental and its fruit most delicious. A moderately warm climate is necessary to bring it to perfection. The best varieties are—Werder's Early Black, Jenny Lind, Royal Ann, Yellow Spanish, Elton, Gov. Wood, Black Eagle, Reine Hortense, etc.

After the Cherry comes the Apricot, which requires a rather warm exposure. The Moorpark variety is considered the best.

Next in order of the season comes the Peach, although a few early Pears and early Apples may be obtained in advance. Like the Apricot, the Peach is grown most successfully in a warm climate, and in such situation we would rather dispense with any other fruit. The cultivation of the Peach tree is comparatively very easy, and often seedling trees bear better fruit than budded ones. Peach trees, in our opinion, should be well cut back while young, and should receive a good manuring after occupying the ground for five or six years. The best varieties are—Early Crawford, Hale's Early, Early Strawberry, Morris' White, Heath Cling, and Stump of the World.

Of Nectarines, the Boston and Large White are excellent varieties.

The Plum is a very prolific and much appreciated fruit. There are many good varieties cultivated, and it is difficult to say which are the best; the Green Gage, Washington, German Prune, Jefferson, Egg and Bradshaw are all very excellent.

We now come to the Pear, in the cultivation of which California stands unrivaled. It seems to thrive well in every locality in the State.

Good early varieties are—the Madeline, Bartlett, and Dearborn's Seedling; of fall Pears—the Flemish Beauty, the Seckle and White Doyenne are excellent; and of winter Pears—the Winter Nelis, Beurre Easter and Glout Moreau are probably the best.

The most important of all fruits is the Apple, which is also well adapted to our Californian soil and climate, but more particularly to the foothills of the Sierras.

For early Apples, the Red Astrachan and Early Harvest; for autumn, the Gravenstein, Fall Pippin and Rambo have no superiors; and for winter, some of the best are the Yellow Bellflower, Esopus, Spitzenburg, Jonathan, Golden Russett, and White Winter Pearmain.

The Orchard may also contain the Quince, Fig and Almond trees, yet we have frequently seen these trees, and also the English and Black Walnut trees, cultivated with very admirable effect in portions of the ornamental grounds.

We have frequently noticed that some nurserymen are in the habit of stating to the public that these trees are grown without irrigation. We attach very little importance to that assertion, and we are furthermore convinced that bearing fruit trees will produce much better fruit if assisted by one or two effective waterings before the fruit has attained its full size, than if entirely dependent on Nature's own supply. However, we shall endeavor to give this matter some special attention at an early day.

The orchard grounds should be plowed as deeply as possible, the holes for planting

should be dug from two to three feet square and deep; the top-soil should be put into the bottom, and the sub-soil spread on top; a small quantity of old rotten manure should be supplied to every tree, and should be thoroughly incorporated with the soil. The roots of the trees should be kept free from the manure, and after planting a good watering should be given. They should be cut back considerably and the surface around them mulched. Trees purchased in good condition and planted out as directed above, cannot fail to make a very satisfactory growth during the following season.

It will hardly be necessary for us to state that Orchards and Vineyards should be laid out in rectangular lines. Trees should be planted twenty feet apart and Grape vines six feet. This would give 135 trees to the acre, or about 1,200 Grape vines.

We like to see every tree provided with a stake, but it is only done in rare cases. The necessity of stakes for Grape vines is still more apparent, but very few seem to take the same view or else neglect to do so.

A Vineyard provided with proper stakes is very ornamental to a country residence, while without them, both Vineyard and Orchard have an unfinished appearance.

In concluding this article, we feel as if we had not confined ourselves, strictly speaking to Ornamental and Landscape Gardening; but the Orchard and Vineyard planted by the amateur gardener for the embellishment and supply of his home, necessarily form a part of Landscape Gardening, and while we admit that the practical instructions which we have given do not come strictly within the province of Landscape Gardening, yet the arrangement certainly does.

“HOLES IN THE POCKET.”—The *Chatagua Farmer*, in an article, “Holes in the Pocket,” cites the following “holes” common on many farms: Shallow plowing; planting poor seed; turning out good stock to mix with poor; buying what you could just as well make in leisure hours; keeping bad fences and bad gates, and thus having bad neighbors; spending time and money in drinking shops, and at the village store; leaving tools thrown about here and there; keeping worthless dogs; wearing fine clothes; and apeing manners that do not belong to a farmer.

NOTES OF A TRIP TO LAKE TAHOE.

Being engaged in the business of pisciculture, and desiring to procure trout ova from Lake Tahoe for that purpose, I proceeded thither from San Francisco on the 28th of April last.

On my arrival at Truckee, my first forenoon was spent in viewing Donner Lake, which is a fine sheet of water situated about half way between the Summit Station and Truckee and within view of the railroad. It is about three miles in length by a mile in width, and is full of excellent trout, though they are smaller than those of Lake Tahoe; some say they are finer in flavor.

I had a letter of introduction to Mr. Grant, who keeps the hotel at the Lake, and who has boats and provides good fishing for the visitors stopping at the hotel. He has commenced raising trout, and intends embarking in the business on a larger scale in a short time. Having procured what information I could on the subject, I returned to Truckee, and in the afternoon walked out to Corner Bros' establishment, about four miles and a half from that place. They have some five or six ponds on the river bank full of trout of different ages, from the yearling, to the four year old fish weighing about one and a half pounds. These gentlemen obtain their ova from Lake Tahoe, trapping the fish in a creek at Sugar Pine Point, about eight miles from the mouth of the Truckee River.

On my return to Truckee, I found the owners of the mill above the town had put in a very good fish-ladder at their dam. I intended going by stage to Tahoe City, but found there was no regular conveyance started as yet.

During the next day, I happened to meet Mr. Buck and Mr. Campbell, who intended opening a stage route to Cornelian Hot Springs and thence to Glenbrook by steamer, from whence the passengers can go by stage to Carson City in about two hours, and as on the next day their first trip was to be made, these gentlemen gave me an invitation, to

take a pleasure excursion to Glenbrook and back. I gladly availed myself of their kind offer being one of twelve who had been invited. We started about eight o'clock in the morning, crossing the river and surmounting a steep hill on the opposite bank, we soon entered a considerable flat, (thickly covered with grass and having a good stream running through it,) across which we could see the wooded summit over which the road passes to the Lake. A short way up the ascent we passed through an old mining district, about which, in days gone by, there was quite an excitement. The ruins of about a dozen log houses and shanties are all that now remain to tell the tale of disappointed hopes.

On the road down from the summit we could occasionally catch glimpses of the Lake between the branches of the pine trees which cover the descent. After about half an hour's ride down hill on a very good road, we arrived at the edge of the Lake and beheld, for the first time, this expanse of water, about twenty seven miles long by seventeen wide, surrounded by mountains whose tops, ten thousand feet above the level of the sea, were covered with snow.

At a short distance from the Springs our attention was directed to the stone pillar which marks the boundary line between the States of California and Nevada. Arriving at the Hot Springs' Hotel, built and owned by Mr. W. B. Campbell, we had barely time to take a peep at the Springs, having the promise of a steam bath on our return from Glenbrook, and to imbibe a draught of invigorating fluid, of which a good stock is kept by the worthy Billy, when the shrill whistle of the steamer hurried us on board the fairy craft. The water of the Lake is very clear, and we could see bottom where it was over a hundred feet deep. After losing sight of the bottom, the water changes from green to a cerulean blue, which reminded me of the color of the water amongst the West Indian Islands.

On our trip across we had pointed out to us the various places of interest on the Lake, Tahoe City and the mouth of the Truckee

River, Cornelian Bay, Cave Rock, and the entrance to Emerald Bay. After a voyage of about two hours' duration we arrived at Glenbrook, situated about the center of the eastern side of the Lake, in a small bay. It has a fine hotel, kept by Mr. Saxon, which was built in olden times, when the travel over the mountains was made in stages. Glenbrook is about fourteen miles from Carson City, and all the lumber from the Lake for Carson and Virginia Cities finds its way over the ridge through this place.

On our walk from the margin of the Lake to the hotel, we had pointed out to us Painted Rock. The likeness of Shakespear was plainly delineated on the face of this cliff. Just after having dined, the stage from Carson arrived, (driven by Hank Monk, of Greeley renown,) with passengers from the Truckee; and as they had taken their dinner, we started on our homeward trip, making the voyage in about one and three quarter hours. On our return to the Hot Springs I found that the steamer had to go to Tahoe City that evening; and that place being my destination, I availed myself of the opportunity. It being about eight miles, it took us a little over an hour to get there. Having a letter of introduction to Mr. Pomin, the owner of considerable property in Tahoe City, and one of the best fishermen on the Lake, I called on him and was kindly received.

Tahoe City is situated on the north western corner of the Lake, and is built at the mouth of the Truckee. It has a fine large hotel which cost some \$20,000, and is now owned by a joint stock company under the management of Mr. Lyons. Like almost every other interior California town, Tahoe City consists of a hotel, store, saloon and livery stable with some scattered private residences. The greater part of the inhabitants are fishermen, and own boats which they let to visitors during the summer months, in which short period they earn all the money they get in the year. A Mr. Burke there has a steamer on the stocks, and when launched she will be the largest steamer on the Lake, and able to withstand the rough weather. Cascade Lake,

situated about a mile and a half from Lake Tahoe, is above Emerald Bay. The small creek through which it discharges itself into Lake Tahoe, for about a mile of its lower course, precipitates itself down a steep descent, forming a succession of small but beautiful waterfalls. Above this portion, the banks of the stream are more level, and every pool is filled with trout of small size compared with those of Lake Tahoe.

Cascade Lake is embosomed in an amphitheater of mountains, and is oblong in form. It is about a mile in length and three fourths of a mile in width, deriving its name from the stream that feeds it, and which falls in a sheet of foam almost from the snow which covers the tops of the mountains that overhang it. On returning I met old Capt. Dick, who takes care of Ben Holladay's place, at Emerald Bay. He is a fine specimen of the "old salt," having served in both the English and American navies, and visited almost every part of the world. During the winter months, when hemmed in by the snow, he has whiled away his time in building a full-rigged ship, about seven feet in length, with figures of the officers and men at their proper stations; the cabin is appropriately fitted up, the cook at his galley, which is complete in its fixings; she is fully armed with guns, boarding-pikes, etc., and has a clock-work engine propeller etc., etc. It took him about four years to finish the work. Mr. Holladay owns a nice little steamer on the Lake, she is said to be very fast, and is called the Emerald.

From Tahoe City I went back to the Hot Springs, enjoying the privilege of the bath. The temperature of the water is about 150 degrees and the bath house is fitted up so that you can have steam, shower or hot baths as you please. Mr. Campbell, during my stay with him was also adding a swimming bath. He has induced a large amount of travel by his new route to Virginia and Carson, giving his customers the benefit of the Lake scenery and travel by daylight over the most beautiful part of the journey.

Having accomplished my business, that of procuring trout ova for the California Accli-

matizing Society, I left that beautiful place for San Francisco with sincere regret, hoping at some future time to return and explore sundry portions of that country at present but little known. JOHN WILLIAMSON.

PRIZE ESSAY ON WINE-MAKING—MAKING AND PRESERVING.

BY A. C. COOK, COVINGTON, GA.

Awarded First Premium at the Georgia State Fair, 1870.

Wine making from remote antiquity has ever been regarded as one of the mysterious arts, and comparatively few experts, until the fifth decade of the nineteenth century, could boast of producing wines of the finest quality. Those that excelled in this, as in all other arts, were extremely careful to keep their process a profound secret. The knowledge thus obtained by experiment and experience varied widely in different countries, localities, and with different varieties of grapes and qualities of soil. The art of improving wines by mixing different qualities (and adding honey to the must before fermentation, to strengthen the wine,) of wine was well understood by the ancients.

The results obtained from long practice and observation, were not derived from any knowledge of the vine or its fruit, but from careful observation of the fermentation of the juice of the grape, under different conditions of temperature, climate and atmospherical influences.

The process of extracting the juice from the grape until the early part of the past century, and even at the present time in many countries, was of the most primitive character. The grapes were placed in a large tub or vat with a perforated bottom for the must (juice) to flow into a receiving vessel, and trodden out with the naked feet. Frequent mention of this process of extracting the juice of the grape is to be found in the sacred writings and in profane history.

Previous to the art of distillation, nothing stronger than wine of twelve per cent. alcohol was known. At this point the alcohol

kills the yeast fungi (ferment principle), those modern sweet wines of Italy, Spain, Greece, and Sicily, which contain from fourteen to twenty four per cent. of alcohol are produced by the mechanical addition of brandy, generally made from the same grape as the wine. Most of the grapes of these countries and Southern Asia, contain a large excess of sugar, and are generally deficient in albumen, gluten and nitrogenous compounds. The excess of sugar, also preventing the completion of fermentation, and resulting in a naturally sweet wine, and known by different applications, as—Tears of Christ, the Ancient Maroulan, St. John, Thasos, etc.

Various celebrated brands of wine were thus obtained by the ancients, according to the qualities of soil, climate, varieties of grapes and modes of manipulation.

The list of ancient wines number seventy eight, besides a large list of inferior grade. The list of modern wines, of standard reputation, comprises three hundred and sixty, besides numerous brands of local character. In the United States we have, as yet, but few brands of superior excellence. Sufficient progress in this direction, has already been attained to demonstrate the capacity of our soil and climate to develop the finest qualities of native wines. From the Norton's Virginia Seedling, Delaware, Herman, Herbermont, Cynthiana, Scuppernong, and others, we have produced wine that will compare favorably with the most celebrated wines of Europe. Modern agricultural chemistry has thrown a flood of light on the science of wine manufacture, by revealing the constituent elements of the must of the grape, thus enabling the vigneron to develop wines of superior excellence, which under the old methods would result in wines of inferior quality.

It is not intended in this essay to enter into an elaborate explanation of the ancient modes of wine making, or into the minutiae of modern procedure; the object is to give practical illustrations of the best method of making and preserving wine. It has been known for the last half century, that wines are matured *only* by oxidation of the soluble

compounds held in solution as albumen of the gluten; as long as this remains in solution, the wine is liable to become turbid, to fret, and to deposit sediment (lees,) and consequently remains unsaleable. Under the old process, oxidation was slowly accomplished in cool cellars, by the oxygen of the air (the albumenous parts remaining after fermentation,) slowly permeating through the wood walls of the cask and frequent rackings. Changes of temperature being the existing cause of disturbance, a rise of temperature expelling the carbonized air, and a fall of the mercury causing a shrinkage of the wine and consequent absorption of air through the pores of the wood; thus every change of atmosphere contributes to the slow oxidation and maturity of the wine. Many of the choice brands of European wines require from four to ten years to complete their maturity by the old methods of treatment.

Large amounts of wine are thus annually lost by evaporation, leakage and the liability to acidification and various other wine diseases; add to this interest on capital and cost of labor, renders the wine enterprise one of great uncertainty under the old modes of manipulation. Under these considerations the question naturally arises: How can we overcome this enormous loss of time, capital, evaporation, leakage, labor and inferior quality of wine? Modern chemistry has solved the principle, (or agent) but failed to point out the mechanical application. Mr. R. d'Heureuse, of California, conceived the project of improving the fermentation of wines and other fermenting fluids, by forcing pure air through the must or other fluids to be fermented; and at a suitable temperature to convert all the sugar into alcohol by fermentation, or to purify from albumenous matter, saccharine and other organic fluids, without fermentation by this process, at a certain high temperature, rendering them free from deterioration by elementary exposure.

This is accomplished by means of a force air pump in connection with a rubber hose and a perforated metallic pipe mouth-piece or plate. The pipe or mouth-piece lowered

to the bottom of the cask or vat, the impelled air causes a violent commotion, and an intimate contact of oxygen with every particle of the fluid. By this method, in from five to fifteen days, all the albuminous parts of the gluten are rendered insoluble, and at the same time the sugar is transformed into alcohol. The question has been for many years propounded in wine countries of Europe, viz: "By what means can speedy maturity and stability be imparted to wine, so as to save the immense loss of labor, interest, storage, leakage, and evaporation?"

The question has been solved by the patentee of air-treatment. The discovery made is, that the oxidation of the gluten, which takes place slowly during years, by the old process, can be accomplished by the proper application of the same agent, air, before and during fermentation, in less than two months, and with the most desirable results. The waste of time, and oxidation, has been the ruin of the wine industry, and the saving of this leakage as above stated, will, by adopting the air-treatment, be the surest foundation on which the prosperous wine industry of the United States can rest. The theory seems as plain as the execution is simple, the air rising through the must produces two effects, viz: the mechanical stirring of the yeast, thereby a reviving and invigorating of this physiologically acting organism, and a chemical, directly oxidizing, action uniformly upon every part of the albuminous gluten, the only nitrogenous matter in the must. The air-treatment, by employing artificial currents of air, essentially acts upon the living principle, that air rapidly moving over every part of solid, or in passing through an organic fluid, supports, invigorates, purifies and preserves by the ozone formed in its rapid passage. Stagnant air, however, is wanting in ozone, and in contact with quiescent fluids, or juicy solids favors speedy decay. Only total exclusion from air also preserves. The American wine industry and production, to be worth several million of dollars annually, finds in the air-treatment its principal promoter, by which quickly and

economically, good, cheap and well matured wines can be manufactured in large quantities, and at low rates, to reduce the importation of wines and to suppress intemperance by distilled liquors.

The practical application of the patent air-treatment for wine making may be described in its general features, as follows, to wit:

After the juice is expressed from the grape in sufficient quantities, and placed in a vat or large cask with one head removed, the must, at a temperature of sixty five to seventy five degrees Fahrenheit, is vigorously air-treated from twenty minutes to one hour. A scum forms on the surface, consisting of coagulated albuminous and resinous matter, which should be carefully skimmed off to prevent any unpleasant taste. Violent fermentation soon sets in with copious foaming. About twenty four hours after this subsides, gentle air-treatment for about five minutes at a time, twice a day, soon finishes the fermentation. According to the experience of the writer, the fermentation, by air-treatment is best conducted at a temperature of the must (for Scuppernong at from seventy five to eighty five degrees Fahrenheit) at from sixty five to seventy five degrees Fahrenheit. Must at twenty five per cent. or less of sugar, is finished and the wine dry (that is, all the sugar converted into alcohol,) in from six to ten days; an addition of cane sugar requires longer time, unless the sugar solution is previously started into fermentation. The bung may be left fully or partially open during the fermentation, to be closed when finished. In about a week after the fermentation has ceased the wine should be drawn from the lees into a clean cask, closed tight, and in about a month it is fully clarified by itself or by the usual clarifiers under air-treatment, is pure from ground taste and tendency to after fermentation, ripe and ready for shipping or bottling. A superior flavor distinguishes the wine thus made.

Imperfectly fermented or unfinished wines of *any kind, if otherwise sound*, may at any time be perfectly finished within a few weeks, under the directions devised for the purpose

by the patentee. It never yet failed in a single case. The details of this operation are also very simple. Wines finished in this manner rather lose than gain in acidity, while the usual *after-fermentation always increases the amount of acidity.*

It is not necessary, as in the old process, to construct deep, cold cellars; the glutinous albuminous parts having been removed by air-treatment, there remains no disturbing agent to cause any detrimental action on the stability of wines thus made. Simply keep the casks full and air-tight, and the wine will keep as well in a garret as in a cellar.

The cost of manufacturing wine by this process will be the saving of time, cellars, casks, interest, labor and evaporation, amounting to at least fifty per cent., and give a more uniform and superior product, and be the means of placing the wine industry of the country on a footing second to no other branch of domestic agriculture. Nobody will remain behind in the march of progress without injury to himself, now that the air method finds adoption in Europe and America, revolutionizing the industries in which it is most serviceable. The merits of the air-treatment will be fully appreciated in all localities by actual *working tests.*

To irate these tests, the patentee proposes to assign the perpetual right for 3,000 gallons of wine annually, free of charge, to the first person in such unsold county, that adopts this recognized process. It is time that air should be economized as the mother of all organisms, the result of its action noted, and intelligently employed.

To demonstrate the practicability and economy of air-treatment in the manufacture of wine, the writer has on exhibition at this fair, for premiums and sale, several varieties of dry and sweet wines, made from grapes that were hanging on the vines from the 15th of August to the 15th of September.

Western Pomologist.

WORK FOR AUGUST.

The present season is not as favorable to the cultivation of the soil as could be desired. The winter season was an unusually dry one, and many have suffered severely; but the evil did not stop there—our spring and early summer have been unusually cold and disagreeable and most unfavorable to the growth of everything in the vegetable kingdom.

While our gardeners and nurserymen complain that their young stock has been at a standstill for several months, the fruit-growers report the average of their crop much inferior in size, although quantity seems to make up for this deficiency.

We are ready to concede that the dry season and the cold weather have much to do with this deficiency in size, but we cannot abstain from blaming the owners of orchards to a considerable extent. We have often alluded to the good effects of mulching, and it is very apparent that that operation, in good season, would retain the moisture in the soil much longer than when omitted. But we are slow to accept the situation with good grace, and to deviate from the old ways by which we have plodded along for so many years with little trouble or care. If we are blessed with late rains and warm weather, the fruits will have so far advanced in size and development when the moisture in the soil has disappeared, that nothing more is required to bring them to perfection than warm weather; but if late rains do not come, and the growth of the young fruit is retarded, as has been the case this year, by the cold weather, we must expect to see a falling off in the size and quality of the fruit.

But this is not all. Our young trees are frequently overloaded with fruit, and the only remedy in the case, is the thinning out of the young fruit; this is entirely neglected. Fruit trees are permitted to break down, involving the loss both of the crop and the tree, rather than adopt the simple remedy of thinning out in good time, an operation by which we may insure both larger and better fruit. Although

Bo. 3112. It is difficult to tell one from the other in a horse, but a table spoonful of chloroform in twice as much mucilage, is a good remedy for either.

the mischief is done, and it is too late for remedy this year, we hope some of our readers will be convinced of the soundness of our argument.

The fruit crop is very large in quantity, but a considerable portion being inferior, and prices being less remunerative than they were last year, we must depend to a great extent on the exportation of some of our best products, and make use of the inferior fruit for drying and preserving.

The work for the next few months will consist chiefly in the gathering and shipping of fruit, and little else can be done during that time.

The Kitchen Garden requires much labor in watering and hoeing. No more Asparagus should be cut after this time, or else the plants will be too much exhausted and weakened. Pole-beans should be pinched off at the height of five or six feet. Radishes, Lettuce, Turnips and Beets may be sown again for late crops. Celery may now be transplanted. Tomatoes should be supplied with some kind of frames to keep the bushes in shape. Two or three hoops, supported by three stakes, produce the best appearance.

And now a word or two about the raising of seeds. It is well enough to let a few plants of Lettuce and some good monthly Radishes run to seed for future use; but we earnestly recommend the purchase of the necessary seeds every year from those parties who make it their business to raise or sell reliable seeds. Rhubarb and Horseradish are apt to run to seed, and it is much better for the roots to cut down these seed-stocks than to allow them to grow and so impoverish the plant.

The Flower Garden needs as much attention as ever. The cold weather retarded the growth of annuals as well as of other flowering plants. We are accustomed to see Asters and Balsams in bloom before the middle of July, but this year they have yet shown no sign of developing their flowers; additional care and nursing is required to help them along. Of many shrubs and flowering plants cuttings may now be made with every pros-

pect of success, if kept under glass with a very little bottom heat. Pinks can be layered, in fact this is the best time for this operation. Dahlias must have stakes as they grow up.

In the Greenhouse insects of all descriptions are apt to overrun the plants. The green flies are easily destroyed by burning tobacco refuse overnight after shutting everything up well. Other insects may be washed off with a solution of whale-oil soap.

The propagation of plants should be continued until the amount of stock required is made up. As soon as the cuttings of soft-wooded plants show signs of vegetation, which will be in about four to five weeks, (with some sooner, with others later,) it is best to transplant into the smallest size pots.

In order to obtain a good stock of flowering Cinerarias for the coming winter, seed should be now sown.

THE BLACK WALNUT *JUGLANS NIGRA*.

We offer to our readers the subjoined extract relating to the above named very valuable timber tree, hoping that some one may be induced to propagate and plant out at least a few, even if there is not an *immediate* prospect of realizing from their timber.

“This is one of the largest and most beautiful of our forest trees. It is indigenous from Texas to Massachusetts, and from Massachusetts westward to Missouri. When growing in open grounds, it has an erect form, and large spread of limbs, with light green delicate foliage. Its limbs are not thickly placed; hence it does not form a dense shade. Its leaves are sometimes eighteen inches long, with from fifteen to twenty one leaflets, which are unequal on the midrib, and also often unequal at the base. They are sessile or nearly so, and the midrib is frequently slightly curved downward. The bark is dark grey, rough, and closely furrowed. The wood is of a dark brown, becoming blackish brown with age. It is close-grained and susceptible of a fine polish. It is much used for furniture and the inside work of houses. The large organ in

the Boston Music Hall is made of Black Walnut. Its wood is very durable; posts made of it have been known to last for more than a quarter of a century. Its growth from the seed is rapid—I have known its trees to be from fifteen to twenty five feet high, and bear fruit, at the age of seven years. Its fruit is round, and sometimes seven to eight inches in circumference. It, however, varies much in size, according to the age and luxuriance of the tree. Its nuts are somewhat compressed at the sides and furrowed. Its kernel is sweet and very oily, so much so that it is not universally esteemed. The Black Walnut ought to be extensively planted, especially in the prairie regions, because we have few trees of greater rapidity of growth or more valuable for timber. It also affords nuts which are an agreeable food to many; besides, it is decidedly ornamental.

The demand for its timber is such that the large trees are fast disappearing. The following are some of the largest which have come under my observation—the measurement at three feet from the ground, unless otherwise stated:—One in Rusk county, Texas, was fifteen feet nine inches in circumference. In Wilcox county, Alabama, was one eleven feet three inches in circumference, and another thirteen feet eight inches. These two last were from sixty to seventy feet high, and fine stately trees. A hollow section of one was exhibited some years ago in New York, the interior of which was ten feet in diameter—this was from Indiana. Near the base of Cold Mountain in North Carolina, not far from the residence of a Mr. Thompson, I measured one which was sixteen feet eight inches in circumference, and another near Waynesville, in the same State and County, sixteen feet eight inches in circumference. On Clear Creek, a branch of Cattaraugus Creek, in Cattaraugus county, New York, I measured a stump twenty feet eight inches in circumference at about three feet from the ground. This was in the summer of 1865: the tree had then been cut down sixteen years. It was in the Indian reservation; I was told by an Indian who assisted in cutting it down that it was eight

feet in diameter, and had to be split into four parts to be sawed. When I measured the stump it was destitute of bark, and the sap wood had rotted away. On Silver Creek, in Cattaraugus county, New York, a black Walnut blew down in 1818, which was twenty seven feet nine inches in circumference at about three feet from the ground; it was hollow, and a section of it was used for a grocery, first in Buffalo, N. Y., then in Utica, N. Y., from which it was taken to New York City, where it was used for the same purpose. It was finally taken to England. The tree was nearly solid, and sound at the height of six or seven feet. I obtained the above information from a man who owned the tree and sold the grocery section.”—*Prof. S. B. Buckley, in "Southern Horticulturist."*

HYDRANGEA—(*HORTENSIA*.)

The Hydrangeas are natives of China and Japan; they were introduced into Europe as early as 1790; they are extensively cultivated in their native country, and are favorites with florists in every part of the world.

Although a greenhouse plant in the East and in Europe, we grow them here in perfection out of doors, and in a few years many plants have acquired large dimensions. We know of Hydrangea bushes in San Francisco from four to five feet in height and from four to six feet in diameter, bearing at times a dozen or so of very large heads of flowers.

One of the admired peculiarities of the *Hydrangea hortensis* is the changing of color of the flowers, which at first are green, but gradually assume a pink and blue (lead) color. This habit is wanting with our plants in most cases, but could easily be attained if proper measures were employed. The pink color seems to develop well, but the blue is not often seen. In order to produce the blue, it is necessary that the soil should contain a certain amount of iron, and if this is not present it should be introduced.

The Hydrangea is of easy cultivation, requiring much moisture and partial shade.

Cuttings of the Hydrangea will grow readily under glass, making roots in less than three weeks' time.

Hydrangeas are in bloom with us during the greater part of the year; they are also well adapted for forcing under glass.

There are now a number of varieties of the Hydrangea known, of which the most promising are the *H. hortensis*, which is the oldest one under cultivation; *H. japonica foliis variegatis*, the flowers of which are not so imposing, while the foliage is most beautifully colored white and green. It is not well adapted for out of door cultivation; the *Hydr. Otaska* is a novelty yet, and promises to be a fine and interesting acquisition. We do not know any thing of it, except that it has been introduced in various places and is highly spoken of by some who ought to know.

The cuttings for propagation may be taken almost at any time, planted in sand and placed close under glass, where they will form roots in two or three weeks.

As far as the application of iron is concerned to produce blue color in the flowers, it should be understood that it is neither the oxide of iron, nor the scales of blacksmith's forges, nor rusty nails that will answer the purpose, but it is the so-called yellow ochre which, if mixed with the soil, will produce the effect. Alum water has also been recommended, but we know by experience that it has not the desired effect. Black peat generally contains a great deal of iron, and if mixed with sheep-dung is very efficacious.

SEA MOSS.—No less than 1,000 tons of Irish, Swedish and Norwegian sea moss have been manufactured into Sea Moss Farine within the past year; yet the enormous production has barely kept pace with the demand of the public for this new and unequalled article of diet for invalids. The jellies, custards, puddings, creams, etc., made from this cheapest of all food staples, are not even approached in deliciousness by those prepared from any other description of gelatinous material.

POTATOES.—Wood ashes make an excellent and reliable manure for potatoes.

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Editorial Portfolio.

Now that the mining interests of this State are becoming its secondary means of support, and the Agricultural the primary one, we require a different class of immigrants; people who will bring with them a willingness for sober, patient toil, devoid of dreams of suddenly acquired wealth. It is for such, we have been striving, and yet they do not come. Why is this? In our opinion there have been, and still are, a number of causes at work that produce this result; causes which we think are within our power as a people, to remove, or at least so modify, as that they shall not work so much to our detriment.

The papers and journals of California, have not, as a general thing, been honest in their descriptions of this State; they have so bragged and blustered about the wealth of Nature in the State; have told such Munchausen-like stories, that instead of the country being represented fairly, it has only been misrepresented. They seem to have forgotten the old adage, that too much praise is worse than none at all. People have come here under the impressions and influences of these extravagant news-paper articles, and as a consequence have been sadly disappointed. Those who had money, returned, and so the State has received a bad name abroad.

The second cause, is the inability of men with small capital to get land. They are told in the East and in Europe, that within the borders of California are to be found plenty of public lands which they can have by merely occupying and cultivating. When they arrive here they find such not to be the case, and if they want free lands, they must perforce take up with a barren, rocky ridge on the outlying parts of some valley, or occupy lands well up in the Sierra Nevadas, where the distance from a market renders it almost worth-

less. The great bulk of good valley lands, are inclosed by "Spanish grants," or have been covered by school land warrants. These portions of the States are held in large tracts by residents of the cities, principally merchants, lawyers, and doctors, who refuse to sell and so prevent that influx of a farming population which we so much desire. This system (if it can be called one) has also a bad effect upon our agriculture; engendering a careless kind of cultivation which of itself is discouraging to new comers, who have been accustomed to the well tilled fields of the East and Europe. The man who has no ownership in the soil he tills, has but little thought for the requirements of that soil; and only caring for the return of his crops, draws all he can from the fields, leaving them in the end bankrupt and unable to yield further returns.

All this is wrong; what we want is small farms well cultivated, well stocked, and a permanent ownership in the land, and then we shall reach that point of success for which we all claim to work. With small farms there will be less danger of short crops, for a better mode of culture will obtain, and less reliance placed upon one or two articles alone.

Another cause to operate against us, is our long dry summer; over this of course we have no control, but we can at least inaugurate a system of irrigation which shall go a long way towards remedying this want of moisture.

It is certainly strange, that in a State claiming so much as California does, that there has been no concerted action either by the people or State government. All this requires change; the State and people must wake up and move in this matter, or we shall still continue to languish for want of all the materials that go to make up a rich and prosperous commonwealth.

The State government should have an agent (one who will work and not confine his labors to the drawing of his salary) both in the East, and in Europe, who can give all needed information about this coast, the means by which it is to be reached, and when so reached, the prospect of success to the immigrant in his

new home. Less money spent in political huckstering, and for the support of unnecessary and useless commissioners at home, and more for the actual benefit of the State, would result in much good to us all.

ANTIPODAL.

We have received the Journal of the *Agricultural Society of New South Wales*, for May. It is in its third volume, and is published under the auspices of the above named Society, at Sydney. The Journal contains the first part of a list of trees and shrubs exotic to Australia, which have been introduced and are now growing in New South Wales, and Victoria. Among them we find 23 that are natives of North America, and 47 natives of Europe. Does this not show progress of the right kind in tree acclimation and cultivation?

MASSACHUSETTS HORTICULTURAL SOCIETY.

The transactions of the above Society for the year 1870 is to hand. This Society now numbers a total membership of 1,014, and includes both men and women. This is right; many of our greatest lovers of Horticulture are to be found among the ladies. We would be glad to see them well represented in the Bay District Horticultural Society of California.

"PACIFIC RURAL PRESS."

This valuable and well conducted Agricultural Journal has entered upon its second volume. We wish it all success in its labors.

STATE HORTICULTURAL SOCIETY OF OREGON.

The First Annual Fair of the Oregon State Horticultural Society was held at Portland, commencing on June 28th, and lasting three days. The Exhibition was a success in every way, except financially. We hope to hear of no such exception at the next Fair.

SALT LAKE.

Mr. I. M. Hoag, of Sacramento, has gone to Salt Lake City, in the interests of the California State Agricultural Society.

OREGON STATE FAIR.

The State Agricultural Society of Oregon, extended an invitation to Horace Greeley to deliver the Annual Address at the next State Fair. Mr. Greeley has declined, stating that it would be impossible for him to visit this coast during the present year.

BAY DISTRICT HORTICULTURAL SOCIETY.

The regular monthly meeting of this Society took place on Saturday, June 24th, for the transaction of business.

The following candidates for membership were proposed:—

Mr. E. D. LEWELLING, of San Lorenzo,

“ RICH. D. REED, of Sonoma,

“ W. F. ADAMS, of Fair Oaks,

and elected as regular members under the suspension of the rules.

A communication from Mr. F. von Mueller, of the Botanical Gardens at Melbourne, to the Society, was read, in which this gentleman kindly offers his services to forward the interests of the Society, if within his power.

A committee of two were appointed to procure a suitable diploma for the use of the Society, at the next Exhibition.

ANNUAL MEETING OF THE CALIFORNIA
ACCLIMATIZING SOCIETY.

The Annual Meeting of this Society was held July 12th, at which the following named gentlemen were elected to serve as Trustees during the ensuing year: A. Badlam, E. C. Dake, C. Coates, Phil. McGovern, M. M. Estee, D. J. Mills, J. C. Green, — Larkins, C. B. Green, W. A. Newell, E. H. Neill and

C. A. Stivers. At a subsequent meeting of the Trustees, the following were elected as officers of the Society: *President*, W. A. Newell; *Vice-President*, A. Badlam; *Treasurer*, D. J. Mills; *Secretary*, John Williamson.

AMERICAN POMOLOGICAL SOCIETY.

The Thirteenth Session of this Society will be held in the city of Richmond, Virginia, on the 6th, 7th and 8th days of September, 1871. An invitation has been extended to all Horticultural, Pomological and Agricultural Societies in the United States and the British Provinces, as also to all persons interested in the cultivation of fruits, etc., to send delegations. It is expected that the session will be unusually interesting, as it is to be held in conjunction with the Exhibition of the Virginia Pomological and Horticultural Society. Members and Delegates are requested to contribute specimens of the fruits of their respective districts, and to communicate in regard to them whatever may aid in promoting the objects of the Society and the science of American Pomology. Packages of fruits with the name of the contributor, may be addressed as follows: “American Pomological Society,” care of H. K. Ellyson, Secretary Virginia Horticultural and Pomological Society, Richmond, Va. We hope to see California well represented.

NEW JERSEY STATE AGRICULTURAL SOCIETY.

The above Society will hold its Thirteenth Annual Fair on the 19th, 20th, 22d and 23d of September next, at Waverly Station, near Newark, N. J.

RAMIE MACHINE.

The *Rural Carolinian* says that M. Le-franc's Ramie Machine has been introduced into Mexico, and is found to prepare the Ramie fiber in a most satisfactory manner.

 PREMIUMS.

The following are some of the premiums offered by societies and individuals, to be awarded at the meeting of the American Pomological Society in Richmond during the month of September next.

The Virginia Pomological and Horticultural Society offer one hundred and fifty dollars, at the disposal of the American Pomological Society.

The Virginia State Agricultural Society offer one hundred dollars for the largest and best collection of Apples, Pears, Peaches and Grapes.

Ellwanger & Barry, of Rochester, N. Y., offer fifty dollars for the largest and best collection of Apples, not less than fifty varieties, three specimens each.

Marshall P. Wilder, of Boston, Mass., offers fifty dollars for the largest and best collection of Pears, not less than fifty varieties, three specimens each.

Charles Downing, of Newburg, N. Y., offers fifty dollars for the largest and best collection of American Grapes, not less than twenty varieties, three bunches each.

These are but a few of the Premiums offered, and we have published them to show the people in California how they foster and encourage the Horticultural and Pomological interests in the Eastern States.

 BAD SEED.

There are many complaints this year about bad seeds; but we are inclined to believe that the dissatisfaction is not generally attributed to the proper cause; the seedsmen have to shoulder it all, and in most cases they are entirely blameless.

The unusually cold weather which we have experienced this year, and our dry winter, were very unfavorable to the growth of all kinds of seeds. A certain amount of warmth and moisture are requisite to produce germination, and Nature absolutely refused to supply us with these indispensables,

We know there are many mistakes made in planting seeds, such as covering them too deeply, not pulverizing the soil sufficiently, and neglecting to irrigate properly. The smaller the seed, the less they should be covered, and the finer the soil should be pulverized; and if the soil is rather dry and naturally coarse, it should be rolled after planting or beaten down slightly with the spade, so as to settle the soil closely around the seed.

Another precaution may prove very useful where valuable seeds are planted, and that is the covering of the surface with sand, which will prevent the forming of a crust, through which the young and tender germs cannot protrude themselves.

The germination of some seeds is greatly assisted by first soaking them in water, but we cannot advise the general practice of soaking, which in a great many cases results very injuriously. We admit that the seeds of some plants must be soaked in boiling water to cause germination, such as Cannas, some varieties of Acacias, etc.; but such cases should be looked upon as exceptional.

Peas are soaked in water for the purpose of swelling the seeds and hastening germination, but it is very doubtful whether any good is derived from it. Warmth and moisture and judicious planting, are the great points in sowing seeds.

 WHO MAKES THE MONEY?

A year ago, or thereabouts, we sojourned for a few days in the thriving city of San José, and called upon several of our friends who were cultivating fruit on a large scale. Among the many questions we asked, for general information, was one in regard to the profit of fruit culture. Our informant, a well known gentleman and extensive fruit-grower said, good-naturedly: "All I can do with my fruit is to send it to a certain commission merchant, who disposes of it at some price, and every four or six months I go to the city for a settlement, and all that I receive amounts to just as much as he is willing to give me."

During this last month we were informed by very reliable parties on the other side of the bay, that they received for their Cherries from six to twenty five cents per pound, while the same fruit sold in our markets for three times the money. The consequences are that the fruit-grower receives little or nothing for his labor and use of capital, while the consumer is compelled to pay enormous prices : the commission merchant and the jobber absorb it all, or nearly so.

We think it very desirable that a change should be effected before long in this matter; the cultivator should have a fair price for his fruit, etc.; the commission merchant should receive from five to ten per cent., and the consumer would then be enabled to purchase what he wanted at a reasonable price : fruit would then be cheap, much more would be used, and the cultivation of orchards would be a more profitable business.

How can this reform be accomplished, and who will inaugurate a movement to deliver us from this deep-rooted evil ?

THE HORTICULTURAL EXHIBITION.

The Bay District Horticultural Society is making extensive preparations for its Exhibition, to be held in this city during the next month, in conjunction with the Industrial Fair.

This young Society, although only eight months in existence, already numbers 70 members, of which the greater number are practical Horticulturists. Their efforts to foster taste and diffuse knowledge are most laudable, and we hope that the public will appreciate their untiring labors.

The space set apart for this department is some 350 feet long by about 50 feet in width. Opposite the entrance a grass-plot has been located, which will be embellished by groups of ornamental trees, beds of flowering-plants and statues. Walks of ten feet in width laid with shells will separate the outside borders from the central portion, which will contain the larger shrubs and trees, while the borders

will be filled up with the exhibits of fruits and pot-plants.

One end of the building will be occupied by a fine garden frame, artistically constructed of wire, while the other end will be ornamented with a miniature garden.

In the adjoining spaces two beautiful marble fountains will be erected, which will be appropriately ornamented with rocks and plants; between the fountain and the wire-frame at the one end, and the fountain and miniature garden at the other, tables will be arranged for the display of cut-flowers and bouquets.

Over 500 square feet of tables have been put up for fruits and vegetables.

The entire outline of the space to be occupied will be ornamented with evergreens and over one hundred gas-lights will illuminate the display during the evenings.

It is hoped that the preparations will meet all reasonable expectations. All that is now requisite to make this Exhibition a complete success, is some little sacrifice on the part of our florists, fruit-growers and horticulturists in general, in displaying the fruits of their labors before the public, and in seeking the best possible effect by appropriate and judicious arrangement, and thus winning the admiration of all who may chance to witness the display; to foster a taste the want of which is so sadly felt in this community, and to profit by comparing the result of their toil with that of their neighbors and colleagues.

Very many of our horticultural friends recognize the importance of exhibitions of this character, and they will do all in their power to make it a success, but we much regret to hear some say, "it won't pay us."

All over the civilized world public exhibitions are held and encouraged, and their good effects can easily be perceived by any intelligent mind; almost every branch of industry is stimulated by them, while the various exhibitors are engaged in friendly rivalry with one another. But the "won't pay" whine is a cowardly utterance of men who have no go-ahead spirit in them; men who care little for general prosperity and progress, except when

their own individual interests can be advanced. However, we hope that this contemptible selfishness will sooner or later give place to better judgment, and that before many years, every one will give a helping hand and pride himself in excelling his neighbor in the excellence of his display, and the amount of aid rendered. This is the true road to success.

We therefore appeal to all good men to voluntarily come forward and contribute the best they have, no matter how little, to make this Exhibition one of which every friend of Horticulture may feel proud.

TEA CULTURE.

Tea cultivation is increasing in the Southern States, and it is believed that tea enough will soon be grown there for home consumption. How is it about the experiment in the cultivation of the Tea-plant in California? Is the Calistoga trial to be final? We hope not. Knowing the nature of the plant, and the climate of California as we do, we feel certain that its cultivation will succeed in this State.

VALUE OF IRRIGATION.

Land under irrigation in Spain will sell for \$500 per acre, while that alongside of it but which is not irrigated, will not bring more than \$50. A company organized in Madrid with a capital of \$1,500,000 has reclaimed 300,000 acres of land, and is paying dividends equal to 18 per cent. on the investment.

If irrigation does so much for land in Spain, is it not time that our capitalists invested their money in the same profitable way?

All over the Eastern States and throughout the European continent, a general system of irrigation is being introduced, although more or less rain falls there during the summer. How much more necessary is such a system to California, where all vegetation is arrested for want of moisture during the summer and autumn!

We most sincerely hope that the various irrigation enterprises which have been proposed (some of which are partly commenced) in various parts of California, may be prosecuted energetically and to the satisfaction of all concerned. Capital must come to the aid of the farmer and manufacturer, if we desire that prosperity and happiness shall reign once more over our golden State.

THE ENEMIES OF THE ROSE.

Although Roses are very easy of culture in our gardens and are the most popular of flowering plants, yet they have their enemies, and very often Rose-bushes suffer and even perish, without the true cause of the mischief being ascertained.

One of the worst enemies is the *Aphis roseæ*, which sometimes covers all the young branches and exhausts the sap from the tender leaves and shoots. The female aphis produces her young throughout the entire year, and is particularly active on plants which are kept in warm rooms. These are most effectually destroyed, by brushing them with a soft brush into a basin filled with Tobacco juice. They may also be killed by fumigating with Tobacco smoke or the vapor of burning Solanum and Tomato leaves; but it is advisable to sprinkle the plants well with water, so that the atmosphere may not become too dry from the effect of the fumigation.

Another very troublesome insect is the red spider, (*Acarus telarius*,) which is generally found on the under side of the leaf. It sucks the sap from the leaves, which drop off and the plant appears in a sickly condition. This pest may be destroyed by sprinkling the plants and particularly the under sides of the leaves with soot dissolved in water; this remedy is at the same time a good fertilizer.

WATERING MILK.—A lady correspondent of the *Maine Farmer* says that "she gets much more cream in summer by taking out what milk she wants for family use and then pouring into it cold water; and in cold weather by using hot water. This is much easier than scalding the milk, as generally recommended."

EMPLOYERS OF GARDENERS.

Our next Horticultural Exhibition should be visited by every professional gardener in California, and we would suggest to those gentlemen who have gardeners in their employ, to encourage their men to attend our Exhibition. Much good may result from such action, as many matters of interest will doubtless be thus brought to light, and much valuable information may be obtained from the interchange of experience in different localities. This is one of the most useful results of Horticultural Societies and Exhibitions. We should take advantage of these opportunities, and not only study to please the eyes of our visitors but also to enlighten each other with the best of our knowledge and experience. An exhibition of this kind should not only be attractive, but likewise useful and instructive.

COMMUNICATIONS AND BRIEF NOTES.

Under the above heading the *Gardener's Monthly* says: "We are much indebted to our Horticultural friends who favor us with their thoughts, opinions and suggestions, from which we can make brief paragraphs, as well as to those who send us from time to time excellent articles for our 'communication' page. Every gardener or lover of plants and fruits, can, if they only think so, send us notes of much value."

[We are sorry to say, that our Californian Horticultural friends are much behind in this respect, and we can attribute their indifference more to their extreme *modesty*, than to their unwillingness. But we wish our friends to understand, that we could do much more good, if they would be kind enough to give us any information which will lead to practical results. A magazine of this kind should express the opinions and experiences of our most practical men, and not be compelled to rely solely upon the experience of a few.—Ed.]

OUR FRUIT AND VEGETABLE MARKETS.

The supply of Fruits and Vegetables is now very abundant, (15th July.) Many additional varieties are making their appearance in the market.

Cherries are still plentiful.

Strawberries are scarce.

Raspberries abundant and fine.

Blackberries also are crowding into market.

Currants continue plentiful.

Gooseberries hold their place, and there is still a show of Rhubarb.

Apricots are abundant, and

Peaches of several varieties are filling up the market.

Apples of many kinds are plentiful.

Pears also in variety.

Figs are large and luscious and in good supply,

While a few Plums, early Grapes and Musk Melons add to the variety and please the eye.

There are also some Cherry-plums, Cherry-apples and Almonds.

There is the usual supply of Oranges and Limes, Lemons, Bananas, Pine-apples and other Tropical productions, with some Nuts.

The Vegetable market has an ample supply of Cabbages, Cauliflowers, Turnips, Carrots, Potatoes, Brocoli, Leeks, Onions and Lettuce.

Asparagus is becoming scarce, as are also Peas; but String and Lima Beans are in sufficient supply, and Tomatoes are becoming plentiful.

Celery, Beets, Summer Squash, Sweet Corn, Artichokes, Gumbo, Cucumbers, Capsicum, Horseradish and Pepper, are sufficient to meet the present demand.

A PRETTY ornament may be made by suspending an acorn by a piece of thread tied around it, within 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 then burst open, and small roots will seek the water; a straight and tapering stem, with beautiful and glossy green leaves, will shoot upward and present a pleasing appearance.

Correspondence.

NAPA, July 14th, 1871.

Editor Horticulturist: Acting on the advice contained in your valuable Journal, I have tried Whale-oil Soap for the destruction of Cabbage-lice, and believe it to be the great desideratum. I have sprinkled the Cabbages but twice with the solution, and while it has not entirely eradicated the pests, yet it has stopped their depredations and lessened their numbers to such an extent as to give me hope that a couple more applications will entirely remove them.

I believe that sousing the plants in the solution, previously to planting them out, gives them an excellent protection not only against the Cabbage-louse, but all other destructive insects. My plants so prepared were also exempted from the attacks of squirrels, hares, etc., which had committed extensive depredations among those not so treated.

H. F.

Editorial Cleanings.

BERMUDA GRASS.—Twenty years ago no country in the world was so prolific in natural growth of Grass as California. The finest grazing country that ever was known, perhaps, was the valley of the Sacramento and adjacent tributaries. Cattle could then live and keep fat the year round. Wild oats, clover, red top, alfalfa, and a variety of other succulent grasses, were indigenous to the soil, and grew luxuriantly. Now the whole face of the country is changed; the land has, in many places, been fenced and put in cultivation, and where the thousands of cattle roamed in undisturbed tranquillity among blooming flowers, and lazily fattened on the most nutritious grasses, the land has been plowed and is covered with orchards, vineyards and waving fields of grain. The cattle, for want of proper range, have had to be driven to the mountains or inclosed in pastures kept for the purpose.

Since it has become necessary to provide for the sustenance of stock, some of our farmers are beginning to look around and try to find out what kind of pasture is the most profitable, and what kind of grass they shall sow. What is called Bermuda Grass is said to be the best adapted to this climate, and the most nutritious at the same time. It is rather rare here as yet, but when its merits are fully known, will, no doubt, be extensively sown by our farmers for pasture use. We were shown a specimen of this grass a few days ago. It presents a remarkable appearance. It is about six inches in length and bears a head with seed something like timothy. It can be seen growing in the yard of Mr. Wise, on H street, near the park. We call attention, especially, to this grass, as it may be of interest to our farmers to know what is considered the best, and where a specimen can be seen.—*Sacramento Reporter.*

TOTAL DEPRAVITY IN A GARDEN.—I believe that I have found, if not original sin, at least total vegetable depravity in my garden; and it was there before I went into it. It is the bunch, or joint, or snake-grass, whatever it is called. This grass has a slender, beautiful stalk, and when you cut it down, or pull up a long root of it, you fancy it is got rid of; but in a day or two it will come up in the same spot in half a dozen vigorous blades. Cutting down and pulling up are what it thrives on. Extermination rather helps it. If you follow a slender white root, it will be found to run under the ground until it meets another white root; and you will soon unearth a net-work of them, with a net somewhere sending out dozens of sharp-pointed, healthy shoots, every joint to be an independent life and plant. The only way to deal with it is to take one part hoe and two parts fingers, and carefully dig it out, not leaving a joint anywhere. It will take a little time, say all summer, to dig out a small patch; but if you once dig it out, and keep it out, you will have no further trouble.

AN ORANGE TREE AT MONTECITO.—On the farm of Augustus Dinsmore in the Montecito, some five miles east of town, says the Santa Barbara Press, our attention was drawn to an Orange tree seven years old from the seed, of the Tahiti variety, which must have on it some 1,200 young oranges in various stages of growth. One, we noticed, was nearly ripe, while clusters of flowers are to be seen on the overhanging boughs. The fruit on this young tree is of a very delicate kind, being unusually sweet and luscious. Last year the tree bore nearly seventy oranges; this year it will have more than a thousand, worth at least five cents apiece. Hence, the crop of this one seven years old seedling orange tree will be worth over fifty dollars. Next year it will produce at least one hundred dollars worth.—*Alta California*.

SWEEPING CARPETS.—Persons who are accustomed to use tea-leaves for sweeping carpets, and find that they leave stains, will do well to employ fresh cut grass instead. It is better than tea-leaves for preventing dust, and gives the carpet a very bright, fresh appearance.

INSECT TRAPS.—Now that Horticulture has come to be largely a fight with insect depredators, every method of getting the best of the foe is eagerly scanned. Some horticulturists are beginning to find out that the easiest way to fight worms and insects is to trap the parent millers, moths or bugs, as is easily done by suspending in trees and in gardens wide-mouthed bottles or jars, half-filled with thin molasses or very sweet water. A writer in the New York *Observer* says:

“I have tested the efficacy of this insect trap, and have found it all that can be desired for trapping the butterflies, moths, millers and beetles of every species of insects that infest fruit trees and vines, vegetables and flowers. The worms on grape-vines, the worms on tobacco, on tomatoes, and on Irish potatoes, all spring from eggs deposited by butterflies which can be readily trapped in

this way. We trapped last season scores of many species of depredators, in our city lot in Brooklyn. Several gentlemen who reside in the valley of the Hudson river have trapped more than a bushel each, consisting of almost an endless variety of moth millers, beetles, bugs and flies. Every fruit tree, every evergreen and deciduous tree, every berry bush and fruit-bearing vine, and every vegetable cultivated in the garden is attacked by a species of noxious insect which flourish only where their appropriate species of trees or fruit is cultivated; and strange to say, every one of those foes spring from parent insects in the form of butterflies, moth millers, beetles, or bugs, every species of which will hazard life for the sake of getting a taste of the contents of the bottle. Like our eligible young ladies who are warned of the troubles incident to connubial life, they want to taste and try for themselves. Foreign papers state that it was estimated that more than thirty millions of insects were trapped in bottles containing very sweet water, in a certain section of country in France last year. As every butterfly or moth produces a very numerous progeny, it will be seen at once that it is in this form the insect ravagers can be most successfully fought.

ORIGIN OF PLANTS.—Peas are of Egyptian origin; Celery originated in Germany; the Chestnut came from Italy; the Onion originated in Egypt; the Nettle comes from Europe; Tobacco is a native of Virginia; the Citron is a native of Greece; the Pine is a native of America; Oats originated in North Africa; Rye originally came from Siberia; the Poppy first came from the East; the Mulberry originated in Persia; Parsley was first known in Sardinia; the Pear and Apple are from Europe; Spinach was first cultivated in Arabia; the Sun-flower was brought from Peru; the Walnut and Peach came from Persia; the Horse-chestnut is a native of Thibet; the Cucumber came from the East Indies, and the Radish originated in China and Japan.

A WOMAN'S OPINION OF CALIFORNIA HUSBANDMEN.—Mrs. M. A. Sheldon, San Francisco, Cal., writes the *Farmer's Club*, that in her opinion the husbandmen in California farm twice the land they ought to. They plow from three to five inches, and, as they have in wet years reaped a bountiful harvest from such slovenly cultivation, they have grown careless and trust a great deal to the smiles of Providence, when if they would put in the plow beam deep, and follow up with a sub-soil plow, Providence would "grin right out" in a dry year.

REDWOOD SAWDUST IN RUNNING STREAMS.—Much complaint is made, through the redwood country, of the practice of casting sawdust into running streams. If carried to any considerable extent, it becomes a most intolerable nuisance, rendering the water impure, and entirely unfit for domestic use, or for the use of stock. Wherever it lodges and remains for some time in any considerable body, especially if exposed to the hot sun, as it must be, more or less, during the season of low water, it generates the most disgusting mephitic gases, equal to or worse than decaying animal matter.

We have had some experience in the way of placing hot water, for only a few days, in a redwood tank, in a manufacturing establishment in this city. It produced a stench, which, if it had been continued, would have driven all the workmen out of the building. Of course no fish can live in a stream where such sawdust is thrown. Neither any person, nor any manufacturing establishment has a right to poison any running stream. If the nuisance cannot otherwise be abated, Legislative enactment should make it imperative and binding on mill men to cease a continuance of this nuisance.—*Rural Press*.

THE *Technologist* says:—"One cord of wood, cut and split fine, and corded up beneath a shelter, while it is yet green, will furnish more heat after it becomes seasoned

than two cords of the same kind of wood which has been continually exposed to the alternate influences of storms and sunshine."

BREEDING GOLD FISH.—A correspondent of the *Scottish Farmer* says: A friend of mine some years ago constructed a tank about sixteen feet long, and between four and five feet broad, by three feet deep, which he stocked with fish, but they did not breed. I suggested to him that gold fish were very fond of eating their own young, and that if he wanted to breed fish he must have the means of separating the old from the young. I also advised him to stretch across the tank a partition of wire-work, with a mesh sufficiently small to prevent the large fish from pushing through, at the same time giving the young fry an opportunity of getting into a secure place. This answered the purpose perfectly, and they bred in numbers.

Gold fish should be kept in water of an even temperature—neither too warm nor too cold. A very small quantity of the white of an egg, broken up into minute particles, is sufficient daily food for some half-dozen fish. To this a very small quantity of pounded vermicelli may be added.—*Rural Press*.

GARDEN WALKS, ETC.—To make good dry walks that may be used with pleasure and comfort at all times, take three parts screened gravel, one part flour of lime (previously riddled), add as much coal tar as will make it of the consistence of stiff mortar; if the tar is heated it will be easier to work. For ordinary garden walks this should be laid on from two to two and a half inches thick, it should be slightly thicker in the centre than at the sides, which should be one inch below the edge; the centre of the walk to be the same height as the grass edge, but they must vary a little, according to the width of the walk. Smooth and beat the surface with the back of the spade as the work proceeds. If the black color be an objection, take three parts of sand and one part of lime, mix well

together, and sift a little over the surface while still moist, and roll well. We have walks which were made as above thirteen years ago, and they are as good as ever; but care must be taken in laying them to have a firm basis. These walks have a great many advantages over ordinary gravel walks: they are always dry, grow no weeds, and are much more easily swept; wheeling of manure and soil can be done at any time, and very much more quickly and easily; indeed they are a great saving of labor in many ways, and when once perfectly dry, frost does not affect them. Where gravel is scarce or expensive, very good walks may be made with sand, lime, and tar, in the same proportions as above, but this takes much longer to set before it is fit to walk upon, and is more difficult to spread, but this is got over by using a warm spade. To make a good carriage road, coarser material must be used, and laid in two layers,—first three inches of broken stones; second, screened gravel two inches, mixed as directed for garden walks.—*John Taylor, Rose Hill Lodge, Botcherby, Carlisle.*

THUJA LOBBII.—As a hedge plant this fine, fast-growing Conifer makes the best of all evergreen hedges. The American Arbor-vitæ is universally used by nurserymen to form hedges to shelter their finest half-hardy plants and shrubs, but *Thuja Lobbii* (*T. gigantea*) grows quicker, is more compact in habit, and keeps its fine green color all winter. A few years ago I raised a quantity of *T. Lobbii* seedlings from imported seeds, and having a very exposed quarter in the orchard that wanted shelter, I had a hedge of them planted out. This hedge is now about ten or eleven feet in height, has never been clipped but is quite compact. For growing into specimens, I likewise believe *T. Lobbii* will yet be found to be best of all the *Thujas*—from its fine habit and its beautiful green foliage. Having an immense quantity of *Cupressus Lawsoniana* raised from seeds grown here, I have likewise tried these for making evergreen hedges in the kitchen gar-

den, and they seem to bear clipping well; and being of such rapid growth, they will form a good sheltering hedge in three or four years. This fine tree bears seeds at so young a stage that seedlings may now be raised as plentiful as *Larches*, it is, therefore, worthy of a trial for forming evergreen hedges in nurseries and gardens where shelter is wanted.

William Tillery.

FRENCH METHOD OF RAISING POTATOES.—As soon as a cluster of flowers is visible, the stem is topped down to the cluster, so that the flowers terminate the stem. The effect is that the sap is immediately impelled into the two buds next below the cluster, which soon push strongly and produce another cluster of flowers each. When these are visible, the branch to which they belong is also topped down to their level, and this is done successively. By this means the plants become stout dwarf bushes, not above eighteen inches high. In order to prevent their falling over, sticks or strings are stretched horizontally along the rows, so as to keep the plants erect. In addition to this, all the laterals that have no flowers, and after the fifth topping, all laterals whatsoever are nipped off. In this way the ripe sap is directed into the tuber, which acquires a beauty, size and excellence unattained by other means.

GARDENING AS A RECREATION.—I would recommend every man, in the autumn of his life, to take to gardening, if he has not already experienced its pleasures. Of all occupations in the world it is the one which best combines repose and activity. It is rest-in-work and work-in-rest. It is not idleness; it is not stagnation—and yet it is perfect quietude. Like all things mortal, it has its failures and its disappointments, and there are some things hard to understand. But it is never without its rewards. And, perhaps, if there were nothing but successful cultivation, the aggregate enjoyment would be less. It is better for the occasional shadows that come over the scene. The discipline, too, is most salutary. It tries one's patience, and it tries

one's faith. The perpetual warfare that seems ever to be going on between the animal and the vegetable world is something strange and perplexing. It is hard to understand why the beautiful tender blossoms and the delicate fresh leaflets of my Rose-trees should be covered with green flies, and destroyed as soon as they are born. It is a mystery which I cannot solve—but I know that there is a meaning in it, and that it is all decreed for good, only that I am too ignorant to fathom it. And even in the worst of seasons there is far more to reward and encourage than to dishearten and to disappoint. There is no day of the year without something to afford tranquil pleasure to the cultivator of flowers, something on which the mind may rest (using the word in its double sense) with profit and delight. If there is no new surprise, no fresh discovery for you, there is always something to be done.

The Cornhill Magazine.

INTOXICATION BY FUNGI.—In Keenan's interesting "Tent Life in Siberia" there occurs the following passage:

After due conclusion of the ceremony (a Korak marriage) we removed to an adjacent tent, and were surprised, as we came out into the open air, to see three or four Koraks shouting and reeling about in an advanced stage of intoxication—celebrating, I suppose, the happy event which had just transpired. I knew that there was not a drop of alcoholic liquor in all Northern Kamschatka, nor, so far as I know, anything from which it could be made; and it was a mystery to me how they had succeeded in becoming so suddenly, thoroughly, hopelessly, and undeniably drunk.

Even Ross Browne's beloved Washoe, with its "howling wilderness" saloons, could not have turned out more creditable specimens of humanity intoxicated than those before us. The exciting agent, whatever it might be, was certainly as quick in its operation and as effective in its results as any 'tangle-foot' or 'bottled lightning' known to modern civilization. Upon inquiry, we learned, to our astonishment, that they had been eating a species of the

plant vulgarly known as toadstool. There is a peculiar fungus of this class in Siberia known to the natives as 'muk-a-moor,' and as it possesses active intoxicating properties, it is used as a stimulant by nearly all the Siberian tribes. Taken in large quantities, it is a violent narcotic poison; but in small doses it produces all the effects of alcoholic liquor. Its habitual use, however, completely shatters the nervous system, and its sale by Russian traders to the natives has consequently been made a criminal offence by Russian law. In spite of all prohibitions, the trade is still carried on, and there were twenty dollars' worth of furs bought with a single fungus.

CARE OF GOLD FISH.—If Delia Merrill would save her remaining gold fish she must feed it without delay. They probably find enough in their native streams to support life, but not confined in a small globe. I once lost three, the most beautiful fish that I ever saw, by this stupid idea, that they could live on the animal life they found in the water. Mix together a little flour and water to the consistency of dough, roll into little pills the size of a small pea, and feed three or four of these once a day; occasionally give an angle worm cut in small pieces. Then change the water in your globe daily, and your fish will be all right.

I also prepare another kind of food—of white of egg and flour, which is nice for a change. This is especially for gold fish: know nothing about the treatment of common fish. I have shells in my globe, and one little cup-shaped shell receives the food; and it is just *jolly* to see them sail around to get it.—L.

Rural New Yorker.

TO REMOVE STAINS.—Coffee and fruit stains on linen and white cloths will be set rather than removed by soap if put into the suds with the stains on them. They should be first put into boiling water and kept there until the water becomes cold, and then put into the suds.

THE BEDDING-OUT SYSTEM.—The practice of planting-out various kinds of tender or half-hardy plants about the middle of the month of May into beds, in the open air, with the view of producing a grand display of floral beauty in the parterre during the summer and autumnal months, is usually designated the “bedding-out system;” and although this may have been practised to some extent very many years ago, still its universal adoption as a system may be regarded as comparatively modern, probably dating back less than half a century.

This system has been necessarily progressive in its development, in accordance with acquired knowledge as to the capabilities of the various materials brought into use in producing desired results, and has also from time to time been aided and influenced by the introduction of novelties suited to the purpose in view, such novelties being due to the indefatigable exertions of collectors on foreign stations, as well as to the skill and labor of the hybridiser and cross-breeder at home.

Altogether the bedding-out system has attained a degree of popularity which is likely to be lasting; although it is by no means to be supposed that it has attained to the utmost degree of perfection of which it is capable, or that it is by any means at a standstill. Indeed the reverse of this is proved to be the case, inasmuch as in very many garden establishments each succeeding season is evidently an advance upon its predecessors in regard to the selection of material, the arrangement of the same, and the satisfactory effect produced. The system may without doubt be regarded, even in its present condition, as a great advance upon that which it has in a great measure superseded, and which, although still applicable and well suited to some circumstances and situations, in too many instances consisted of a series of unmeaning clumps or beds, without any apparent order or arrangement, and which added little to the beauty or the interest, of the lawn which usually surrounds a country mansion or residence.

These clumps or beds were frequently of

considerable dimensions, and were usually planted with hardy herbaceous plants, annuals, bulbs, etc., which though by no means deficient in interest to the lovers of flowers, were still without any pretensions to that concentrated display of floral beauty which is annually presented by the present popular system. The latter might indeed be considered to be so great an improvement upon its predecessor that it could hardly have a single opponent or detractor. But this is by no means the case, for there are at least a few writers upon the subject whose almost furious attempts to bring this style of flower gardening into contempt, suggests the probability of there being something in scarlet Pelargoniums, yellow Calceolarias, etc., which exercises some occult pathological influence upon certain temperaments, similar to that produced by a red flag upon the temper of a certain quadruped, otherwise usually quiet and docile in his department.

It is, however, to be regretted that the advocates of one style or system of decoration should think it necessary to denounce another, when there may be room enough for both, and each may be equally applicable under certain circumstances. And I believe that there are few, if any, advocates of the prevailing style of plant grouping, who would for a moment wish to see the entire class of hardy herbaceous plants, or the still more interesting class of hardy alpine perennials banished from the flower garden; or who would be unwilling to admit that the herbaceous border, etc., possessed attractions of the most interesting character.

There cannot be a doubt that flowers are a source of great pleasure and gratification to nearly all classes and conditions of mankind, be they learned or unlearned, rich or poor. Few, indeed, can be said to be altogether indifferent to their attractions. It is also at the same time easy to conceive how that, to the eye of the botanist, the humblest flower that blooms wild on the mountain side or adorns the headland glade, may possess equal or even greater attractions than its more beautiful sister of the parterre. But as all

lovers of flowers cannot be botanists, it follows that plants are found to be generally appreciated and admired in accordance with the beauty possessed by their flowers and foliage, the grace of their habit, and the sweetness of their perfume; and to stigmatize any class of plants as glaring and vulgar, etc., because their habit happens to be floriferous and their hues bright, hardly seems reasonable and just.—*Gardener's Chronicle*.

The following useful extracts are from the Agricultural Report of May and June:

EFFECT OF TREES ON CLIMATE, (MALTA.)—Much has been said in the work of Mr. Geo. P. Marsh, entitled "Man and Nature," and by many other writers, of the influences exerted by man upon the physical condition of the earth and the atmosphere, and deserved stress has been laid upon the important part played by trees in all phenomena connected with the amelioration of climates and the restoration or increase of rain-fall, and the diminution in the number and the intense severity of inundations, etc. Mr. Buchan, a well-known meteorologist of Edinburgh, has lately made a report to the Scientific Society of that city in regard to certain measures about being introduced by the Governor of Malta for replanting the island with trees, in which he remarks that the characteristic features of the climate of that island are the cold northerly winds of the winter, and the excessive heat of the summer, with a great scarcity of water throughout the whole year. The entire absence of trees on the island was thought to intensify and increase these extremes, and it was believed that by securing an abundant covering of forests much could be done for the amelioration of the climate. Mr. Buchan, in reference to the general theory of such amelioration, states that while the highest temperature of the air occurs in summer between 2 and 3 o'clock p. m., the change in the trees is very slow, the leaves not attaining their maximum temperature until 9 o'clock p. m. Thus, while the atmospheric changes are rapid, the tempera-

ture varies slowly in the trees, and therefore they serve, like the ocean, as equalizers of the temperature, moderating the heat of the day and maintaining a higher temperature during the night.

In continuation of the same subject, Mr. Buchan remarks that, as air is heated by contact with the soil, and as trees shelter the soil from the solar radiation, they must diminish the force of the sun's rays, especially in the lower strata of the atmosphere. The exhalation of moisture by trees produces cold in the air by extracting the latent heat from it. This lowering of the temperature gives to the air a greater degree of humidity. Again, the leaves of trees exercise an important influence in cooling the atmosphere, as the tree itself, by its radiation of heat, becomes sensibly lower in temperature, and thus cools the air as it plays among the leaves.

SULPHURIC ACID FOR DESTROYING WEEDS IN LAWNS.—A writer in an English journal suggests the use of ordinary sulphuric acid or oil of vitriol, as an excellent agent for the destruction of weeds on lawns. The difficulty of eradicating such unsightly elements of the lawn is well understood, since to do so satisfactorily requires the removal of a large amount of dirt, producing a corresponding injury to the general appearance. By taking the acid in question, and allowing a few drops to fall into the crown of any obnoxious weeds, it will turn them brown in an instant, and ultimately cause the death of the plant. Great care must of course be taken to prevent any of the acid from falling upon the skin, or any article of clothing; but with ordinary care a large amount of surface can be treated in a short time with most excellent results.

RUSSIAN METHOD OF PRESERVING FRUIT.—A method of preserving fruit, quite frequently adopted in Russia, consists in slacking fresh lime by sprinkling it with water and adding a little creosote. The fruit is to be packed in wooden boxes, with a layer of the prepared chalk powder of an inch in depth at the bottom. This layer is to be first covered with a sheet

of paper, and upon it the fruit is to be laid so as not to touch each other. On the first layer of fruit another sheet of paper is placed, with the lime powder sprinkled over it, and a sheet of paper over this; upon this another layer of fruit is spread, as before, and the process continued until the box is full. The corners may then be filled with charcoal. If a tight-fitting cover is put on the box, the fruit, it is said, will maintain its freshness for at least a year.

PREPARATIONS OF WOODEN LABELS FOR PLANTS.

—Wooden labels for plants, to be inserted in the ground, may, it is said, be preserved for an indefinite time by first dipping them in a solution of one part copper vitriol and twenty-four parts water, and subsequently immersing in lime water, or a solution of gypsum.

NEW ZEALAND FLAX.—Among the substances used in the arts as fibers, the New Zealand flax at one time promised to be of great prominence; but owing to its high price, and the difficulty and expense of bleaching it, it has not been employed in so many applications as its strength and other qualities warrant. The principal difficulty in making a profitable use of it has been from the tenacity of the gum which envelops the fibers. This, according to a late writer, consists of three distinct substances: first, an actual gum, found only on the upper leaves and near their bases, and readily dissolved by boiling water, or removable by mechanical means; second, a bitter principle, which it is suggested may be used as a dye or stain for wood, and a mucilage, both easily extracted; and, third, a kind of cement, only to be removed by boiling water and alkali, and upon the retention of which the strength of the fibers depends.

THE GIGANTIC WATER-LILY.—Of this wonderful and interesting plant, the *Rural Carolinian* publishes the following description:

“The leaf on its upper surface is of a bright green, in form almost orbicular, except that on one side it is slightly bent in; its diameter measures from five to six feet. Around

the whole margin extends a rim from three to five inches in height, which on the inside is of a light green; on the outside, like the leaf's lower surface, it is of the brightest crimson. The calyx is four leaved, each sepal upwards of seven inches in length and three inches in breadth; at the base these are white, inside they are of a reddish brown color, and prickly outside. The diameter of the calyx is from twelve to thirteen inches; on it rests the magnificent canolla, which when fully developed, completely covers the calyx with its hundred petals. When it first opens it is white, with pink in the middle, which spreads over the whole flower as it advances in age, and it is generally found the next day altogether of a pink color; and as if to enhance its beauty, it is sweet scented.

The *Victoria Regia* was discovered in the River Berbice, in British Guiana, and named in honor of Queen Victoria. It was successfully cultivated and flowered, first in England, and since then in several instances in this country.”

[In 1850 we had the pleasure of seeing one of these plants in one of the Royal Gardens of Wurtemberg; a special house had been built to accommodate this monstrous plant; it occupied a basin filled with water, about thirty feet square, and the leaves of the plant were spread upon the surface of the water. We were told at the time that the leaves were strong enough to uphold a young child, which we believe was correct.—ED.]

THE TWO-LEAVED SOLOMON'S SEAL.—The *American Agriculturist* describes this little flower as follows: “In May, in most woods, there may be found an abundance of a little plant which somewhat resembles the Lily of the Valley—the Two-leaved Solomon's Seal. It is only from two to five inches high and each stem bears two and often three heart-shaped leaves. The minute white flowers are in erect spikes, an inch or more long. When the plant grows in dense tufts or clumps, it makes an exceedingly neat and pretty appearance. The plant is easily cultivated and

though it does better in a partially shaded place, it will flourish when fully exposed. Care must be taken to keep the weeds from encroaching upon it. In its season we frequently see the flowers of this *Smilacina* used in bouquets by the city florists, its delicate spikes projecting above the coarser flowers, producing a graceful effect."

[This plant is to be found in nearly all parts of California, and is indeed a little beauty, well worthy of cultivation by our florists, both professional and amateur. Its botanical name is *Majanthemum bifolium*.—Ed.]

RAISINS.—In some wine-growing districts the produce of grapes is not fit for wine-making, and the fruits are then dried and form the raisins of our shops. All raisins, then, whether they be Muscatels, Valencias, or whatever variety, are in reality true grapes, differing from the wine-grapes only in size, or the absence of the juicy principle which, to a considerable extent, develops into flesh or pulp. The best raisins are grown on the Spanish shores of the Mediterranean, the climate about Valencia and Malaga apparently suiting them better than anywhere else. But raisins are also extensively cultivated in the lower parts of Greece, as well as in other parts of the Continent. The preparation, or drying, upon which the value of the fruit to a great extent depends, is in this case conducted differently from that of the more common kinds. Usually the grapes are gathered in bunches when fully ripe, and hung up or spread out to dry. These are afterwards placed in vessels full of holes, and dipped in a lye made of wood ashes and vanilla, with the addition of a little salt and oil. This brings the saccharine juice to the surface, and causes the dark brown color as well as the crystallization of the sugar which is so characteristic of the cheaper fruit. The best varieties are simply dried in the sun before removal from the tree. The fruit is carefully watched, and when at the proper stage of ripeness, the stalks of the branches are partly cut through and allowed to hang till dry.

PINE WOODS IN FRANCE.—*Departments of the Gironde and Dordogne.*—There are large tracts of country in the Landes of these departments fit only for the growth of the Pine tree. Along the sea coast the Pine woods now afford a most efficacious protection against the encroachments of the sea. Some fifty years ago great apprehension existed of the destruction of the Medoc country by inundation, as the banks of sand which are the only barriers against the ocean were observed to be yielding. The idea then occurred of planting the Pine tree (*P. maritima*), in order to bind the sand, and the result has been most satisfactory. This is a remarkable instance of what may be effected by natural means when artificial means fail.

Pine wood property in the interior became very much more valuable upon the breaking out of the American civil war, owing to the failure of the supply of resinous substances from that country, and considerable fortunes were realized in consequence. An acre of Pine wood produces from 55 to 77 gallons of resinous matter, and it sold at that time for 3s and 4s per gallon. The Pine has since fallen to one half that amount, but the profit per acre is still calculated at from £2 8s. to £2 16s. An acre of good Pine plantation, fifty years old, is now worth £30, which is treble what it was worth thirty years ago.

The preparation of resin has become an important industry in the Landes districts, and employs a considerable number of hands. The liquid matter is obtained by tapping the trees, to the stems of which are fixed small earthen pots, into which it runs. A tree may be tapped when twenty years old, and will support this process for thirty years. J. R. J.

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PAINESVILLE, LAKE COUNTY, OHIO.

THE

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FILICES, (FERNS.)

Ferns are found in almost every part of the globe, and although they produce no flowers, their foliage is most graceful and admirable. Of late much interest has been taken in Europe and the East in the cultivation of this admirable class of plants, and large glass houses are filled with Ferns from every part of the world.

For a long time and until within a few years past, it was generally believed that Ferns were rather delicate plants, and for decoration of parlors, etc., almost unavailable. This opinion, however, was not justified by experience; and we feel satisfied, to-day, that Ferns are the favorites with our amateur gardeners for decorative purposes. It is true, that many of them require an atmosphere full of moisture, more than we can give them in our rooms at home; but while some varieties are naturally better adapted to a dry atmosphere we may acclimatize others by careful treatment, making the change from a moist atmosphere to a dry one gradually.

Ferns, and particularly tropical ones, should not have a sunny exposure; in nature they grow to greatest perfection in the shade of almost impenetrable forests, and we are therefore fully justified in providing plenty of shade for them, particularly during hot weather.

In regular Fern-houses moisture should be produced in abundance by sprinkling the foliage and the floor of the house. In very hot weather this may be done several times during a day. The watering or rather sprinkling of them should be given in the morning, so that it may soon evaporate and fill the atmosphere with moisture; if done in the evening, and the water is permitted to stay on the foliage until next morning, the plant is apt to decay.

We frequently hear of another great mistake in the cultivation of this class of plants, and that is the practice of keeping them growing continually. Ferns, like all other plants, must have their season of rest, after which they will produce fine large foliage; and unless rest is given to them occasionally, the roots will soon be exhausted, and before many months the plant will be worthless, if not entirely lost.

Nothing is more injurious to Ferns than drafts or strong currents of air, although air should be given whenever practicable.

As for soil, we can recommend peat mixed with sand and a small quantity of broken pieces of brick and charcoal; Silver-ferns will do well by adding a small portion of Sphagnum, cut up in small pieces. If planted in pots or boxes they should be well drained.

The propagation of Ferns is practiced in various ways and methods; first by dividing up the roots, which is done in the same way as in propagating other plants; second, by

spores, which is the most remunerative, but also the most troublesome method. The ordinary way of doing this, is, to take some pieces of old rotten bark, overgrown with moss, clean these pieces entirely from insects by exposing them to a strong heat, and lay them in a box, partly filled with white sand and covered with glass; it is best to place this box in a warm situation inside of the green-house. On these pieces the spores are deposited, and whenever they require watering, they should be put into a basin of water and immediately returned to their box. After the young plants have made their appearance, some of them are very apt to damp off on account of watering too much or from the effects of mildew; as soon as this is observed, they should be transplanted at once. This transplanting should be done into three inch pots, in the bottoms of which a few broken pieces should be placed for drainage; these should then be filled up with pure sand, to within one inch of the rim, so that they may be covered with a piece of window glass; when the plants begin to show stronger growth, they may be transplanted again into sand mixed with a small portion of peat, after which the soil should be given as directed before.

Another way of propagating some Ferns is by carefully transplanting the young and delicate plants which are formed upon the leaves of older plants. It will hardly be necessary to state, how delicate this process is and how carefully the watering must be performed; yet, one will soon be accustomed to the work, by repeated practice; if done rightly, this is the most successful method.

We cannot begin to give a list of all the Ferns, which are well worthy of cultivation; the number is very large. Some of the best are *Adiantum* of which there are about eight varieties. Several of these which are very beautiful are natives of California. They are used to great advantage in bouquets, and our florists cannot raise enough of them to supply the demand. The popular name with us is "Maiden-hair," and originated from *Adiantum Capillus-veneris*, which is one of the varieties of this family. They do well in a shaded place, and

we would recommend in watering them to place the water in the saucers in which the pots stand.

Aspidium, of which several varieties exist, are also very desirable Ferns; some of them have fronds from two to three feet in length.

The *Pteris* family comprises some of the most beautiful of this class. A number of the *P. argyrea* are cultivated here, and do well under ordinary circumstances. *P. tricolor* is probably the finest; the upper part of the segments are dark green, the base silver-gray, and the centre is of a lively purple. *P. umbrosa*, a native of Australia, is also a very desirable variety.

Asplenium, *Cyathea* (mostly Tree-ferns) *Polypodium*, and *Selaginella*, are all good and worthy of extensive cultivation.

Ferns are decorative plants, and as such used for many purposes, but our space will not permit us to describe the various ways in which they may be properly displayed. At some future time we will make this a special subject.

A NEW INDUSTRY.—The sweet potato, used in various forms as an esculent, in making bread, as a substitute for coffee, in the brewing of beer, as well as for fattening farm animals is now beginning to be used in making syrup "far surpassing that of the beet and of the sorghum in delicacy of flavor, while the yield is much more abundant. The average product of a bushel of sweet potatoes—the yam variety being preferred—is alleged to be over two gallons, and as the average yield per acre on poor, sandy soil, is from 150 to 180 bushels, the product must necessarily be from 300 to 350 gallons of syrup. This must open to the view of the piney-woods agriculturist a new and most profitable industry, one man, with a mule, being able to cultivate at least fifteen acres in potatoes. The residuum, after the juice for syrup has been extracted, is pronounced a valuable edible either for man or beast."—*Monthly Report of Agricultural Department.*

RHUBARB.—Keep the flower-stalks cut off, as they needlessly exhaust the plants.

BIG TREES OF CALIFORNIA,

(*Sequoia gigantea.*)

Among the natural wonders of California the "Big Trees," which are to be found growing on the western slopes of the Sierra Nevadas, at an elevation ranging from 5,000 to 7,000 feet, are well worthy of our attention. They are divided into distinct clusters or groups, by the river valleys and deep canons, which have their outlets on this side of the mountain chain.

The most northern group is the one known as the "Calaveras grove," situated in the county of that name, about 150 miles east of San Francisco. Its elevation is 4,759 feet, and it contains about 200 trees. To the south east, at a distance of about fifty miles, is to be found the Mariposa group, which consists of two portions, an upper and lower; the first it is said contains four hundred and thirty, and the latter nearly two hundred trees; these trees are at an elevation of six thousand and five hundred feet. A third group has been found eight miles southeast of the Mariposa grove, in Fresno County and still others are reported, east and south, about fifty miles from Visalia, in Tulare County. These last are at an elevation of over 7,000 feet, and unlike those growing to the northward, they are not found as separate groups, but are scattered here and there throughout the forest for several miles.

It will be observed, then, that these trees grow in a belt, which has its highest point in the Southern Sierra Nevadas, and passing to the northward dips down from 7,000 feet to a little under 5,000.

The *Sequoia gigantea* is identical in every respect with the *Sequoia sempervirens* (Redwoods) of the Coast Range, with the exception of their great size. They have the same property of condensing fogs and mists which is so characteristic of their brethren of the coast, and the writer well remembers a visit made to the Mariposa and Calaveras groves in 1861, at which time he had the opportunity of observing this action.

Only the trees of the Calaveras and the Mariposa groves have been measured, with the exception of one or two in the Tulare district. Here, one was found to measure one hundred and six feet in circumference at its base, and two hundred and seventy six feet in height. It had been burned on one side, and when entire, must have had a girth of from one hundred and fifteen to one hundred and twenty feet. This tree, however, at twelve feet from the ground, was only seventy-six feet in circumference. These measurements were made by the field party of the State Geological Survey; during the summer of 1864. The writer, in the spring of 1861, measured a number of the trees in the Mariposa grove, the largest of which was ninety one feet in circumference and about three hundred and sixty in height.

In conclusion, let me give your readers a list of these trees, measured in the Calaveras grove by Dr. Charles T. Jackson and Mr. Joseph B. Meader, in the year 1865.

NAME OF TREE.	HEIGHT. Feet.	CIRCUMF. Feet.
Arbor Vitæ Queen,	258	31
Pride of the Forest,	260	50
Andrew Johnson,	273	32
Bay State,	280	48
Edward Everett,	265	46
Henry W. Beecher,	291	45
William C. Bryant,	305	49
Abraham Lincoln,	281	44
Mother of the Forest,	305	63
Daniel Webster,	270	49
General Jackson,	320	42
General Scott,	327	45
General Washington,	284	52
Beauty of the Forest,	258	—
Two Sentinels,	315	—
Old Kentucky,	277	45
Mother and Son,	269	64
T. Starr King,	366	50
Trinity,	308	48
Salem Witch,	310	—
Henry Clay,	241	44
Empire State,	275	50
Vermont,	259	44
Granite State,	286	50
John Torrey	—	50

ENUMERATION OF SHRUBS AND TREES

Growing in the vicinity of the mouth of San Francisco Bay.

BY PROF. HENRY N. BOLANDER.

The territory in question is divided naturally into three parts :

1. The northern part of the peninsula of San Francisco, with an undulating and hilly surface, consists of drifting sand, with a small percentage of humus mingled with it.

2. The Oakland Hills, running N. 54° W. mag., from the Bay of San Pablo to San Leandro, a distance of twenty-three miles, with the adjacent slopes and valleys. Heavy clayey soil predominates; but where shrubs and trees grow, it is mostly a loose, light, and slightly sandy soil.

3. That part of Marin County between San Rafael, the head of Tomales Bay and Bolinas Bay, forming a triangle, with a hilly surface, the ridges running N. 54° W. mag. Soil a heavy clay, in the valleys and on bare hills; or a light, slightly sandy loam among shrubs and trees.

In all parts a metamorphic sand-stone underlies the soil.

Berberis (Mahonia) aquifolium Pursh.

A low evergreen shrub, three to four feet high, not gregarious; in clay soil on the hill sides; rare.

Dendromecon rigidum Benth.

A shrub with slender upright branchlets, four to six feet high, rare; on white sand-stone, Oakland hills, third range eastward, not gregarious.

Rhus diversiloba Torr. and Gray. POISON OAK.

Everywhere, deciduous, exceedingly variable, three to eight feet high.

Negundo aceroides Mœnch. BOX ELDER.

A medium sized tree, twenty to thirty feet high; common among the Oakland hills, on banks of creeks.

Acer macrophyllum Pursh. LARGE-LEAVED MAPLE.

Common on the banks of Walnut Creek, N. W. of Mount Diablo; fifty to seventy feet

high, and two to five feet in diameter, in light sandy soil.

Esculus Californica Nutt. HORSE-CHESTNUT.

Mostly a shrub, seldom a medium sized tree, largest on the banks of creeks and moist hill sides; grows commonly in groups. Common.

Euonymus Occidentalis. SPINDLE TREE.

A shrub seven to fifteen feet high, with slender upright branches; in swampy places, near the head of Tomales Bay; rare.

Frangula Californica Gray. CALIFORNIA BUCKTHORN.

Very common, variable, four to ten feet high; evergreen, gregarious, in clayey soil.

Ceanothus thyrsiflorus Esch. CALIFORNIA LILAC.

Very common, and variable in size, sometimes handsome trees; exceedingly gregarious, forming dense chaparral, on the northern and eastern slopes of hills and mountains; evergreen. Much cultivated on account of the profusion of its fragrant flowers, and the various shapes that may be given it by trimming.

Ceanothus rigidus Nutt.

Low, straggling, four to six feet high, less gregarious than the former; on the white sand-stone hills, east of Oakland.

Ceanothus dentatus.

A small shrub, three to four feet high, with very small glandular leaves; mostly single or in groups, on Mount Tamal Pais at 2,700 feet elevation.

Lupinus albifrons Benth. SILVER-LEAVED LUPINE.

Very common in almost pure sandy soil, oblong in outline, two to six feet high; growing mostly single, evergreen.

Lupinus macrocarpus Hook. and Arn. YELLOW LUPINE.

Large, spreading, oval in outline, evergreen, with large fragrant flowers; gregarious in moist gravelly places along the shore of the bay, and in depressions, or banks of runs, where the soil partakes of a clayey nature.

Pickeringia montana Nutt.

Large, spreading, four to seven feet high; evergreen and gregarious on the Oakland white sand-stone hills.

Cerasus ilicifolia Nutt. CALIFORNIA CHERRY, or PLUM.

A small tree, eight to fifteen feet high, with thick, shining, spinously serrate, evergreen leaves; fruit of a yellowish-pink color, with a thin pulpy external portion. Hill sides on the peninsula of San Francisco, growing mostly in groups; rare.

Cerasus serotina Ehrh. BLACK WILD-CHERRY.

A group of three or four small trees, eight to twelve feet high, near a road in the Oakland hills. Undoubtedly introduced from the Atlantic States.

Cerasus emarginata? Dougl.

A small shrub, three to four feet high, with very slender reddish and white dotted branchlets, and deciduous leaves; rare. Tamaul Pais, 2,700 feet elevation.

Nuttallia cerasiformis Torr. and Gray.

Oblong in outline, four to six feet high, deciduous; common on the northern slopes of hills, in clayey soil. Along the bay and Oakland hills.

Spiræa opulifolia Linn. NINE-BARK.

Large, spreading, eight to fifteen feet high; common on the banks of creeks among the Oakland hills.

Spiræa arifolia Smith.

Common on banks of creeks and northern slopes of hills, Oakland.

Cercarpus parvifolius Nutt.

Rare on the hills in Marin County. Its spirally-tailed seeds give the shrub an appearance as if in full blossom.

Adenostema fasciculata Hook. and Arn.

Oblong in outline, four to five feet high; very gregarious, forming extensive and dense chaparral on the southern and western slopes of the Oakland hills; evergreen.

Rubus Nutkanus Lindl. THIMBLE-BERRY.*Rubus velutinus* Hook. and Arn.*Rubus macropetalus* Dougl. BLACKBERRY.

Northern slopes of hills, Oakland and Marin County.

Rosa blanda Ait. WILD ROSE.

Very common on the banks of creeks, forming thickets. Oakland hills and Walnut Creek.

Rosa gymnocarpa Nutt.

Hill sides, Oakland. A small but beautiful species, rather rare.

Photinia arbutifolia Lindl.

A handsome evergreen tree of medium size, in sandy soil. Common everywhere in the vicinity of water and springs.

Amelanchier canadensis. Var. *Arnifolia* Torr. and Gray. SERVICE-BERRY.

Northern slopes, four to twelve feet high; in clayey soil, at Mission Dolores and Oakland hills.

Ribes divaricatum Dougl. BLACK GOOSEBERRY.*Ribes glutinosum* Benth. RED GOOSEBERRY.*Ribes malvaceum* Smith. BLACK CURRANT.

Banks of creeks and northern slopes.

Whipplea modesta Torr.

In loose light soil, in the Redwoods; one to two feet high, rare.

Cornus pubescens Nutt. SOFT-LEAVED DOGWOOD.

Large spreading, ten to fifteen feet high.

Banks of creeks, Oakland hills.

Lonicera involucrata Banks. TWIN-BERRY.

Large, with slender upright branches, ten to fifteen feet high. Borders of creeks and swamps, Bay of San Francisco, Oakland, Marin County.

Lonicera Californica Torr. and Gray; *et var. hispidula*. HONEYSUCKLE.

Slender, climbing; borders of streams. *L. hispidula*, on the out-croppings of white sandstone, Oakland hills.

Symphoricarpos racemosus Mich. SNOW-BERRY.

Forming thickets in depressions on the Oakland hills, at 2,000 feet elevation, and along streams in the valleys. Clay soil—three to four feet high.

Sambucus glauca Nutt. ELDER.

Sambucus pubens Mich. RED-BERRIED ELDER.

Dry hill sides and borders of wet places. *S. glauca*, often tree-like and twenty feet high. Oakland, Marin County.

Aplopappus laricifolius Gray.

A low fastigiate-branched shrub, one to three feet high; very common in drift-sand on the peninsula of San Francisco.

POPULAR BOTANY.

CHAPTER X.

We shall conclude our remarks upon the leaves by referring to their death and fall. Leaves are said to be *fugacious* if they fall soon after their first appearance; if they live but only one season, and fall in the late summer or autumn, they are said to be *deciduous*; while if they remain throughout the cold season, and until new leaves are developed, they are said to be *persistent*. Plants having this characteristic are called *evergreens*: a name given to them from the fact, that at no time are they destitute of leaves. In nearly all cases leaves live but for a year, though there are some trees (as the Firs) whose leaves live, and continue in active duty for a number of years.

This falling of the leaves at a certain period of their existence, is not occasioned by the action of frost, as is generally supposed; for we find them losing their vitality long prior to the first frosts, and when spring vegetation is destroyed by late frosts, the leaves do not as a general thing drop, but remain on the tree or shrub in a blackened and shrivelled condition. The fall is due to the formation of an articulation at the base of the petiole, where it rests upon the stem. After the leaf is developed, it progresses rapidly in its growth, and in a short time attains its full size. The base of the leaf is now no longer able to increase at the same rate as the stem, and so a joint is formed at its base, which, in its growth pushes the leaf from its point of attachment. This annual production of leaves is a vital

necessity to all plants, no matter where, or how grown.

Water in the form of rain, is the medium through which the plant derives its nourishment from the soil. This the plant absorbs through its roots in the form of a vapor, after it has been impregnated with the necessary mineral constituents required by it; now, as the leaves act as the lungs or oxydizing organs, and exhale a large amount of the water received by the roots, there is necessarily left behind in their textures a certain quantity of this mineral matter, which, at last, so fills up the interstices as to render the leaf useless and unable to perform its duty. In deciduous plants, at this point comes a season of repose, and they do not start into active life again until the following spring, when new leaves are developed. In the evergreens, however, this action is continually going on; old leaves falling, and new ones appearing.

Having in these papers passed in review the principal organs of plants, such as the root, stem and leaves, we shall, before touching upon the action of flowering, give a few thoughts to the food and nutrition of them.

Vegetation, as we have said previously, is the connecting link between the inorganic world and animal life. There are two classes of materials found in all plants; one of these, the mineral or inorganic constituents, may to a certain extent be called accidental, and although in some cases essential, yet in a broad sense they are *not* necessarily so. The other class, however, carbon, hydrogen, oxygen and nitrogen are absolutely *sine qua non*. These four elements are absorbed from the soil and the air. The oxygen and hydrogen are supplied in the form of water, and no doubt but that a large amount of nitrogen is conveyed to the plant by this means as well. Nitrogen forms a large percentage of atmospheric air, and being only mechanically mixed with the oxygen, is readily dissolved by the falling rain and so carried to the roots of the plant. But a much larger amount of nitrogen is added to the plant in the form of ammonia, a compound of hydrogen and nitrogen produced by the decay of animal and

vegetable substances. This fact has led to the use of the different varieties of fertilizers and manures, whose valuable properties depend upon the amount of nitrogen which they contain. The remaining element, carbon, and which makes up the principal part of all plants, is mainly derived from the atmosphere, where it is largely found in the form of carbonic acid gas. There are two ways in which it enters the plant: one by the way of the leaves, which directly absorb it, and the other by the roots, to which it is carried, dissolved in water.

The atmosphere, then—if we consider water in the form of vapor a part of it—is the great source from whence vegetation derives its food.

In our next chapter we shall show how the plant, after receiving this food, digests and converts it from unorganized matter into living structure.

ORNAMENTAL AND LANDSCAPE GARDENING.

SECTION X.

In our former numbers we have endeavored to present to the readers of this Magazine general instructions for the laying out and planting as well as for the management of the ground around a city residence, or a small country one which we have elected to call a fourth rate garden, a term which has been used by some of the best authors on Landscape Gardening, and which should be applied to the grounds of a residence bordered and defined by close neighbors and public streets.

The arrangement of such grounds is to a great extent determined by the surroundings already existing, and we are frequently under the necessity of conforming with the conceptions of our neighbors or of (arranging) in conformity with improvements already established. The effect to be produced in such a case must necessarily be circumscribed to the inside arrangement.

We now propose to give our ideas in regard to the arrangements around a country residence of larger dimensions, where we are not restricted by streets and close neighbors, and

where the surroundings and approach may be beautified in a becoming manner. Such a residence we shall call a third-rate, and the dimensions of the ground should be from one to three acres. In selecting the grounds for a third-rate country residence, many important points must be taken into consideration:

1st, Convenience in reaching the place of business;

2d, Pure and healthy atmosphere;

3d, Soil, and water for irrigating purposes;

4th, Surroundings and scenery, and,

5th, Natural attractions and improvements already existing.

As to the convenience of traveling to and fro, we are very much opposed to the selection of grounds too close to the public roads, railroad, or steamboat landings, and decidedly so to the building of a residence in close proximity to public highways, which are very annoying in many respects. The dust of a frequented road deprives us of the refreshing pure green of vegetation; the right of all classes of mankind to congregate within our hearing, the deprivation of privacy, and the many dangers to which we are subject, are all objectionable.

The atmosphere should be pure and healthy; and an elevated locality is therefore always preferable. The neighborhood of factories and the close proximity of low, marshy land should be avoided.

The soil should, at least, be of a good average, a deep light loam is the best; although almost any kind of soil may be put in condition for cultivation by expenditure of money and labor; but even the best soil will not be productive of much good, unless a good supply of water for irrigating purposes may be obtained. Where running streams and springs can be made available, they are preferable, but where nature does not supply this most indispensable necessary for vegetable life, artificial means must be brought into requisition. We often wonder why more steam-pumps are not erected in this country, which certainly can be depended upon, if wells are constructed properly; the expense of supplying grounds with water by such pumps

would be very small, and pressure can be obtained sufficient to use hose, and play fountains. Windmills are good enough as long as they can be kept in motion; horse power requires more attention than steam, while the expense of a horse is not much less than the fuel used for a steam-pump.

Surroundings and scenery add much to the attractions which a country residence may offer. An elevated position should therefore be selected. Nothing heightens the effect of landscape more than a commanding view of such striking or interesting points as the surrounding country may possess.

The natural attractions and improvements which already exist may save a great amount of expense, add to its picturesqueness, and relieve the grounds of much of their new appearance. We often see ignorance and barbarism displayed in bringing the axe and saw into requisition for the destruction of that, which a true and experienced landscape gardener would have turned to very good use, and which cannot be replaced for years to come.

If all these points have been here studied by a competent landscape gardener, his work in accomplishing the desired end will be much easier, and the combination of the natural advantages already developed, with his skill to make use of them to the best advantage in the general arrangement, will produce, in a short space of time and at a comparatively small expense, a result, which otherwise would have taken many years to accomplish.

QUAIL AS INSECT EATERS.—A boy in Ohio having shot a quail as a depredator on the corn crop under his charge, was induced to examine the bird's crop. He there found one oat-worm, twenty one striped cucumber and one hundred chinch-bugs, but not a grain of corn. Thus the poor quail, while doing its best to benefit the agriculturist, becomes the innocent victim of slanderous suspicion. This bird-killing propensity should be checked by severe legal remedies.

CALIFORNIA FRUITS AND FLOWERS.

Reasons for Satisfaction.—A Short, suggestive though imperfect List of Fruits adapted to our Soil and Climate for beginners in Fruit Culture.

If there be one thing more than any other that the dwellers in this remarkable and in many respects, unique and grand State have to congratulate themselves upon, it is in the wonderful, varied, and immense productions of its fruits and flowers. All of them being almost entirely beyond the baneful effects of frosts, destructive insects, great floods, or even droughts, these last chiefly affecting the grains. As to the first, so hurtful in the greater portion of the more Eastern regions, especially in late spring; and which in some of their winters destroy even the very trees themselves; the freezing in California, except in very elevated lands, creates a skim on the ponds and lakes no thicker than a quarter of a dollar. As to injurious insects, there are at present but very few, and their inroads on fruits, flowers, grasses and grains, are trifling compared with these terrible scourges of Eastern orchards and gardens, destroying as they do, (and they are still multiplying at a rapid rate,) enormous quantities of fruits as well as trees, rendering Plums almost a total failure, killing Peach and other trees, and making many fruits altogether unmarketable. As to the want of sufficient rain here, some seasons, say at most, two years in five—this does not injure, in general, any fruit trees after their first year's planting, and during this first year, irrigation must be resorted to; therefore the drought, when excessive, affects grasses and grains, and small plants alone, and then only when artificial watering cannot be used. How fortunate are we, too, in comparison with our Eastern friends, even when the seasons are most favorable, to have the enjoyment of so many more fruits than they have, owing to our semi-tropical, and in some parts tropical climates; and particularly in having unlimited yields of those delicious fruits, Apricots, Nectarines and exotic Grapes.

With regard to flowers—those beautiful and refining companions of our existence, which delight our senses both of sight and smell, embellish our dwellings internally and externally—we have hardly any need of hot-houses or conservatories; unless we wish to add to the lengthy list of those which bloom and flourish so well in the open air, those which are of the most tender and tropical character. Then as to the size, both in height and breadth, of our ornamental plants, in what part of the Eastern States, in the open garden, shall we find the Fuschia, Geranium, Lemon Verbena and numerous other plants growing to the height of ten feet? Where in the East can the Peach tree from the seed produce fruit in 17 months? Yet the proof can be adduced at any time of this fact from one of the most respectable and reliable of living nurserymen. The truth is, trees of all kinds grow nearly twice as fast as in the East, and come into bearing in less than half the time. Our atmosphere is so dry during the whole season that rotting of the fruits on the trees is unknown, and they remain on them in sound condition long after they are ripe, thus greatly prolonging, with safety, the season of gathering.

In what clime after the dry season has commenced, for a period of between four and five months, is there less labor required to keep the ground in good order, and above all, free from weeds? It is true, however, that the necessity for good culture exists here no less than in any other part of the world, owing to the exhausting nature of a climate where heat and drought are so prolonged.

I would here, in closing this discursive letter, present the following limited, but, it is believed, correct and reliable list as far as it extends, of fruits found by practical cultivators and salesmen in this State, best suited to its soil and climate, and most profitable for the cultivator, and, to a considerable extent, suited to the taste of the consumer.

Apples, Summer Varieties.—Red Astrachan, Red June, Summer Bellflower or Yellow B. Early Strawberry, Summer Rose, Early Harvest (Prince's) and Keswick Codling.

Fall Varieties.—Gravenstein, Porter, Siberian Crab, Fall Pippin and Æsopus Spitzenberg.

Winter Varieties.—Baldwin, Roxbury Russet, White Winter Pearmain, Yellow Newtown Pippin, Newtown Spitzenburg, Swaar, Wine-sap, Rhode Island Greening, Jonathan, Blue Pearmain, Green Newtown Pippin, Nickajack, Mammoth Pippin, Fallwater, Ortley Pippin, Alexander, King's Apple, Smith's Cider and Rome Beauty.

Pears, Summer Varieties.—Madaline, Dearborn's Seedling, Bartlett, Bloodgood, Doyenné d'Ete and Flemish Beauty.

Fall Varieties.—Duchesse d'Angouleme, White Doyenne or Virgalieu, Seckle, Buerré Diel, Buerré Hardy, Washington, Buerré Gifford, Buerré d'Anjou, Vicar of Winkfield, Dix and Rostiezer.

Winter Varieties.—Winter Nelis, Easter Buerré and Glout Morceau.

Quinces.—Orange and Apple.

Cherries.—Black Eagle, Black Tartarian, Governor Wood, Holland Bigarreau, Napoleon Bigarreau, Knight's Early Black, Royal Anne, May Duke, Late Duke, Black Hawk, Yellow Spanish and Elton.

Plums.—Washington, Coe's Late Red, Coe's Golden Drop, Damson, Ickworth's Imperatrice, Duane's Purple, Green Gage, General Grant, Hungarian Prune, German Prune, Early Orleans, Lombard and Jefferson.

Apricots.—Moorpark, Early Golden, Large Early and Duboise Early Golden.

Peaches.—Early Tillotson, Early York, Early Crawford, Hale's Early, Large Early York, Strawberry, Royal George, Melecaton Red Cheek, Mammoth Melecaton, Smock Free, Old Mxon Free, Morris White, Heath Free, Heath Cling, and Old Mixon Cling.

Nectarines.—Large White, Large Red and White, Orange and Golden.

Grapes for Table, Black Varieties.—Black Hamburg, Black Prince and Black Morocco.

White or Amber-colored Varieties.—White Muscat of Alexandria, White Sweet-water, Chasselas de Fontainebleau, Cannon Hall Muscat, White Malvoisie.

Rose-colored Varieties.—Flame-colored Tokay and Rose of Peru.

Hardy Variety, suited to elevated mountain regions.—Isabella.

For Wine.—Riesling, Mission, Zinfandel, etc.

Strawberries.—Longworth's Prolific, Triumph de Grand, British Queen, Jucunda, Wilson's Albany and Kentucky, (very late.)

Raspberries.—Red Antwerp and Falstaff.

Blackberries.—Lawton or New Rochelle, Kittatinny and Dorchester.

Currants.—Cherry, Red Dutch, White Dutch or White English and Black English.

Walnuts.—American Black, large, California Black, Butternut, Hickory nut, Pecan nut and English. E. J. HOOPER.

SAN FRANCISCO, August 7th, 1871.

ESSAY,

Read by Col. D. S. CURTISS, on invitation, before the Potomac Fruit Growers' Society, at Washington, D. C., July 11th, 1871.

Mr. President and Members of the Society:—*Association* is the genius of the age—the distinguishing feature of the times. All great enterprises—religious, moral or mercenary—adopt this great attractive principle, and without it none expect extended or permanent success.

Association is really the great fulcrum of all powerful movements, and the *Press* is the subtle lever by which they are moved. Artists and artizans—mechanics and merchants—all trades and professions have their unions and societies. These organizations are now as common as the works of their heads and hands—while all, to some extent, have peculiar means of *identity* and *fraternity*. All have their systematic organizations and combinations, for mutual protection and enjoy-

ment, and into whose sacred circle none are admitted but members. All have embraced this effective operation *except* that great and important class *which feeds and sustains* all—the farmers and producers—upon whose labors and prosperity all other business depends for prosperity and support.

And if the farming community do not speedily arouse themselves and promptly adopt this great element of pecuniary and intellectual advancement, they will soon find themselves outstripped by all other callings of their more wise and fortunate brothers.

Besides, it is the duty, as well as the privilege, of that responsible class which feeds all and upon which all depend, that they should use all means and avail themselves of every facility for rendering them as effective and powerful as possible. Being the basis and support of all, it is the duty *and privilege* of the farmer to take the lead of all in the march of intelligence, prosperity and enjoyment. And this *can* be done by *association only*.

The peculiar character of the farmers' business renders them more isolated and more widely spread in their communities than are other professions; and in consequence of this sparse nature of their settlement they are less social, and, of course, enjoy less of joyous and instructive conversation and comparing of notes, which is so conducive to knowledge and intelligence.

“The isolation of families, occasioned by the sparse settlement of farming districts, has been not only a personal hardship, but a bar to material progress. Dull and hopeless monotony on isolated farms has driven many a bright boy from the farm-home, and deprived agriculture of much-needed intelligence; but more unfortunate still has been that inertia and torpidity engendered of solitude, rendering the mind inimical to reform, however advantageous. Often beyond the reach of his nearest neighbor, visiting the village but once a week, the farmer has been secluded from communion with his kind; and, thus cut off from the current of progress, his life's business was left for generations among the most backward of industries; his children

growing up to follow his steps, as he followed his father's and grandfather's before him."

Happily, this is not *now* so much the case as it was when some of us were boys, and even before some others of you were born. The great improvements of the age, in mechanism, intelligence and facilities for transit, have much ameliorated this condition.

Here is one significant central fact that we will do well to look at in the outset, which is the very *small representation and influence* that farmers have in our legislative halls—national and State. At the organization of the last session of Congress there were present 219 members; and how many of these do you suppose were farmers, to represent this great, peculiarly farming nation? In that body there were 134 lawyers, 11 farmers, and 64 of all other classes. Yes, in 219 members of Congress there were 134 lawyers, and only 11 farmers—not one-twentieth of the representation from that class which produces all and feeds all, and which outnumbers any other class in the nation. Is it any wonder then that so little legislation is enacted for the benefit of agriculture, and so much for commercial and legal professions? Is it any wonder there is so much law that even the well-read can scarcely understand—laws framed and worded purposely to require the services of lawyers and to sustain their profession, and for which the producing laboring classes must pay? And this will be so, just so long as farmers refuse to unite for their common knowledge, influence and elevation.

Even the standing Committee on Agriculture, in both Houses of Congress, show an equally meager representation of farmers. For instance:

Senate Committee.—Simon Cameron, of Pennsylvania a politician; Thos. J. Robertson, of South Carolina, doctor and planter; Thomas W. Tipton, of Nebraska, lawyer and preacher; Abijah Gilbert, of Florida, a merchant; Thomas C. McCreery, of Kentucky, a lawyer and planter.

House Committee.—J. T. Wilson, of Ohio, a merchant and farmer; William Loughridge,

of Iowa, a lawyer; John Fisher, of New York, a merchant and iron manufacturer; William J. Smith of Tennessee, a painter and horticulturist; David P. Dwyer, of Missouri, a lawyer; Jacob Benton, of New Hampshire, a lawyer; John M. Crebbs, of Illinois, a lawyer; Samuel B. Axtell, of California, a lawyer; Henry A. Reeves, of New York, studied law, and an editor.

While visiting the great agricultural States, Pennsylvania and Ohio, last winter—I had access to lists of the members of the Legislatures of those States, and found that an equally small proportion were farmers—though farming is the chief business.

Now, I do not insist that farmers shall become politicians—but they ought to study the policy of the nation, and elect a number of their own profession, equal in proportion to their number of voters, and the vast and vital importance of their business, if they expect equal justice in the laws, and to be properly protected by government. Therefore, as all other callings and professions adopt this potent and magic influence to advance their interests, farmers must do the same, or they will soon find themselves fatally falling behind all others on the march of improvement and scientific progress which distinguishes our age.

Their union in association will greatly aid them in procuring information and education on all topics useful to them; and by it they will be, in a large degree, better able to take advantage of the markets, and control the prices of their own products, which are now almost entirely dictated to them by brokers and speculators. It will also largely afford them the power and facilities for making their just rights and influence better known and more properly felt and regarded in legislation and elections. It will make them better acquainted with one another, with each other's views, and lead to harmonious co-operation.

Members thus associated for their common good meet in their mystic circles, in complete confidence, on a common plane of safety, fearing *no shams or impositions*—for common interest and fraternal regard—leaves no motive to deceive any among themselves,

while they are protected and guarded against impostors from without, thus enhancing business facilities and social enjoyments.

Too constant confinement at home and the farm, and the absence of frequent commingling with our fellow-beings in social intercourse, is liable to dwarf the mind and contract the spirit of enterprise; while frequent and systematic association with our kind will expand the intellect, elevate its aims, and give wholesome breadth to ambition; inciting emulation and friendly competition, by widening the range of thought and investigation in all the sphere of our operations. Such, in brief, would be some of the effects of proper association among farmers, if they were organized in some fraternal and systematic order, which should be uniform throughout the country and world, and mutually understood by all.

With minds as great and purposes as honorable as any, all that farmers now need to raise themselves to a commanding position of power and influence, inferior to none, superior to all, is harmonious organization and concert of action; and by it they would speedily rise to a degree of knowledge and efficiency commensurate with the vast importance of their calling.

Intelligence should be the basis of all association, as it should be the chief motive of all enterprises; only by it can the command to possess and subdue the world and enjoy it, be complied with; by intelligent thought, actively developed in works, are the elements of nature understood and subdued, and applied for our use and profit.

Such an association, such an order has been established, and is in beautiful operation in many of the States of the Union; from which the farmers and producers belonging to it, are already signally realizing the benefits of it, not enjoyed by those not members. This Order is based on wide, firm, scientific principles. It is styled the *Patrons of Husbandry*.

A number of intelligent, philanthropic, thinking gentlemen—of this country and Europe—producers of thorough experience, assembled in this city several years ago, after

long and careful deliberation, devised the plan and prepared the ritual and constitution of this Order, to meet the wants of all classes of farmers and horticulturists, and furnish them with the greatly needed facilities for protection against the schemes and operations of sharpers and speculators. That devoted body of men spent many anxious and thoughtful days in this noble labor of love and science.

The forms of the Order consist in a National Grange, established here at Washington, the National Capital, with provisions for State granges in all of the States, and subordinate granges in counties and towns, wherever the producers may choose to organize them. Its society consists in membership of all who are engaged or interested in the prosperity and elevation of agriculture, as farming, gardening, horticulture and stock raising, etc., and comprising parents of *both sexes*, with their children—thus embracing the *entire family*, as all its members are alike interested in its welfare and highest culture and happiness—requiring the fraternal pledge, of all, to truth, honor and fidelity to each other and the Order, with secret or confidential means of recognition and admission into the granges or lodges. Such are the form and construction of the Order. The motives and details of its business are to collect information, impart instruction, enlarge the social intercourse, and secure protection and efficient co-operation for the common good. Partizan politics are disclaimed by the Order, and partizan discussions excluded from the granges—members being free to vote for such candidates and parties as they may choose and believe will best promote the highest welfare of the country and its producers.

The highest and most beautiful effects to be produced by this systematic association among farmers would be social and intellectual improvements and enjoyments of both sexes.

To a large extent, the men who make the laws control the liberty and prosperity of the people; hence it is of the highest importance that the producing classes should look well to it who are elected to make their laws. In association there is power, as in knowledge:

in familiar and frequent discussions they are enabled not only to determine who is suitable and what is wanted, but also to better qualify themselves and secure wise selections. Discussion and comparing views will elicit truth and correct error, better than eloquent lectures and studied essays, by prompting inquiry and reply, bringing out the united experience and ideas of the many, to be criticized and tested by the inspection and observation of all. And this is the regular practical result of proceedings in the granges of the *Patrons*. And it is a rapidly growing Order—its numbers continually increasing in different States—and it must speedily become a controlling power in the land, elevating the producers and controlling the markets for the benefit alike of producers and consumers; so that, instead of being victims and a subordinate class, farmers will be *first* in dignity and power, as they already are most essential and important.

But to effect this, they must have a livelier regard for the useful library than for the costly parlor; they must be more willing to make liberal expenditures for books and papers than for tawdry and fashion. Let every one to whom the query is applicable answer to himself how many are there who expend hundreds of dollars to ornament the parlor, while hardly ten dollars are expended for practical and scientific books to enlighten and aid yourselves and families in prosecuting your business?

The influence exerted in the Granges of *Patrons* is calculated to improve its members, very happily, in this direction; and such is the design, and will be the practical results of association with the Order, on the honest, industrious producers of the country, wherever they unite with the Order.

Then, as is just and appropriate, will the *Feeders* of the nation bear rule over the land—with the *plow*, and not the sword; *then* will all the people, in peace and plenty, honor *Husbandry*, and with joy and gladness bless all its *Patrons*—when *wisdom* will rule the heads and direct the hands, as *charity* will warm the hearts and control the will of men and women.

PARSNIPS need cultivating until the leaves cover the ground.

TIMBER TREES.

We have received a very interesting pamphlet from our esteemed friend, Prof. F. von Muller, of the Botanical Gardens of Melbourne, in which this gentleman enumerates the principal timber trees adapted for Victoria industrial culture. The list comprises nearly three hundred varieties of forest trees, many of which are cultivated in our gardens for ornament, and few of them only for timber. While we see the necessity for encouraging the cultivation of timber trees in this country, it will be well to look about and observe what steps other communities take to bring about the desired result, and what the good qualities are of those trees which we cultivate now for ornament only. We make the following extracts from the list of von Muller's enumeration.

Araucaria Bidwilli, native of Southern Queensland. A tree one hundred and fifty feet in height, with a fine-grained, hard and durable wood; the seeds are edible.

Araucaria excelsa (Norfolk Island Pine.) A magnificent tree, sometimes two hundred and twenty feet high, with a trunk attaining ten feet in diameter. The timber is useful for ship building and many other purposes.

Araucaria imbricata, of Chili and Patagonia. The male tree attains only a height of fifty feet, but the female reaches one hundred and fifty feet. It furnishes a hard and durable timber, as well as an abundance of edible seeds, which constitute a main article of food of the natives. Eighteen good trees will yield enough for a man's sustenance all the year round. In the low lands it is of comparatively slow growth, but likely to be of far more rapid development, if planted in the ranges.

[For many years to come, we will have to content ourselves with cultivating this tree solely as an ornamental one, as both seeds and young plants which are imported, are rare and costly. Mr. Muller had the kindness to send us some of the *Araucaria Bidwilli* seeds; they are about the size and form of large Almonds,

and the young plants are now making their appearance, after being in the ground six weeks. This, we believe, is the first attempt on this coast to raise this tree from seed. [Ed.]

Cryptomeria Japonica. A slender evergreen tree, one hundred feet high. It requires forest valleys for successful growth. The wood is compact, very white, soft and easy to work.

[The *C. Japonica* seems to thrive well in California, and as an ornamental tree it is highly esteemed.—Ed.]

Dammara Australis, Kauri Pine, North Island of New Zealand. This magnificent tree measures, under favorable circumstances, one hundred and eighty feet in height and seventeen feet in diameter; the estimated age of such a tree being 700 or 800 years. It furnishes an excellent timber for furniture, masts of ships, or almost any other purpose; it yields, besides, the Kauri resin of commerce, which is largely obtained from the stem of the tree.

Dammara robusta, (Queensland, Kauri.) A tall tree, from Rockingham's Bay and Wide Bay. It thrives well in open, exposed, dry localities at Melbourne.

[This tree is well worthy of trial on this coast Ed.]

Frenelas, of different varieties, growing on saline desert flats, where no other conifers will readily succeed. They are important for coast cultivation.

[We have received from the same gentleman seeds of the *Frenela robusta*, and the young trees are doing finely.—Ed.]

Ginkgo biloba, (*Salisburia adiantifolia*.) from China and Japan. A deciduous fan-leaved tree; one hundred feet high, with a straight stem twelve feet in diameter. The wood is white, soft, easy to work, and takes a beautiful polish. The seeds are edible and when pressed, yield a good oil, *Ginkgo* trees are estimated to attain an age of 3,000 years.

Juniperus Virginia, North American Pencil Cedar or Red Cedar. A handsome tree fifty feet high, supplying a fragrant timber, much

esteemed for its strength and durability: the inner part is of a beautiful red color, the outer is white: it is much used for pencils.

Nageia (Podocarpus) totara New Zealand. A fine tree, one hundred and twenty feet in height, with a stem twenty feet in circumference; it is called mahogany pine by the colonists. The reddish, close-grained and durable wood is valuable both for building and for furniture, and is also extensively used for telegraph posts; it is considered the most valuable timber of New Zealand. Many other tall timber trees of the genus *Podocarpus* or *Nageia* occur in various parts of Asia, Africa and America, doubtless all desirable, but the quality of their timber is not well known, though likely in many cases to be excellent. *Nageia* is by far the oldest published name of the genus.

Pinus Cedrus var. Deodora, (Deodor Cedar.) on the Himalaya mountains four to twelve thousand feet above the sea level. A majestic tree one hundred and fifty feet high, and sometimes thirty feet in circumference of stem. The wood is of a whitish-yellow color, very close-grained and resinous, and furnishes one of the best building timbers known; it must however, not be felled too young. The tree also yields a good deal of resin and turpentine.

[The Deodor Cedar is of exceedingly slow growth with us here, but highly esteemed as an ornamental tree, making a very picturesque appearance.—Ed.]

Pinus Halepensis, (Aleppo Pine,) South Europe and North Africa. This well known Pine attains a height of eighty feet with a stem of from four to five feet in diameter. The timber of young trees is white, of older trees of a dark color; it is principally esteemed for shipbuilding, but is also used for furniture. The tree yields a kind of Venetian turpentine as well as a valuable tar. It thrives well in waterless, rocky places, also on the sandy sea coast. *Pinus Maritima* is a variety of this species. Content with the poorest and driest localities and rapid of growth.

[We saw a fine specimen growing on the grounds of—Barron, Esq., in Menlo Park. It is a great pity that this tree is not more extensively cultivated throughout this coast.

Ed.]

[To be continued.]

FIRST ANNUAL EXHIBITION
OF THE
BAY DISTRICT HORTICULTURAL SOCIETY,

Held in San Francisco, August, 1871.

The first annual Exhibition of the Bay District Horticultural Society opened August the 8th, 1871, at the Pavilion in the City of San Francisco.

Mr. A. S. Hallidie, the worthy President of the Mechanics' Institute, in his opening address alluded briefly to this Exhibition in the following very appropriate remarks:—

“The Bay District Horticultural Society holds its first exhibition at the same time and during the same term as the Industrial Fair. This young Society has shown a vast amount of enterprise, and is deserving the utmost success. I trust its membership may be largely increased, and that it may engender a taste for Horticulture among the people of the bay district.”

After the introductory speech of Mr. Hallidie and an invocation by the Rev. John Hemphill, the Hon. Milton S. Latham was introduced, by the President, and proceeded to deliver the opening address, which was listened to by a large and appreciative audience. It certainly showed great care in its preparation, and in our opinion was by far the best address ever delivered in this city, on a like occasion. The exercises were interspersed with singing by the pupils of the Denman Grammar School, which all declared to be a most delightful feature.

Entering the large space, set aside for the Horticultural Exhibition, covering an area of 17,500 square feet, the scene which presented itself to the visitor, was the subject of general admiration. A large grassplot of Italian Rye Grass was an agreeable surprise to all who knew the fact, that the managers had

only three week's time to make their preparations. This grassplot is planted with various groups of bedding plants, one of *Phlox Drummondii*, raised by E. L. Reimer; the colors are some of the most brilliant we ever saw and the varieties excellent; the group was bordered by *Cineraria maritima*. Another bed is filled with a fine collection of Pansies, from the nurseries of Meyer & Co. Considering the lateness of the season for Pansies, the collection is a very creditable one; still another bed is planted with the different varieties of *Coleus* bordered with *Sedum variegatum*; the effect is a good one.

The grassplot also contains a fine and choice lot of specimen trees, such as *Araucaria excelsa*, *Araucaria Bidwillii*, *Araucaria brasiliensis*, *Cedrus Deodora*, *Abies Menziesii*, from the nurseries of Meyer & Co.; a fine specimen of double flowering *Oleander* ten feet high, full of flowers, by S. P. Simonds, an amateur gardener; a fine fruit-bearing *Pomegranate* with flowers and fruit and the old fashioned *Grape Myrtle* (*Lagerstroemia Indica*) in full bloom, from Sacramento. Two very attractive groups of well grown *Araucaria excelsa* and *brasiliensis*, from Mr. Burr, and a fine *Lemon tree*, full of fruit, from Mr. S. P. Simonds, add much to the appearance of the plot. But the finest plant is an *Araucaria excelsa* twelve feet high and well proportioned, which is contributed by Mr. Burr.

The grassplot is very appropriately embellished with *Marble Statues* and *vases*, which latter are ornamented with beautiful specimens of *Cupressus funebris* and the well-known *Hydrangea*, in full flower; the *Wire stands*, so gracefully arranged with plants, and contributed by Meyer & Co. and E. Allen & Co., are an excellent addition.

THE FLORAL DISPLAY—*First Week.*

Turning to the right from the entrance we notice, in a large, irregular bed, the collection of *Conifers*, exhibited by E. L. Reimer of the San Francisco Nursery. The exhibit is a creditable one, and the plants are all well grown. The most conspicuous specimens are *Cedrus deodora*, *Thuja gigantea*, *Pinus in-*

signis, *Cupressus Lawsoniana*, *Cupressus macrocarpa*, *Libocedrus decurrens*, *Cupressus funebris*, *Cupressus pyramidalis*, Cedar of Lebanon, *Taxus baccata*, *Juniperus virginica*, *Juniperus Benthamiana*, *Juniperus japonica variegata*, *Pinus Canariensis*, *P. ponderosa*, *P. Benthamiana*, *P. maritima*, *Abies excelsa*, *Araucaria imbricata*, *A. Brasiliensis*, *Cryptomeria Japonica*, etc.

Next we come to a group of flowering plants, exhibited by Meyer & Co., with a magnificent specimen of *Dracaena australis*, twelve feet high in the centre. We name the following plants in this collection: *Veronica fol. variegatis*, Oleander, white and red, *Hydrangea*, with colossal bunches of brilliant flowers, *Salvias*, *Fuchsias*, Zonal geraniums, *Pelargoniums*, Double geraniums, Scarlet geraniums, *Begonias*, *Gloxinias*, *Agapanthus*, *Canna*, *Sollya*, *Primroses*, *Mimulus*, *Lobelia*, Lilies of var., *Heliotrope*, *Abutilon*, *Myrtle*, *Erica*, *Plumbago*, etc.

We now come to the collection of tropical plants, displayed by R. B. Woodward, which is bordered by a fine collection of Ferns. The most noteworthy of this tropical collection are Bananas, Pine-apples in fruit, *Cordylines*, *Dracaenas ferrea* and *nobilis*, *Yucca variegata*, *Dracaena Cooperii*, *Thuioopsis*, *Chamærops humilis*, *Crinum*s, *Alocasia Boliviensis*, etc.

Along the south side of the building, to the right, there is a large table, about one hundred feet long, occupied by E. L. Reimer. He displays a fine collection of Roses, the best of which are: Model of Perfection, Lord Raglan, Prince Camilla de Rhone, Giant de Batailles, Madame Vidot, Madame Rivers, Black Prince, Cardinal Patrizzi, Pauline Lanzezeur, Jules Margottin, Louis Philippe, Agrippina, Vicomte de Cass, Isabella Gray, Hermosa, Louise de arc, La Marque, Cloth of Gold, Solfaterre, Triomphe de Luxembourg, Salat moss, etc.

A collection of climbing plants, such as *Wistaria sinensis*, *Passiflora elata*, *Clerodendron*, *Stephanotus floribunda*, *Tecoma jasmin-*

oides, *Tecoma Australis*, *Bignonia grandiflora*, *Bignonia venusta*, etc.

A collection of *Fuchsias*, the best of which are Aime Hoste, Duc de Brabant, Angeline Brandt, Francis Harry, Swan, Imperatrice, Charlotte, Francis Desbois, etc.

Collection of flowering plants, of which we name only the best: *Libonia floribunda*, *Begonias* of varieties, *Camellias*, *Gardeinas*, *Oleanders*, *Hydrangeas*, *Gloxinias*, *Gesnerias*, *Achimenes*, *Agapanthus*, *Orange*, *Hibiscus*, etc.

Collection of bedding plants, of which the following are most conspicuous: *Pansies*, *Petunias*, *Verbenas*, *Coleus*, *Phloxes*, *Auriculas*, *Primroses*, etc.

Collection of double *Geraniums*, which attract a great deal of attention. Many visitors have never seen any of the double flowering *Geraniums*, and others have not even heard of them before; although mostly small plants, the flowers are good of the varieties.

The collection of tri-color *Geraniums* is not what we hoped to see; the varieties are few and the foliage is not very distinctly marked; yet the display, although small is a pleasing one.

Mr. Reimer's collection of bardy variegated foliage plants is indeed a fine one, but the number is not very extensive. Some specimens present a really magnificent appearance.

Near the end of this table we notice two gigantic specimens of Tobacco plants, presented by Mr. James Lick, of San Jose. We could not learn what the varieties are, but imagine that they would furnish a good quantity of superior Tobacco.

As we approach the west end of the Conservatory we find, suspended from a neat frame, a number of beautifully arranged Wire baskets and two pairs of Rustic baskets, which are superior in beauty and elegance to anything we have seen for many years. The Exhibitors are Meyer & Co. and E. Allen & Co. Two of the Rustic baskets are contributed by Mr. James Smith. It will be hard work for the judges to decide which are the best and entitled to the premium.

Beneath this frame, on the grass, we notice some remarkably fine specimens of Ferns, mostly natives of California, contributed by Mr. Chiousse; among which there are *Adiantums* eighteen inches high and two feet in diameter.

On the inside of the walk leading around the west end, is a Summer-house, of wire, manufactured and exhibited by Mr. Gruenhagen; the pillars are decorated with Ivy, and between them Mr. Joseph Putzer exhibits some well grown specimens of Hungarian Grape-Vines, bearing a number of large bunches of Grapes; these have been cultivated in boxes especially for this Exhibition. The center of the summer-house is occupied by an earthenware fountain, from the Antioch pottery.

Returning from the west end, and following the southern main walk, we come to an oval center table, upon which Mr. W. Robertson displays a good collection of flowering plants of large size: the center of the group is occupied by a fine *Stephanotus* in full bloom, which scents the air most agreeably in that section; a fine specimen of *Hoya carnososa*, a good collection of *Fuchsias*, *Abutilons*, *Geraniums*, *Heliotropes*, *Grassulas*, *Pelargoniums*, *Japanese Lilies*, *Heaths*, *Begonias*, *Chinese Primroses*, *Cockscombs*, and many other varieties too numerous to mention, make up the bulk of this display.

Opposite, on the north side, we find a beautiful and numerous collection of new and rare plants, of which we mention, as the most noteworthy: a goodly number of the *Begonia rex* family, *Gesnerias*, *Tritonia*, *Crotons*, *Cissus discolor*, *Passiflora tri-farciata*, *Maranthas*, *Hibiscus Cooperi*, etc. This exhibit is made by Mr. R. B. Woodward, as also a fine and well selected collection of *Caladiums*, of all possible colors and marks; over twelve of the very best varieties are in this collection.

To the left of the main entrance, we are much pleased with the magnificent collection of Australian Evergreen and Flowering plants, which occupy a large, irregular bed, corresponding with that of the *Coniferas* to the right. The exhibitor of this extensive and

varied assortment is Mr. E. L. Reimer. The number of species is large and too numerous to mention; but we give some of the best:—

Acacia linearis, *A. floribunda*, *A. cordata*, *A. armata*, *A. conspicua*, *A. rubra*, *A. lophantha*, *A. saligna*, *A. cultriformis*, *A. pulchella*, *A. alata*, *A. latifolia*, *A. dealbata*, *A. molissima*, *A. procumbens*, *Grevillea robusta*, *Ficus Australis*, *F. macrophylla*, *Chorizema ilicifolium*, *Melalencas* of different varieties, *Podalyria Australis*, *Escallonia floribunda*, *E. rubra*, *Fabricia lavigata*, *Sanguenaria Pattersonii*, *Corynocarpus* of sorts, *Leptospermum* of different varieties, *Tristania macrophylla*, *Pittosporum undulatum*, *P. Tobira*, *P. nigra*; *Psoralea pinnata*, *P. Australis*, *Haakeas* of sorts, *Eucalyptus*, twelve different varieties, etc.

Keeping on in the same direction, we come to the collection of flowering plants, exhibited by R. B. Woodward; the group is arranged very tastefully by an occasional addition of ornamental Foliage plants and Grasses. The most prominent of the collection are: *Fuchsias*, *Geraniums*, *Pelargoniums*, *Lobelia cardinalis*, *Begonias*, *Coleus*, *Abutilons*, etc.

Next we come to a very numerous collection of Climbing plants of over forty varieties, the most conspicuous of which are: the *Stephanotus*, *Hoya bella*, *H. carnososa*, *Clianthus*, *Rhynchospermum*, *Cissus discolor*, *Bignonias* of sorts, *Pelargonium peltatum*, *Tecomas*, *Clematis*, *Honeysuckles* of sorts, *Ivy*, *Maurandia*, *Sollya*, *Deeringia*, *Eccremocarpus*, *Solanum jasminoides*, and others.

To give full justice in our report, we cannot omit the collection of "one of ours." F. A. Miller occupies a stand next in order on the north side of the building. He displays an assortment of Flowering and ornamental Foliage plants in three inch pots. The following are the most interesting varieties in this group: collection of *Coleus*, of *Fuchsias*, *Geraniums*, *California Ferns*, *Mimulus*, *Variogated Foliage plants*, *Double Petunias*, *Begonias*, *Achyranthes*; also specimens of the *California Pitcher plant*, etc.

Opposite, in the centre, is the table for the display of Cut-flowers, which is principally

occupied by Meyer & Co., for a general assortment of them. The flowers as well as the arrangements are very good.

At the east end, a magnificent specimen of Pampas-grass is quite a feature; it was contributed by Fred. Bibend, an amateur gardener. The half-circle around the east end is made attractive by a valuable collection of rare plants from F. Haeglich, consisting among others of specimens of *Halecias*, *Ligustrum*, *Ficus*, *Brachychiton*, *Corypha Australis*, *Araucaria Cookii*, *Gardenia*, *Stenocarpus Cunninghamii*, *Corynocarpus laevigatus*, *Araucaria glauca*, and *A. Cunninghamii*. One of the grand features of the exhibition, is the display of Meyer & Co., upon the long stand along the south side of the Conservatory, which deserves much credit. On the eastern end of their table we find, first;—

A collection of Zonale geraniums comprising about fifteen varieties, and a collection of Tri-color geraniums of some ten varieties.

Next comes a collection of new and rare plants, of which the most pleasing are: *Gloxinias*, *Sanchezias*, *Eranthemums*, *Erythrinas*, *Cissus discolor*, *Gesnerias*, *Caladiums*, *Bambusa gracilis*, etc.

A collection of Ferns comprising about 12 varieties.

Next in order comes their display of plants for greenhouse, conservatory and window culture, comprising a general collection of well and favorably known Flowering plants and a number of rare ones, which altogether make it one of the most complete collections.

And finally we come to their exhibit of *Fuchsias*, amongst which we notice the popular varieties of *Swan*, *Seratifolia*, *Rose of Castille*, *Figaro*, *Monsieur Meil*, *Duke de Brabant*, *Globosa*, *Guiding Star*, *Apollo*, *Chas. Gally*, *Gen. Lee*, *Pearl of England*, *Striped Unique*, *Puritani*, *Meteor*, *Fulgens*, etc.

POMOLOGICAL DEPARTMENT.

The display in this department is rather meagre at this time, the only collection being contributed by R. B. Woodward, Esq.,

from his country residence in Napa Valley. The exhibit is a creditable one, taking into consideration, that the fruit season is not yet at hand, for the display of a general collection. We notice the following varieties:—

APPLES—*Gloria Mundi*, *Lawrence*, *Porter*, *French Pippin*, *Flushing*, *Hawley*, *Holland Pippin*, etc.

PEARS—*Orange Bergamot*, *Bartlett*, *Bonne de Jersey*, *Beurré d'Anjou*, etc.

GRAPES, grown under glass—*Frontignac Black*, *Sweet-water*, *Golden Chasselas*, *Black Hamburg*, *White Nice*, *Frontignac Grizzly*, *Chasselas de Fontainebleau*. The bunches of these Grapes are very full and heavy, weighing from two to four pounds. The berries are unusually large, and as a whole it is a most creditable display.

Mr. Woodward has also forwarded many branches with fruit on, the majority of them being literally covered with the fruit. We counted on one of these branches, about eighteen inches long, seventy good sized ripe Plums.

Some fine specimens of Peaches are also in the collection.

MISCELLANEOUS ARTICLES.

A jar of preserved Cherries from the Nursery of Seth Lewelling, Portland, Oregon. These Cherries, 354 in number and of the Royal Ann variety, were taken from a single branch seven eighths of an inch thick and five feet long, weighing seven pounds.

A case with a fine assortment of fancy Bouquet Paper, exhibited by Meyer & Co.

A collection of Cones of California Conifers, the most conspicuous of which are:—

Pinus Coulteri, *P. Jeffreyi*, *P. tuberculata*, *P. ponderosa*, *P. muricata*, *P. Torreyana*, *P. Lambertiana*, *P. Sabiniana*, *P. insignis*, *Sequoia gigantea*, *S. sempervirens*, *Abies Douglassii*, *Libocedrus decurrens*, *Picea amabilis*, *P. grandis*, *P. nobilis*, *Cupressus macrocarpa*, *C. Lawsoniana*. This collection was contributed by Dr. C. A. Stivers, and forms an attractive feature of the Fair.

Another selection of Cones is exhibited by Mr. C. L. Kellogg, seedsman; in his col-

lection we found the finest specimens of *Pinus Coulteri*, and *P. Sabiniana* we ever saw; also cones of *Pinus monophylla*, *P. tuberculata*, *P. Benthamiana*, and others.

DESIGNS AND PLANS for rural residences and public squares were exhibited by Frank Staeglich, R. Michelsen and F. A. Miller. They all deserve a good notice.

Messrs. Meyer & Co., the marble men on Market street, have kindly furnished the fine marble fountains, statuary, and the vases, which add much to the general appearance of the Conservatory.

Mr. Gruenhagen and Mr. Eckfeldt display much taste in the erection of elaborate wire summer-houses, seats, stands and tables.

THE FLORAL DISPLAY—*Second Week.*

The Exhibition in general, and the Horticultural Department in particular is well patronized, more so than any exhibition previously held in California. During the second Saturday more than 21,000 persons visited the Fair. The grass as well as the plants have kept in remarkably good condition, and, considering the long duration of the exhibition, but few plants have to be replaced.

Although the second week was set apart for the display of Fuchsias, Geraniums and other flowering plants, most of them were entered and delivered during the first week, to which due reference was made in the report of that week.

In the Floral Department the most important additions are the different collections of Cut-flowers.

Mr. Eugene A. Upton, of San Francisco, exhibits several hundred well formed Dahlias, of over forty varieties. Mr. Upton is an amateur gardener, who deserves much credit for his untiring efforts in making the floral display as attractive as possible. While he replaces fading flowers every morning with fresh and more beautiful specimens, his lady devotes much of her time and labor to arranging new floral decorations to enhance the effect; an excellent example for other ladies. This collection of Dahlias is probably the best in the State.

Mr. J. M. Thompson, of Suscol, Napa County, exhibits a splendid assortment of Gladiolus; his valuable collection comprises sixty four well selected and beautiful varieties, all named. It rejoices us to meet such men as Mr. Thompson, who sacrifice time and money to come here and aid us in our efforts to make the floral display a success.

Mr. Reimer exhibits over thirty varieties of Roses, well formed, compact and fine in color; he also exhibits a collection of cut-Pansies, some of which are elegant.

Mr. Wm. Robertson displays a good collection of Dahlias and Roses; the varieties are not very numerous, but the specimens are superior.

Mr. Pechen, of Uncle Sam's Garden, exhibits a collection of good Pansies.

THE POMOLOGICAL DEPARTMENT.

The display of fruit is on the increase. Besides the collection of Mr. Woodward, we have now a very fine exhibit from various contributors of San Joaquin County, and we do not hesitate to pronounce it one of the finest, we have ever seen, although not so full as we should like to see it. The entire display has come to hand under the care of Mr. Geo. West, of Stockton, a gentleman who is always foremost in aiding enterprises of this kind.

We notice in this exhibit in particular, a collection of thirty varieties of Apples by James Crosser, of which we name the following: Porter, Bellflower, Swaar, Mammoth Pippin, Rhode Island Greening, American, Summer Pearmain, Hubbardson, Maiden Blush, Golden Russet, Roxbury Russet, Holland Pippin, Autumn Swaar, Seek-no-further, Ortley, Smoke house, Jonathan, Ladies Sweeting, Rambo, Limbertwig, Vandevere, Spitzenburg, etc.

A collection of Pears by Messrs. P. Young & Nelson, amongst which we notice: Bartlett's, Vicar of Winkfield, White Doyenne, Seckel, Flemish Beauty, and others, all of extraordinary appearance and size.

A fine collection of Grapes from West Bro., of Stockton, of over twenty varieties. These are really exquisite. Bunches handsomely

formed, berries unusually large, and color pure and inviting.

A collection of Apples, by Mr. S. Hurrey, very creditable.

A collection of Grapes by Geo. Kidd, an amateur of Stockton; and,

Another collection of Grapes and Figs by Nicolai Eudic, of San Joaquin Valley.

Some thirty pounds of California Grapes, grown on one vine without any irrigation, by G. W. Sweasy, near Marysville

An exhibit of Poha berries and Jelly, from J. M. Alexander, of Haywards.

A collection of California Seedling fruits, by E. W. Garrit, of Placerville, to which we call particular attention; these fruits are well worthy of extensive cultivation.

However, for want of space and time, we must lay over the balance of our report until the next issue, when we shall give a full description of everything omitted or yet to be exhibited in the Horticultural Department.

AWARDS OF PREMIUMS

Of the First Annual Exhibition of the Bay District Horticultural Society.

First Week.

1. Best display and general collection of Flowering Plants in bloom, E. L. Reimer, \$20.
2. Best collection of Plants indigenous to Australia, E. L. Reimer, \$25.
3. Best collection of Coniferæ, both native and foreign, E. L. Reimer, \$20.
4. Best collection of Plants for Greenhouse, Conservatory and Window Culture, Meyer & Co., \$15.
5. Best collection of Bedding Plants, E. L. Reimer, \$10.
6. Best collection of Hardy Plants with variegated foliage, E. L. Reimer, \$10.
7. Best collection of Tropical Plants, R. B. Woodward, \$10.
8. Best collection of Climbing Plants, Meyer & Co. \$10.
9. Best collection of new and rare Plants, R. B. Woodward, \$10.
10. Best collection of Plants suitable for Hanging Baskets and Rockeries, Meyer & Co., diploma.

11. Best collection of Ferns, R. B. Woodward, \$5.

12. Best collection of Roses in pots or boxes, E. L. Reimer, \$10.

13. Best collection and display of Cut-flowers, Meyer & Co., \$10.

14. Pair of best arranged Wire Hanging Baskets, C. Allen & Co., \$5.

15. Pair of best arranged Rustic Hanging Baskets, Meyer & Co., \$5.

16. Best design for a Suburban Garden, M. Michelsen, \$10.

17. Best collection of California Seeds, E. L. Perkins, \$10.

18. Best exhibit of California Coniferæ Cones, Dr. C. A. Stivers, \$5.

Second Week.

1. Best collection of Fuchsias in pots, not less than fifteen varieties, Meyer & Co., \$8.

2. Best collection of six Fuchsias, F. A. Miller, \$3.

3. Best collection of Double Geraniums, E. L. Reimer, \$5.

4. Best collection of Tri-color Geraniums, E. L. Reimer, \$5.

5. Best collection of Pansies, Meyer & Co., \$3.

6. Best collection of Verbenas, Ferd. Biebend, \$3.

7. Best collection of Cut-Dahlias, E. A. Upton, \$3.

8. Best collection of ten Dahlias, W. Robertson, \$3.

9. Best collection of Gladiolus, J. M. Thompson, \$3.

10. Best spikes of Hollyhocks, E. A. Upton, \$3.

11. Best 12 Roses, E. L. Reimer, \$5.

12. Best 6 Roses, W. Robertson, diploma.

13. Best 12 Pansies cut, E. L. Reimer, \$3.

14. Best collection of Annuals, F. A. Miller, \$5.

15. Collection of Greenhouse Plants, special premium to W. Robertson, \$5.

16. Water Lilies, exhibited by S. B. Simonds, special premium, \$5.

17. Best Zonal Geraniums, to Meyer & Co., \$5.

18. Best exhibit of Bouquet Paper, to Meyer & Co., diploma.

19. Best six Pansies, to P. Pechen, diploma.

THE FRUITS AND VEGETABLES OF SAN FRANCISCO.

It can be hardly needful here to dilate upon the wonderfully productive influence of the climate and soil of California co-operative with man in the propagation and raising of all those varied, useful and healthful articles of subsistence and enjoyment—fruits and vegetables, as well as flowers. There can be but little fear that the wealth of Nature in this State, in these things, can be much exaggerated. Whether all these astonishingly prolific resources of this region can be justly spoken of in our papers and periodicals, reaching the more distant public in other parts of the world, influencing emigrants to settle here, without giving them the palpable drawbacks, of dryness of climate, overstocked markets, stagnation in general business at this time, centralization of land, and other defects, is another question. But that this State is unsurpassed, if equaled, by any other country in capacity of productiveness and rapidity in the growth of plants and their fructification, there can be but little, if any, doubt. It has been established by unquestionable authority, that the fruit of the Peach can be obtained from the seed in seventeen months; and we have an instance in the present Mechanics' Exhibition, in the Bay District Horticultural Society's department, that the cuttings of Grapes of Hungarian varieties, planted last winter, have produced Grapes weighing about four pounds to each vine.

But what we have now especially to treat on, is our Fruit and Vegetable markets. In taking a walk through them on the 19th of this month, we find abundance of these articles to attract our attention and excite our interest and notice. The first point that strikes us is the immense amount of fruit spread out and piled up in not only the wholesale but the retail marts. The great bulk of the fruit just now consists of Peaches, Pears, Plums, Musk-melons, and Blackberries.

Cherries, Gooseberries, Currants and Figs, have nearly disappeared.

Apricots are getting scarce; what there are, are large. The first that appear in market, similar to the commencement of Peaches and Plums, are small, being inferior in quality, with the exception of the Peaches, which, this season at any rate, were very sweet and juicy, owing, perhaps, a good deal to the unusual coolness of the season.

The third crop of Strawberries, chiefly of the Hovey's Seedling with some British Queen species have appeared, and compared with any lately, in fair abundance, considering that the season for this fruit is becoming late. The first fruit we had this season seemed to possess the best flavor.

The Red Antwerp Raspberry, the general kind, with some Falstaffs, is in moderate quantities. This year has been a far better one than last for this fruit, to be accounted for, no doubt, by the much greater coldness of the temperature.

Musk-melons are plentiful, and there can be hardly any climate that produces sweeter or better, or more luscious.

Water-melons, chiefly the Black Spanish and Ice Rind, are becoming plentiful. This region seems to suit them well also.

The Plums are in plenty, chiefly of the large, yellowish-green, Washington, the Red Horse, large Red Hungarian, Yellow and Red Egg, or Magnum Bonum, George the Fourth, (large yellowish and of fairly good flavor,) and a small Gage, color lightly green, a little like the genuine Green Gage, or Rhein Claud, in taste, but far inferior to that prince of all Plums in rich preserve-like flavor, with remarkable and delightful juiciness. The color of the true Green Gage is dark green, with brown blotches or spots next the sun. We consider that all the Plums, except the Green Gage which we tasted from the Suscol orchard, are comparatively insipid with the Eastern or European fruit of this sort. This remark will apply also to the Peaches here and some other fruits and vegetables, the climate forcing them to too rapid a

growth for a very high flavor, and the hot sun in the valleys diminishing their juiciness.

Pears in the markets are becoming plentiful. Gigantic Bartletts—that generally good and profitable kind in nearly all temperate climes—with large Flemish Beauties, White Doyennes, Beurré d'Anjous, filling the baskets, boxes and stands.

Peaches contend with the Bartletts and other Pears for mastery in the markets, and each keeps down the price of the other. Besides the multitude of other fruits, always in this extraordinary climate showing more or less, at the same time, we notice the old dull red mottled and striped Colombia Peach at one stall. This is more juicy than most Peaches. Clings mostly, have more of this desirable quality than Frees.

Grapes, in much variety, have not yet made their entree. There is a fair abundance of Sweetwater, Black Hamburg, Muscatel, Flaming Tokay, Rose of Peru, and a few others, but they have not yet reached their highest flavor.

We notice on the fruit table of the Horticultural Department of the Mechanics Institute Fair, some Grapes, (of the Black Hamburg we believe) which exhibited fifty pounds at least, from one vine. These were raised on dry ground not irrigated at all. The raiser of these observes, on his label—"California has 100,000 acres that will produce about the same in the same way, if only developed."

By the bye, we notice at the same place some Polia Berries, "esteemed one of the greatest luxuries of the tropics, resembling the Ground Cherry, but as superior to it as the Apple is to the crab. It is unsurpassed by any fruit for richness and delicacy of flavor for pies, jellies, jams, preserves, etc." Here, also, we observe pieces of Plum branches, as nearly as thickly loaded with fruit as they could be placed there by hands.

Red-striped Alexander Apples, brilliant in their yellow and red colors, of enormous size; Bradshaw Apples, of flattish form but of brilliant red and yellow. The Porter Apple as fine and pure in complexion as ever.

Silesian Sugar-beets of large growth; also some very fine Turnip-radishes, seedlings raised by F. A. Miller, color, a fine pink.

The Blackberries in market now come chiefly from the Santa Clara and San Jose valleys—not many from Napa valley.

Nearly all the best vegetables continue to be represented in the markets, and so large that they astonish Europeans and Easterners; but owing to their large growth, not possessing that flavor and sweetness, at least many of them—especially the Cauliflower—which is found in Europe or the more Eastern States.

E. I. HOOPER.

WORK FOR SEPTEMBER.

The month of September is usually considered a month of rest, and in colder climates much time is taken up in preparing for the coming winter; fruits and vegetables have to be stored away, where the severe cold cannot reach them; many half-hardy shrubs, trees and vines must either be taken up and preserved under shelter, or protection must be provided for them where they are growing. In the mild climate of California this work is uncalled for; yet our industrious farmers and gardeners always find sufficient work to keep them busy. This is one of the best months in the year for looking after fences, so as to have them in good and durable condition before the rainy season sets in. It is very annoying when you have to repair broken fences during a time when labor is so much needed elsewhere.

The gathering, packing and shipping of fruit takes up much time and labor, and particularly so, where proper care is taken to pack fruit well. We have noticed this year that some Peaches are rolled up in paper, one by one, and arrive here in much better condition than if packed in the usual careless way. Half-ripe fruit may be shipped without such precautions, but what we want here is ripe and healthy fruit, for which a higher price will always be paid. The rolling up of soft fruit in paper is a good idea; it packs the

fruit more solid, and if any of it decays or spoils on the road to market, the damage will be confined to the single package.

The vineyards furnish us now with some good table Grapes, and besides the packing of these, preparations must be made without delay for wine-making. The product of wine will be an unusual large one this year. We are sorry to say that much of our wine is made in a careless way, and many of our vineyard owners have not yet learned the simple but very strict rules for making and keeping wine: cleanliness in everything that is brought in contact with the Grapes and the new wine, is very important.

It is hardly necessary for us to state here, that irrigation should be entirely stopped in the orchard as well as in the vineyard; the young wood must have time to ripen well before the rainy season sets in. The same rule holds good for Ornamental Trees and Shrubs, Raspberries, Currants and other small fruit trees.

In the Vegetable Garden we would advise the planting of Spinach, Lettuce and Endive for winter use. Celery should be earthed up every two weeks. The flower garden had a hard time of it this year. Around the bay the weather was so cold and the winds so heavy, that many of our best flowers were blighted. Annuals, such as Balsams, Asters, etc., did not come into bloom in San Francisco, while Gladiolus, Dahlias and Roses were badly affected by the unusually high winds. This should not discourage any one from raising these flowers. In the East and in Europe there are many other and much severer drawbacks than these things, and yet the efforts there are redoubled every year to bring flowering plants to perfection. The more delicate flowers should be provided with more protection in the way of screens.

As the nights are becoming cooler and the fogs heavier, the plants in the Greenhouse and Conservatory require much less water than they have been accustomed to. Overwatering is one of the detrimental practices to greenhouse plants. As a general rule, water should be used very sparingly out of

doors as well as in doors during the coming months.

EASTERN vs. CALIFORNIA FRUITS.

Under the above heading the *Horticulturist* of New York has the following: "California Horticulturists are very anxious to have some of our Eastern fruit-growers send specimens of their fruit to the Pacific Coast, where it can be placed in fair competition with some of California's best, and the vexed question of quality, amicably settled. It seems natural for every section of the country to claim a special pre-eminence for one or more points in fruit culture.

The Californians have always claimed that their fruit was the finest in size, fairness and productiveness, and no one has disputed their claims; but as Eastern Horticulturists have from time to time visited that coast, they have felt that the claim for quality could not be as well maintained as by the fruit-grower on the Atlantic slope.

The characteristics of Californian fruit, which we gained from careful notice, while we were there last year, were: a sweet pleasant flavor, dryish, mealy texture, freedom from acidity, or but moderate sub-acidity, a lack of juice, spirit, or spicy, aromatic taste. It is very natural for fruit, grown in a dry country, to be less juicy, than that grown in a land of frequent rains, it is hence more sweet, and less distinctive in flavor. Here our fruit has a spirit, aroma and an abundance of juice, which makes the eating of almost any variety perfectly luscious. Nearly every visitor to California will, we believe, confirm these opinions, and if any of our friends could send to California specimens of our Beurré d'Anjou, Seckel, Bartlett or other Pears, to be tested faithfully in comparison with some from Californian orchards, we doubt not, it will be found there is quite a difference in flavor, if not size."

Well said, and exactly to the point. The experience and the quality of the great bulk of California fruit consumed in this market, seem to fully justify the above statement; yet

we are not prepared to accept the above as a final judgment.

California has been pronounced a peculiar land, and the longer we live in it, the more peculiar we find it. So many ridiculous Munchausen stories about the products and productiveness of the Californian soil have been circulated throughout the civilized world, and probably much more throughout the uncivilized portion of it, that we have long since considered it quite unnecessary to contradict or correct them; but the true and real resources of California are not yet understood by our own people, nor are they elsewhere.

For ourselves, we have never considered the low bottom lands of California fit for orchards or vineyards, the soil as well as climate being adverse to the production of a good, juicy, solid and highly flavored fruit; this is particularly the case with Apples and Pears. But we have within our limits land which has produced and will still produce Bartletts, Beurré d'Anjous, and other fine Pears as fine (if not finer) and as large as are grown in any part of the globe. The foothills of Nevada, Placer and other counties are admirably adapted to the Apple and Pear, and the fruit is highly improved if the trees are irrigated two or three times during the dry season. The fruit growing in those counties is consumed there, only a small portion of it finds its way to San Francisco, and therefore its superior quality is very little known. The fruit there ripens a month later, and from our own experience we can say that Nevada County may challenge the world for the flavor, soundness and size of her fruit. We have eaten Apples fresh and juicy, rich in flavor in the July of the following year, while in San Francisco we are not able to purchase an Apple worth the eating after January. Great mistakes have been and still are made in the planting of orchards, and but few are willing to acknowledge their errors. But among these we find Mr. Lewelling, of San Lorenzo; he says that his land is unfit for the cultivation of Apples and Pears, but his Cherries are very superior. He roots out his Apple and Pear trees gradually, and replaces them with Cherry

trees. When the Horticultural tourists from the East were sojourning in California, they had the misfortune to be led astray to some extent, in their visiting of orchards which were close at hand and easily reached from San Francisco. The Pomologists who come here from the East, are unwilling to encounter the inconvenience and the toil of visiting those out-of-the-way places among the foothills of the Sierras, very little being known of them, and the improvements are not so extensive as they are around the Bay of San Francisco. Yet the time will come when these foothills will furnish the markets of this coast with Apples and Pears equal to any produced on the face of the earth.

Again, as we have said before, Alameda County furnishes fine and beautiful Cherries, another locality is adapted to the production of excellent Peaches and Plums, while still another supplies superior table Grapes.

Our opinion is, that we can produce as good fruit of almost every variety as can be grown anywhere else, if we cultivate it in the proper locality, and subject it to proper treatment. We are convinced that irrigation improves almost all kinds of fruit, but the water must be given judiciously, *i.e.*, at the proper time and not too often.

Having in our different localities the climate and soil adapted to the various kinds of fruit, and Nature assisting by the rapid development of trees and vines so as to produce early and remunerative crops, and the various drawbacks of disease and insects being almost unknown, we think that California occupies an advantageous position in this particular field of industry. But unfortunately many of our fruit-growers do not willingly admit the errors they have committed in the selection of many localities, while others are endeavoring to make us believe that they can grow Bananas, Oranges and Winter Apples, within twenty-five feet of each other. Who ever heard of such absurdity! Let all these fancy ideas be banished, and let us inaugurate a system which shall be based on facts and on Nature's laws, and the success we shall acquire will be a permanent one.

EDITOR:

C. A. STIVERS, M. D.

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F. A. MILLER,

C. STEPHENS.

Editorial Portfolio.

Experimental culture is always a necessary feature in the development of a new country, especially so, as upon it in a great measure must depend its capabilities for supporting a continually increasing population. The introduction of the different varieties of grains, fruits, etc., is a part of the agriculturist's duty, and one which he owes both to himself and to the State in which he is to make his future home. While this is incumbent upon him, it is not the mere introduction and planting of exotic vegetation which will answer the purpose; he must ascertain the true value that can be attached to each new introduction. If he does not investigate in this direction, his labors are but necessarily of little worth, and his experiments of corresponding low value.

A plant may grow in its new home with all the outward appearance of success, and yet lack the very essential part that makes it of use. In plant-life, as in many other things in nature, there seems to be a law of natural selection, which cannot be violated at the will of man. Take as an example, two fields of Poppies, one grown in California and the other in India; to the outward eye they are similar in every respect, well developed, and in each case growing luxuriantly. But it is not for the plant that the Poppy is cultivated, it is for a certain material called Opium, and the value of this opium depends upon the amount of *Morphia* which it contains. Now while the field of Poppies in India yields a large per cent. of *morphia*, that in California may yield so little of this active principle as to make it of no value. So in the case of Tea and Coffee, the plants may grow vigorously in this State, but after all be deficient in *Thein* and *Caffein*, the very principles which make the plants of value.

This action (the deficiency or excess of the active principle in exotic plants) is already commanding some attention, and deserves still further research; this must be the duty of all intelligent agriculturists.

It has been found that trees partake of different natures when grown in a foreign country, the ashes of the wood having a marked change from that of the same tree grown in its native home. The same is also the case with fibrous plants, the fibre either increasing or decreasing in strength when grown as an exotic plant. It is well known that fruit of all kinds are grown in this State to great perfection as far as size and looks are concerned, but that they often lack the rich flavor of the same varieties grown in other countries. This is no doubt due to the process by which they are adapting themselves to our marked wet and dry seasons, and that when they have become so adapted, they will develop a new and perhaps superior flavor. Time and careful cultivation, with a proper spirit of observation, will alone determine this.

People are apt to jump at conclusions, and so deceive themselves and others, to the great detriment of the State. We are to'd that all of the various vegetable productions will grow in California, and even more luxuriantly than in their native homes. Such may even be the case, but the farmer should first examine into the nature of the plant, its habit, and the kind of soil which it requires before he enters upon its cultivation on an extended scale. By doing this he saves years of useless labor, and oftentimes the expenditure of large sums of money. In the failures frequently occurring in exotic cultivation, the fault lies not in the country or plant, but in the cultivator, who, ignoring altogether the law of natural selection, thought that mere planting and cultivating was all that was necessary to insure success.

In this article we do not wish to have our readers understand us as in any way speaking against exotic cultivation, or that we think plants outside of their native homes will not do well, but rather that we wish to point out how to make this cultivation a benefit to the culti-

vator, and to the State. There is no doubt but that many plants (and even some which we have mentioned) will produce a greater amount of their active principles when cultivated on this coast, than they do where they are indigenous. We have examples in the Potato, Tomato and in fact in nearly all our vegetables, of a marked improvement by cultivation. Fruit also shows this betterment under the hand of man, though in a somewhat lessened degree. But there is another class of plants which do not seem to show this improvement at all, such as the Poppy, Tea, Coffee and many fibrous plants, which to-day are the same in all respects that they were when first discovered; so far as their active principles are concerned.

The time has gone by when the farmer's labors were confined to merely planting and reaping; he must, if he wishes to succeed in his avocation, know more of the nature of the plants which he cultivates, their requirements and true value.

HARDY BULBS.

We have received "Vick's Illustrated Catalogue of Hardy Bulbs, for 1871." In addition to the list of Bulbs, it has a short and instructive chapter devoted to their management. There is no class of plants better suited to outdoor and house culture than bulbs, and we see no good reason why they should be neglected by our florists, as at present seems to be the case. Even our Horticultural Exhibition shows a paucity in this respect inexplicable. With the exception of a few Amaryllis and Lilies, (which by the way are fine specimens,) the class is entirely unrepresented.

BAY DISTRICT AGRICULTURAL SOCIETY.

This Society has been holding an exhibition, or rather a series of horse-races in the outskirts of this city, during the past week. We cannot say that we are altogether opposed to horse-racing *per se*, but we object to

these gambling operations under the name and auspices of an Agricultural Society. It is said that charity covers a multitude of sins, and the managers with this proverb in their minds, devoted the proceeds to the benefit of the Orphan Asylums. We would rather see these institutions deriving funds from a more *reputable* source.

WOODWARD'S GARDENS.

These gardens are well deserving of all the encouragement the public can lavish on them; they are kept in excellent condition, the grass everywhere fresh and verdant, the numerous and varied specimens of Conifers, both native and exotic, are in vigorous growth, and with the very full and well selected collection of deciduous trees and especially rich collection of Acacias, form a most interesting study for the arbori-culturist. The shrubs and smaller plants are also well deserving attention; many very judicious improvements have recently been made in the arrangement and decoration of the grounds.

In the Conservatory and Tropical Houses, etc., we were delighted with the display of Coleus and other foliage plants in full leaf; the Caladiums and Begonias were particularly interesting, and we were pleased with the many and fine specimens of *Abutilon Thompsonii*, the delicate pencillings of the leaves are particularly beautiful. Another source of pleasure to us was the numerous, varied and extremely interesting collection of Orchidaceous plants, some of which are in flower; we noted that a fine specimen of *Espiritu Sancto* (Holy Ghost flower) has thrown up a vigorous stem and will shortly exhibit its highly interesting blossoms; we are anticipating, also, the opening of a bud on one of the *Cereus grandiflora* (Night-blooming Cereus.) How many thousands of people have heard of this magnificent flower! how very few have ever seen it! here will shortly be an opportunity. Overdraping the Orchids is a fine specimen of *Stephanotus* in full bloom, with its large trusses of pure white and de-

liciously perfumed flowers. We noted many other interesting plants, as 'the *Cycas revoluta*, *Pandanus utilis*, *Aralia Sieboldii*, *Corypha Australis*; in fact the Hot-houses and Conservatories appear as full of choice plants as ever, notwithstanding the very large and public-spirited contributions of Mr. Woodward to the Horticultural Department of the present Mechanics' Exhibition, where his fine tropical plants, his superb collection of variegated plants, of tender nature, and his general exhibit of new, rare, choice and beautiful plants, have won general admiration and contributed largely to the success of the Exhibition.

The Vine Department presents many choice varieties of Grapes now rapidly ripening.

Mr. Schuman, lately the efficient chief of these gardens, having left for Europe in the interest of Mr. Woodward, the Horticultural and Floral Department is evidently prospering under the able supervision and management of his successor, Mr. Brown, from whom visitors will doubtless receive every courteous attention and information.

APPLE TREE PEST.

Several of our exchanges say that the orchards are seriously injured by the wooly aphid, insects which are easily detected, when in masses upon the branches or roots of the trees, by their whitish color.

The *Pacific Rural Press* recommends, as the best remedy, a solution of two quarts of whale-oil soap and two pounds of common potash, in a barrel of water; this should be applied with a soft brush fastened on a handle four feet in length.

We know from careful observation that very little mischief is done by these insects wherever the orchard-grounds are kept under a high state of cultivation. Every one will admit that the suffering of weeds to grow, and allowing the soil to lie undisturbed for years, affords a good protection to all kinds of dangerous insects, and that the frequent stirring of the soil is not only highly bene-

ficial to the growth of trees, but also very detrimental to all kinds of vermin.

Fruit trees should receive as much if not more attention than any other part of the stock of the farm, if we expect a fair yield and good quality of fruit.

The *California Farmer* attributes the production of so much inferior fruit entirely to the want of attention and proper cultivation.

He says, very judiciously: "No one who observes the orchards and fruit trees of our gardens, notes the many that are so sadly neglected, need wonder at the quantity of small and inferior fruit that often gluts the market."

It seems surprising that our fruit-growers will 'kill the goose, that lays the golden egg.' This, in reality they do, when they neglect to prune and properly care for the trees, that are to bring them in the gold. The true reason of the miserably small fruit that fills our market, is the neglect of the trees.

Small and inferior fruit is certainly the result of neglect on the part of the cultivator, unless the reason is very unfavorable, and all the drawbacks above alluded to may, to a great extent, be removed by judicious pruning, thorough cultivation, mulching and thinning out of fruit.

THE LITTLE CORPORAL.

This juvenile, for August, has an enticing table of contents. Stories from Mrs. E. D. Kendall, Susan Coolidge, Lucia Chase Bell, and others. The second installment of "Summer Days at Kirkwood," by the editor, Mrs. Emily Huntington Miller. Art, Science, and Natural History, put into fascinating dress by the pens of Martha Powell Davis, David Rice, M. D., and Olive Thorne, and some very charming poems from George Cooper, Ellen Porter Champion, and Mrs. M. B. C. Slade. This number has several fine illustrations, which now form an attractive feature of this popular juvenile. Terms, \$1.50 a year. John E. Miller, Publisher Chicago.

NEW AND RARE PLANTS.

A NEW TUBEROSE.—Some years since one of our most observing florists noticed among his Tuberoses one that produced much larger flowers than the rest, and at the same time was of low growth. This particular bulb was saved and quietly propagated from, until quite a stock was accumulated, which he sold at a round price to two of our florists. We are not informed when this novelty will be offered for sale, but florists and amateurs will be glad to know, that there is in store for them a Tuberose which grows only about eighteen inches high, and produces flowers of double the size of the ordinary kind. This variety will be a favorite with those who force Tuberoses for cut-flowers, as the long stems of the common kinds are always troublesome.—*American Agriculturist.*

Our California Lilies.

Some of the finest Lilies we have ever seen in flower are growing wild in California, and yet they are as much novelties in our gardens as those plants which can only be imported from Europe or elsewhere at a large expense. All kinds of names have been given to them, and we are satisfied that some of them are yet entirely unknown to florists. We do not profess to know how many varieties are growing within the borders of California, but "one of ours" has met with six distinct and interesting varieties:

The *Lilium Washingtonii*, which is scattered over the higher regions of the Sierra Nevadas, is probably one of the finest; it is of a pure waxy-white, and its appearance rather graceful. The petals are slightly recurved and the flowers are four inches in diameter and from five to six inches in length. The petals are tinged toward the center, with fine dots of chocolate-color, which change to a purple-satin-color when the flower is older, and about to decay. Stamens and pistils are of a sulphur-yellow. The flower-stock grows from five to six feet in height and bears from twelve to twenty flowers. The foliage is of a dark green, stands in a whorl around the

stem, and keeps green for a long while after the flowers have decayed.

The bulb consists of pure white scales, which are arranged rather loosely, and consequently, are very apt to decay if exposed to wet or air for any length of time. They grow in dry situations and in the midst of almost impenetrable chaparral.

This Lily should form one of the chief ornaments of our gardens; its delightful fragrance may be noticed to a great distance, and is much more agreeable than the perfume of the *Lilium auratum*.

Lilium giganteum, by some called *Lilium superbum*, which we believe is erroneous.

This Lily is found in the meadows of the highest mountain valleys, and seems to be of easy growth. The flower has an orange-yellow ground, the petals are much recurved and give it a very graceful appearance; they are of a bright red color toward the end, and dotted with large dark-brown specks. The stamens which are of a light greenish-yellow, project some three to four inches; The pollen is of an orange-brown. The stock and foliage are very similar to that of the *L. Washingtonii*, and they also keep green for a long time after flowering. The bulb is sometimes yellow, at other times pink, and at times of both colors; it is smaller and the scales are also smaller and are easily broken off; this plant is of a more creeping habit. We have seen this Lily in bloom when heavy frost was visiting the valleys near the summit.

In our next we shall give a description of the remaining varieties.

Double-Flowering Lilium Auratum.

Mr. Hudson, an amateur gardener, has exhibited in our Horticultural Fair a double-flowering *L. Auratum*, which is certainly a novelty in our experience. When the first flower opened, we confess our idea was that the thing was merely accidental and that perhaps two flowers had found their way into one: but we were surprised to see that other flowers opened as double as the first. The stock is not as robust in growth as the single

well known varieties, but the flowers are more graceful and far superior in elegance.

Mr. Hudson received this bulb in a lot of the common variety, and feels very proud of this specimen.

A Striped Pelargonium.

Messrs. Meyer & Co. exhibit, in the Horticultural Fair, a Pelargonium, the petals of which are well marked with broad stripes of a pure white, on a rosy-pink ground; it has been raised by Mr. Herring from seed, and has proved true to its present color for over a year. The plant is covered with flowers, and every flower is a perfect representative of its character.

Correspondence.

EMMATON, Sherman Island,
July 31st, 1871.

Editor Horticulturist: Press of work has delayed my writing you my regular contribution.

THE GRAIN CROP UPON THIS ISLAND.

The barley crop is about all of it harvested, and the yield has varied in various parts of the Island according to the threshing; the largest return has been 75 bushels to the acre, but in the footing up the general average has been 60 bushels, all of it of prime quality. Barley seems to do well upon this land. About 125,000 sacks of different kinds of grain will be the yield of this season.

Oats.—But little has been done in this cereal this season, but where land was sown it has yielded good results. The Norway variety seems to do well when put in, in December. The field near my house, volunteer, averaged 80 bushels to the acre, and when we take into consideration the value of this grain, it pays the farmer well. The average height throughout the field was about seven feet. This cereal ought to be more generally cultivated for the market, the only drawback has been its scarcity of seed.

The Wheat Crop.—A very large breadth of land was cultivated with wheat, more than

of any other cereal, and taking a general view of the season the yield has been good; the best fields have not as yet been threshed, but the coming month will put a large amount of this staple into the market. There were probably 6,000 acres grown this season upon this Island. One field of 80 acres has been threshed, and the average of it was 60 bushels to the acre, one portion of the field cleaned up 75 to the acre. I am of opinion that the clean up of the harvesting will be 45 bushels to the acre taking the early with the late sowing throughout the Island.

Much difficulty has been experienced this season in gathering the grain, on account of the cracking of the surface of the land in many places, particularly in the middle or backlands; this in my opinion is attributable to their being so far from the river. As the soil gets parched it seems to contract and separate, which makes it difficult and expensive to gather the crops, as it cannot be either reaped or hauled by horse-power. The grain that grows upon this ground is very heavy, and the harvesting is consequently slow and tedious. One field of 600 acres is now being harvested by Chinamen at so much per acre, five to seven dollars according to the circumstances; there are now 47 at work on this field. In gathering grain by this method, hardly a single head is lost, the work is all done by or with the sickle of John Chinaman, who thus comes in to do our harvesting. Their mode of cutting is to step off an acre of ground and three men cut it together, through the field.

As time rolls on this difficulty will be remedied, men will begin to understand the cultivation of tule lands, ditches will be cut from the river and from the sloughs running through the land, and water in abundance will be let on as required; by this means the ground will expand, and this difficulty will no longer be experienced by the tillers of the soil. I have seen this tested, and I am satisfied that it is our only course to pursue.

At the present time much interest is being taken in regard to reclaimed lands, and we ought to be very careful and not too hasty

in estimating their value. This cannot be done immediately, time is required, a great expense is involved, not one or two, but four or five years of study, observation and experience are necessary to arrive at a just estimate of its value. There probably is not any richer land to be found in this State than our reclaimed land will prove to be in the future; at present we know nothing of its capacity for growing.

Staples that have never been grown to advantage will come in as a standard crop. I see (by one of the daily papers, the *Alla*, I believe) that New Zealand Flax is being introduced into this State. In my opinion that is just what may be cultivated on this land to perfection, and I hope that some action will be taken, that we may obtain a good supply of the seed for the coming season, so as to put it to the test. Other flax grows well here.

In conclusion: we are getting along very well, the town is improving, in a short time the hotel will be completed, so that any who desire to come and see us, can do so without any inconvenience. Potatoes are plentiful, and some are getting their grain land ready for a crop of Hay, so that rush is the order of the day upon this place all the year round. Every one appears cheerful, and the store is doing a thriving business. The boats stop daily at our wharf, and our population is on the increase; the school is well attended, and all the machinery of farming is running smoothly.

D. L. PERKINS.

WASHINGTON, July 26th, 1871.

Editor Horticulturist: The weather this summer has been fine, generally; no severe drought, and not too much rain, so that most crops in the Potomac region are a fair average. Fruits generally good, and garden vegetables fine and in great abundance.

The "Potomac Fruit Society," which meets monthly, is comparatively an old institution and flourishing.

As its last proceedings developed some facts and ideas, which may be useful to your

readers, I herein give you a synopsis of their proceedings, at the July meeting.

The Potomac Fruit Growers' Association met at 11 o'clock on Tuesday, 11th inst., at the Board of Trade rooms, Judge Gray presiding; P. H. Folsom, Esq., secretary.

After disposing of routine business, one of our most extensive and popular florists, Mr. Saul, laid on the table some beautiful blossoms of the "Golden Japan Lily." They were much admired, especially for their fragrance, and the thanks of the association were tendered to Mr. Saul for his exhibition.

Next the Blackberry and Raspberry were discussed.

Mr. Saul, in the course of his remarks, said:—The "Lawton" is the finest variety that was brought prominently into notice, and many still prefer it to the "Kittatinny," or any others; but in my experience, I prefer the Kittatinny. I think it ripens more uniformly. The "Wilson" is a very excellent fruit, and is the earliest. The Kittatinny and Missouri Mammoth follow in time of ripening.

Mr. Phillips.—Which of all others is the most desirable berry for market?

Mr. Saul.—If I were going into the Blackberry culture I would not confine myself to any one, but would raise the Wilson, Kittatinny, and Missouri Mammoth. There is none that is superior to all others.

Colonel Chamberlain.—In my neighborhood there are wild berries as large as any of these exhibited here, and very sweet.

Mr. Saunders.—Regarding the varieties of the Blackberry, I found in going through one meadow in Maryland four distinct varieties; if anything, more distinct than any of those now in cultivation, and equally as good. It is wrong to confine ourselves to one variety. Persons have different tastes; then, too, they ripen at different times; and again, one might prove a failure. They do not do well in rich soil; the vines grow so luxuriantly that the wood does not ripen. In one case where they grew in the sod large crops were gathered. One gentleman planted in rich soil 48 Lawtons, training up two canes to a stake, the

next year he had twelve bushels of fruit, but after that he did not obtain good crops. We have a great deal to contend with from un-ripened wood.

Prof. Howland.—Two years ago last spring I went out into the woods, and from different localities got some black Raspberry bushes. I set out three rows in my garden, and when they came into bearing found a number of varieties, some of them being very fine, like the everbearing, while others were worthless. Altogether, at one picking, I obtained over three bushels from the three rows, 109 feet long.

Mr. Saul.—The black Raspberry will bring only half the price of the red. The latter is bought up immediately in the market.

Prof. Wm. Saunders then asked:—Will Mr. Saul state which of the red Raspberries he considers the best?

Mr. Saul.—I have found the "Philadelphia" to be a very good, hardy Raspberry. The "Elm City" also is a good variety.

Mr. Saunders.—It is well for us to keep in view the difference between the foreign and our native Raspberry. The foreign is very superior to the native, but as you come south the weather is too dry and the sun is too warm for that plant. We can guard against the mildew by mulching; and by laying down and covering them up, protect them from the frost. The Philadelphia is a seedling of the native Raspberry, and is therefore adapted to our climate. In some places on the Hudson the "Red Antwerp" is a very successful crop, but plants brought south have proved failures.

Mr. Saul.—I have known of its being successfully grown on the Hudson, but I can get no fruit from the same vines in this locality.

Friend Gillingham then read a good paper in regard to the *deterioration* of varieties of Fruit, maintaining that they do *not* "run out."

Mr. Saunders.—The old idea about the deterioration of varieties has been exploded. No ordinary cultivator ever entertained the idea. We have everything to show that there is no such deterioration of fruits.

Mr. Phillips.—Is there any Apple which can be grown in this neighborhood to compare with our Northern fruits! At the North they are stored in cellars, where they keep perfectly until spring, but I think there is none such here.

Friend Gillingham.—Yes, sir; many of them; the Winesap, Albemarle or Newtown Pippin, Abram, Pryor's Red, Limber Twig, and Cannan's Pearnain are all good, and there are others. I am satisfied we can have as fine a list of Apples here as anywhere.

Mr. Saunders.—They have an idea in Western New York that that is the only region for raising fine winter fruit; but that is a mistake. I should say that the hills of Virginia and North Carolina, is the best region in the world. In the future southern fruits will be taken North for cultivation. The great trouble has been the planting of northern varieties in the South; but southern pomologists have of late been paying attention to southern seedlings, and now they have a list superior to the northern list. Some day the North will be astonished at the show of southern fruits.

Mr. Saul.—My opinion is the same. With northern varieties at the South, failure is certain. One gentleman said to me, "of 1,000 trees, I would plant 999 Baldwins;" but I would set out the same number that were not Baldwins. We must get southern varieties. They will do better at the North than northern varieties will at the South. They have found that to be the case.

Mr. Phillips.—If better Apples can be grown in the South than at the North, why is it that we are dependent upon the North entirely for winter Apples?

Mr. Saunders.—For the same reason that we had no California wine until long after it was known that it could be produced there. Hitherto the people have not taken hold of it, but a change is taking place. I know of a shipment of 2,500 barrels from Alexandria to the North; \$4,500 has been given for the product of a single Fredericksburg orchard, and thousands of bushels of dried Apples have been shipped North from Raleigh. The

coming pomological exhibition at Richmond will astonish everybody who supposes that the South have no fruits.

Judge Gray.—Is this immediate locality an Apple-growing region? Would you advise a man on the Potomac to plant Apple trees as well as those who live back on the hills?

Mr. Saul.—Yes; particular varieties. Apples can be successfully grown.

The following is a partial list of Apples recommended by Mr. Saunders for cultivation in this latitude: Nickajack, Abram, Albemarle Pippin, Winesap, Cullasaga, Limbertwig, Milam, Schockley, Mattamuskeet, Hall's Early, Golden Wilding, Pryor's Red, Cannan Pearmain, Smith's Cider, Borum, Halliday's Seedling, Brooke's Pippin.

After some further debate, on call of the President, Col. Curtiss delivered an interesting address upon the efficiency of association.

D. S. C.

Editorial Cleanings.

So rapid has been the growth of the unexampled crops on Sherman Island, that the farmers are making haste to clear their grounds in order to prepare them for the reception of potatoes, which they feel confident will mature before the close of the fall.

The Marysville *Appeal* of the 10th instant says: "The Walker Bros., on the Honcut, have nearly completed heading. They will begin threshing in a few days. These enterprising ranchers will probably harvest about seventeen thousand bushels of grain this season, thirteen thousand of which is wheat of an excellent quality."

The Visalia *Delta* of the 9th is informed by a gentleman engaged in the threshing business, that the wheat and barley crop in that county will average better, both in quantity and quality, than last year. Much grain is wasting for want of machinery to gather and clean it; and for the same cause farmers have cut many promising fields for hay, resting safe on the high price of that commodity.

The Chico *Enterprise*, of the 8th, says the work in the grain fields is now in full blast. The farmers have ceased all complaint, and realize the fact, that instead of being cut short, as has been the case in many localities throughout the State, they will have a more abundant yield than that of any previous year.

The wine merchants and grape growers of California calculate that the crop this year will equal the large one of 1869, and that about 7,000,000 gallons of wine will be manufactured the present season. Shipments to the East this year, so far, have been nearly double what they were last year.

The Snelling (Merced Co.) *Argus* has been handed a letter written by J. W. Strong, in which he stated that plenty of cotton blooms were to be seen in his field, and that the crop was growing with a degree of rapidity unprecedented. Mr. Strong is in good spirits and sanguine of the success of his enterprise. He looks upon the successful cultivation of his crop this year as the beginning of an enterprise that will prove of vast interest to the people of California.

The Bakerfield (Kern Co.) *Courier* of the 1st instant says: "We were shown, one day during the past week, a sheaf of wheat composed of three varieties, grown in the Barnes' settlement, equal to any ever produced in the early days of California in the most favored localities of the coast counties while the soil was yet virgin. We were assured that it comprised only average specimens of the products of fields not irrigated."

D. M. Reeves, a farmer near Chico, has cut and harvested 10,000 bushels of wheat this week. He says the club wheat always exceeds expectation, while other kinds never reach them. His fields will more than reach their large yield of other years.

The Visalia *Delta* has seen samples of Hungarian grass in that vicinity three feet high with heads like grain, and which will yield three tons of hay to the acre.

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BEGONIA.

The Begonias are a class of plants which are deserving of most extensive cultivation in our conservatories, our green-houses and in our parlor windows; in our opinion, also, they should be cultivated as bedding plants, although for this purpose, San Francisco may not be very well adapted on account of its prevailing heavy winds, which the tender leaves and brittle stems of the Begonia cannot withstand. But there are many sufficiently well protected places around some of our city residences, where they could be successfully grown in groups, and where they would flower almost all the year round.

We can advance many good reasons, why we so earnestly advocate the cultivation of the Begonias:

First: They are easily cultivated, and are satisfied with almost any kind of soil, if not too sandy.

Second: The foliage of all the varieties is an ornament in itself, and in some of them it is very peculiarly marked and elegant.

Third: Many of the varieties are almost constantly in flower, the forms of which are very graceful and the colors in some extremely bright and vivid, and in others most delicate.

The Begonias are mostly natives of Brazil and the East Indies, but some of the finest new varieties have been produced by the art of hybridizing. There are now probably over

three hundred varieties cultivated in Europe, and the florists of Germany and Belgium are constantly making new and startling additions to them.

In California we are cultivating some thirty varieties, most of which are excellent selections.

The chief conditions necessary to the successful culture of the Begonias are: *plenty of light*, comparatively *small pots* (large pots fostering too much foliage and young shoots), a moderate amount of moisture, with good drainage and a warm but not hot atmosphere; although such varieties as are cultivated for the beauty of their foliage, require more warmth than those which are raised more especially for their flowers.

The propagation of Begonias is simple and easy. Cuttings strike root very readily if placed close under glass; in from two to three weeks they have sufficiently rooted to be transplanted into small pots. The transplanting must be done carefully, as the young roots are very tender and brittle, and the soil for that purpose should be rather light.

They may be raised from seeds, but florists in sowing seeds have more in view the production of new varieties, than the propagation of old ones. Some few varieties are bulbous rooted, and sometimes produce little bulbs at the base of the leaves, which will take root readily if transplanted into sandy soil.

The *Begonia rex*, and others belonging to that class of *Begonias*, are propagated by placing a leaf taken from the plant, on the surface of a pot filled with propagating soil, in such a manner that almost all the under part of the leaf will touch the soil; in case the leaf is too large, it may be divided into several pieces; these should be held on to the surface of the soil by small wooden pegs or hooks; roots will soon be formed at the different veins of the leaves. It is rather important to cover the leaf cuttings with glass until rooted. The propagation in this manner is generally very successful; many young plants may thus be obtained from a single leaf.

Most of the varieties cultivated in California, may be obtained of our florists at a reasonable rate, the best of them are the following:—

Begonia fuchsioides rubra, which we have seen growing to a height of fifteen feet in conservatories, and covering the wall to a width of five or six feet, presenting one mass of beautiful red flowers of a globular form, hanging most gracefully in clusters from the newly formed branches. This is one of the most easily cultivated varieties.

Begonia parvifolia is one of the very best; its foliage is certainly most beautiful, and its pure white flowers exquisite. This variety grows bushy and compact, and gives an abundance of blossoms at all seasons of the year. There is no plant which will give more general satisfaction as a house-plant than this *Begonia*. Like the most of its family, its treatment is very simple.

Begonia nitida (sometimes called *B. alba*), is one of the old varieties, and generally considered common; yet we do not consider it so. It should have a place in every collection. The flowers are white and of large size. The foliage is upright in growth, and of a very vivid green. The young shoots come from the root, and should not be allowed to grow more than twelve inches high. By cutting them back frequently new ones are continually formed, and the plant will thus grow bushy. It flowers constantly.

Begonia fuchsioides alba is similar in habit to the *B. fuchsioides rubra*, but in our opinion less desirable. It does not flower very freely with us.

Begonia Sandersonia is another good variety. The long wisps of large rose-colored flowers are very showy, and bloom throughout the whole year.

Begonia Ver'schaffelti bears large pink flowers during the spring of the year only. Its foliage is very ornamental.

Begonia hybrida multiflora is one of the best. Its flowers are small and heart-shaped, and of a lively red color. It is a continuous bloomer.

Begonia semperflorens, very much resembling the former, except the flowers, which are larger.

Begonia maculata is celebrated more on account of its leaves, which are elegantly marked with white spots, and are somewhat peculiar in shape. It is a very desirable variety.

The following varieties are, like the *B. maculata*, cultivated for their foliage, which is very peculiarly and effectively marked. They require a warmer temperature than those which are cultivated for their flowers, and should be grown close under glass. Care should be taken not to water the leaves, as it will cause them to decay. They have been produced by hybridizing, and their first appearance created quite a sensation:—*Begonia Rex*, *B. Mrs. Stewart*, *B. La Favorite*, *B. Silver Chain*, and *B. Queen Victoria*.

In thus treating of this beautiful class of flowering green-house plants, we hope we shall encourage some of our readers to essay their extensive cultivation; we feel assured it will not be regretted by those who will give them a trial.

THE AGE OF TREES.—It is wonderful to contemplate, in the light of demonstrated science, that the Big Tree groves of Calaveras and Mariposa Counties contain forest giants that were in vigorous growth when our Saviour was born. Professor Agassiz, after an examination of the section of one of the Mariposa trees, recently on exhibition in Boston, expressed the opinion, after counting its well-defined layers, that its age was 1,810 years. He had previously examined a tree which had attained the age of 3,400 years.

ENUMERATION OF SHRUBS AND TREES

Growing in the vicinity of the mouth of San Francisco Bay.

BY PROF. HENRY N. BOLANDER.

[CONCLUSION.]

Linosyris arboreum.

A beautiful little shrub, three to five feet high, with upright branches and long linear leaves, densely set. Branchlets and leaves covered by a resinous exudation. In glades on the northern slopes of Tamal Pais, 1,500 to 2,000 feet elevation.

Grindelia ——— ?

A low shrub, two to six feet high, bordering the channels in the salt marshes at Oakland and San Rafael.

Baccharis consanguinea D. C.

B. pilularis D. C. et *B. glomeruliflora* Hooker seem to be identical. It is an exceedingly varying shrub; on sandy soil, low, creeping, with numerous fastigiate branchlets, the flowers mostly pistillate, and the heads less crowded; on clayey soil, especially on the banks of creeks, it is often fifteen feet high, quite tree-like, oblong in outline, the flowers mostly staminate, and the heads very much crowded. All forms are subject to excrescences, but especially those growing in a sandy soil. Evergreen.

Bahia artemisiæifolia Less.

Ovate in outline, two to three feet high, evergreen; common on northern slopes, shores of the bay, and Oakland hills.

Artemisia filifolia Torr. WORMWOOD.

Large root-stocks with numerous slender branches, three to four feet high. Occupying almost invariably the southern slopes in common with *Diplacus glutinosus*. Both plants, on account of the leaden color of their leaves and branches, give the southern slopes that barren appearance, contrasting so strongly with the vegetation of the northern slopes.

Artemisia pachystachya D. C.

Sandy soil, three to four feet high. Peninsula of San Francisco.

Vaccinium ovdatum Pursh. EVERGREEN HUCKLEBERRY.

A beautiful shrub, five to ten feet high, with slender upright branches; berries delicious. In light sandy soil, on the eastern slopes of Oakland hills.

Arbutus Menziesii Pursh. Madrona.

Evergreen, twenty to thirty feet high, on the northern and eastern slopes of the Oakland hills, but more common and generally larger and finer on the hill sides near San Rafael.

Arctostaphylos tomentosa Dougl. Mansanita.

Low, straggling, evergreen, and gregarious on the out-croppings of white sandstone in the Oakland hills.

Arctostaphylos pungens H. B. K. Mansanita.

Obovate in outline, ten to fifteen feet high; scattered.

Gaultheria Shallon Pursh. MARIS. SALLAL.

Low, creeping, evergreen, covering large tracts of land among the hills of Marin County. Berries eatable.

Azalea occidentalis Torr. and Gray.

On the banks of creeks in Marin County. Quite common; five to twelve feet high.

Diplacus glutinosus Nutt.

Southern and western slopes. Resinous, eight feet high; common.

Sphacele calycina Benth.

Mostly gregarious, five to eight feet high. Near the coast, Marin County; eastern slopes near San Mateo.

Eriodactyon Californicum Benth.

Very glutinous, two to four feet high; evergreen. Dry hill sides. Tamal Pais.

Solanum umbelliferum Esch.

A slender evergreen shrub, two to four feet high on the bluffs of the bay.

Fraxinus Oregana Nutt. OREGON ASH.

On the banks of creeks, Marin County; twenty to thirty feet high.

Oreodaphne Californica Nees. SPICE BUSH, MOUNTAIN LAUREL, BALM OF HEAVEN.

Often a large tree in moist localities, forty

to fifty feet high, sometimes three to six feet in diameter; used for ship-building.

Dirca palustris Linn. LEATHERWOOD.

Very common on the eastern slopes of the Oakland hills, where its flowers make it very conspicuous in spring; two to four feet high.

Croton (Hendecandra) procumbens Hook and Arn.

A very low shrub, common on the peninsula of San Francisco, in almost pure sandy soil.

Garrya elliptica Lindl.

Mostly a shrub with slender branches, but sometimes a small-sized tree; evergreen, gregarious, in sandy soil in this city, and on the eastern slope of the Oakland hills.

Platanus racemosa Nutt. SYCAMORE.

Banks of San Leandro Creek, Oakland hills.

Abies viridis D. C.

A large tree on the banks of creeks, Oakland hills.

Myrica Californica Cham. and Schl. WAX MYRTLE.

Mostly a medium sized tree, in moist localities and on the eastern slopes of Oakland hills.

Juglans rupestris Engelm. Var. *major* Torr. WALNUT.

A beautiful large tree, forty to sixty feet high and two to four feet in diameter, with rather smooth bark and dense, graceful foliage; it may well vie with its Eastern congeners. Banks of Walnut Creek east of the Oakland hills.

Castanea chrysophylla Dougl. CALIFORNIA CHINQUAPIN.

A low, straggling evergreen and gregarious shrub, occurring only on the out-croppings of the white sandstone in the Oakland hills.

Quercus densiflora Hook and Arn. CHESTNUT OAK.

Tamal Pais and Redwoods of Marin County.

Quercus agrifolia Nees. LIVE OAK.

A shrub as well as a large tree; everywhere in moderately moist situations.

Quercus sonomensis Benth. BLACK OAK.
Hill sides, Marin County.

Quercus lobata Nees. WHITE OAK.
Hill sides Marin County and banks of Walnut Creek.

Quercus chrysolepis. DROOPING LIVE OAK.
The most rare of all our oaks. At Belmont, Santa Clara.

Quercus acutidens? Torr. SCRUB OAK.
Evergreen; forming dense chaparral on Tamal Pais.

Corylus rostrata Ait. BEAKED HAZELNUT.
Very common on the eastern slopes of the Oakland hills. A shrub four to six feet high.

Salix (four species). WILLOW.
Wet grounds everywhere, six to twenty feet high.

Populus tremuloides Michx. ASPEN.
A medium sized tree on the banks of Walnut Creek.

Torreya Californica Torr. CALIFORNIA NUTMEG TREE.

A large tree with long spreading branches, and rather smooth bark. Wood valuable; rare, on banks of Papermill Creek, Marin County.

Sequoia sempervirens Endl. REDWOOD.
A very large tree, forming small groves on the northern slopes of hills in Marin County, and on the eastern slopes of the Oakland hills.

Pinus insignis Dougl.
A small tree ten to fifteen feet high, on the outcroppings of white sandstone in the Oakland hills, third ridge eastward; rare.

Pinus muricata Dougl.
A medium sized tree, ovate in outline. Hills of Marin County; rare.

Abies Douglasii Lindl. OREGON PINE.
A very large tree, yielding excellent timber. Grows with *S. sempervirens* in small groves on the northern slopes of hills, Marin County.

Cupressus Mac-Nabiana? Murray. CEDAR.
A spreading shrub, eight to twelve feet high, on Tamal Pais; rare.

TIMBER TREES.

[Continued from page 302, of last number.]

Pinus larix, (common Larch;) deciduous. On the European Alps, up to seven thousand feet, it attains a height of one hundred feet, sometimes rising even one hundred and sixty feet, and produces a valuable timber of great durability, which is used for land and water buildings, and is much prized for ship building. The bark is used for tanning and dyeing. (The tree is of great commercial importance, as yielding the Venitian turpentine, which is obtained by boring holes into the trunk in spring; these fill during the summer, supplying from one-half to three-fourths of a pint of turpentine. In Piedmont, where they tap the tree in different places and allow the liquid to run continually, it is said that from seven to eight pints may be obtained during the year, but the timber suffers by this operation..)

[We do not know that any of these trees are growing on this coast, and we cannot understand why this species was not introduced long since. It shows a total indifference on the part of our population, and particularly of our horticultural men, to entirely ignore the cultivation of so important a tree.—Ed.]

Pinus Menziesii and *Pinus Jeffreyi* are natives of California, and have been fully described in some of our former numbers.

[Both of these trees are very rarely cultivated with us.—Ed.]

Pinus Kaempferi, (Chinese Larch)—also called Golden Pine—from China. This is the handsomest of all the Larches. It is of quick growth, and attains a height of one hundred and fifty feet. The leaves, which are of a vivid green during spring and summer, turn to a golden yellow in autumn. The wood is very hard and durable.

[We have every reason to believe that this would make an admirable tree for California, both for landscape and timber.—Ed.]

Pinus Lambertiana, (Sugar Pine,) is a native of California, and one of our very best timber trees.

[For miles this tree has been entirely de-

stroyed, and it has been, estimated that within another ten years this magnificent and useful tree will be exterminated from our forests in all localities wherever it can be removed without much difficulty. Yet no effort has been made here to cultivate it and to protect the young trees. We have given a full description of this tree in a former number.—Ed.]

Pinus Laricio, (Corsican Pine,) of Southern Europe, attains a height of one hundred and twenty feet. The wood is white, towards the center dark, very resinous, coarse-grained, elastic and durable, and much esteemed for building, especially for water works. There are three main varieties of this Pine: *P. L. Poiretiana*, of Italy; *P. L. Austriaca*, of Austria; and *P. L. Pallariana*, of the borders of the Black Sea. The tree grows best in calcareous soil, but thrives also in poor, sandy soil where, however, the timber is neither so large nor so good. It yields all the products of *P. Silvestris*, but in greater quantities, being perhaps the most resinous of all Pines.

[This tree may possibly be well adapted for California, and should be introduced. There are a very few cultivated for ornament which do well.—Ed.]

Pinus Mertensiana, (California Hemlock Spruce.)

[Well known here, and described before.—Ed.]

Pinus Pinaster, (Cluster Pine,) a native of the shores of the Mediterranean. The tree is of a quick growth, and rises to sixty feet in height, and the wood is soft and resinous; it yields largely the French turpentine. It is among the best Pines for the consolidation of sandy coast land, and the converting of rolling sands into pasture and agricultural lands; also for ease of rearing and rapidity of growth, it is one of the most important of all Pines.

[This seems to be the very tree adapted for our drifting sand hills which surround San Francisco, and stretch along the coast. We have so often argued the importance of arresting the sand drifting into our streets to the annoyance of the inhabitants. Thousands,

even millions of the public money have been recklessly squandered, but not a dollar has been devoted to experiments which might result in saving thousands of dollars now expending for cleaning out drift sands, grading, etc., etc., and not a dollar of it for the comfort of our traveling public! Would it not be well for some one to demonstrate the fact, that our sand hills *can* be covered with vegetation?—Ed.]

Pinus pinea, (Stone Pine,) found frequently in the countries bordering on the Mediterranean. Height of tree sixty feet. The wood is whitish, light, but full of resin, and much used for building, furniture and ships. The seeds are edible, somewhat resembling Almonds, but of a resinous taste, though not disagreeable. They only ripen in their third year. The tree grows as easily and almost as quickly as the Cluster Pine.

[This Pine has been cultivated in our gardens under the name of Italian Stone Pine, and is thriving well. It deserves much more extensive cultivation. While young it is of very pretty appearance, the foliage being of a whitish-green color.

Pinus ponderosa, (Yellow or Pitch Pine) so well known among us that it needs no description.

[It is very little cultivated in our gardens, although it makes a very handsome tree while young.—Ed.]

Pinus radiata, (Pinus Insignis.)

Native of California, is more extensively grown in our gardens and fields than any other Pine. It is easily transplanted and makes a very handsome tree, thriving well in almost any kind of soil and without irrigation after the first year. Being of rapid growth, young forests might be raised within a few years.—Ed.]

Pinus Sabiniana, (California Nut Pine,) is a native of California.

[We cannot recommend this tree for general cultivation, as it does not seem to be available for any useful purpose, except for firewood, and even for that purpose any other wood is preferable.—Ed.]

Pinus silvestris, (Scotch Fir,) a native of Middle and Northern Europe, thriving best in sandy soil; a very valuable tree, fully one hundred feet high, growing to the age of about one hundred and twenty years. The Red Baltic, Norway or Riga deals are obtained from this Pine, as well as a large portion of the European Pine tar. It is well adapted for dry countries.

[This is another tree not cultivated in California, and evidently well adapted for it. It is certainly one of the most useful trees in existence.—Ed.]

Sequoia sempervirens, (California Redwood,) and *Sequoia Wellingtonia*, (California Big Trees.)

[These trees have been frequently described, and they are well known among us. We hope that our Legislature will, before long, pass some good law by which our Redwood forests may not only be protected, but also increased by systematic planting.—Ed.]

Taxodium distichum, (Virginian Swamp or Bald Cypress,) grows in swampy places of North America. A large and valuable tree, four hundred feet high, with a stem circumference of sometimes forty feet; of rapid growth, with deciduous foliage, like that of the Larch and Ginkgo. The wood is fine-grained, hard and durable. It yields an essential oil and a superior kind of turpentine. It is useful for avenues and swampy margins of lakes and river banks.

Taxus baccata, (Irish Yew,) native of Middle and Southern Europe and Asia; at one thousand to four thousand feet elevation. It is generally a shrub, sometimes a tree forty feet high, which furnishes a yellow or brown wood, exceedingly tough, elastic and durable, and much esteemed by turners. The tree is of slow growth, and reaches a great age, perhaps several thousand years; some ancient ones are known with a stem of fifty feet in girth.

[A few of these trees are grown and cultivated as specimen plants, on lawns, etc. We cannot encourage their cultivation for any other purpose than ornament.—Ed.]

Thuja gigantea a native of Northern California and Oregon, (Yellow Cypress,) is a straight graceful tree, two hundred feet high, furnishing a valuable building timber of a pale or light yellow color.

[We think much of this tree for general cultivation. For ornament there is no better. Its graceful form is admired by all. It grows fast with us in almost any soil, and with its good habitus is combined its great utility as a timber-tree.—ED.]

[To be continued.]

POPULAR BOTANY.

CHAPTER XI.

In taking up the matter of vegetable digestion, we will be unable to do more than glance at the subject in a brief and cursory manner, as it is one of wide range and complicated character.

The first action takes place in the roots, when they absorb the fluid which constitutes the crude sap. This fluid is presented to the spongioles, in the form of a vapor, holding in solution the different inorganic substances which are hereafter to be formed into leaves, bark and wood; or in other words, the organic parts of the plant.

Before this crude sap can undergo digestion and be made available for the purposes of the plant, it must be conveyed to the leaves (which are the organs of digestion) and exposed to the influence of the atmosphere and sunlight. It is under the power of this light that the cells are constructed, and the green matter, or *chlorophyll* produced.

This is well illustrated, by comparing a plant grown in the open air, with one grown in the dark. The first is developed in a vigorous and healthy manner, while the second is almost, if not entirely, destitute of the green color, and having a dwarfish, sickly appearance, and if the deprivation of light is continued, the plant finally dies.

After the crude sap reaches the leaves, (which it does by the means of capillary

attraction, passing up from the roots through the trunk and limbs) it undergoes certain changes which are partly mechanical and partly chemical. By the action of the solar light, the unneeded watery portion is evaporated, thus concentrating the sap so as to render its constituent salts more readily acted upon. The next step in the process is a chemical one by which decomposition takes place among those inorganic substances which contain oxygen, thus setting free this gas, and utilizing the remaining portions for the construction of the plant.

The great source from whence plants gather the vast amount of oxygen which they exhale, is the carbonic acid gas which they absorb from the air. Here again we see the mutual dependency of animal and vegetable life. Plants are constantly drawing from the atmosphere this gas, which animal life is as constantly pouring out into it, retaining the carbon for themselves, and yielding up the oxygen to maintain animal life.

After this action in the leaves, whereby the crude sap is converted into actual plant food, it passes to all parts of the plant, forming in its passage, cells, vessels, etc. All of this sap is not used at once in the building up of the plant; a portion being reserved for future use, and stored away in the form of starch, which is to be found either in the roots, stem, or wood, and at times in all three. This starch, before it can be used as food, must be converted into *dextrine* for the purpose of being made soluble in the sap. Gum, mucilage, dextrine and starch are identical in chemical formation with one another, and also with vegetable tissues. They are capable of being converted from one form into another, and reconverted as the plant may require them; carbon, hydrogen and oxygen represent the entire class, and strangely enough in exactly the same proportions, viz: carbon 24, hydrogen 20, oxygen 20.

There is still another class of vegetable products of which nitrogen forms an important part. The principal one of this class is *gluten*, and is to be found in nearly all seeds, more especially in the grains. It constitutes

a large percentage of wheat flour, and gives it that peculiar property of tenacity. The quantity of gluten is increased by giving to the plant a liberal supply of manure containing a large amount of nitrogen. *Legumin* also belongs to this nitrogenized class, and is abundant in peas, beans, etc., from which fact they have derived the name *Leguminosæ*. Plants also produce what is called

vegetable albumen and fibrin; thus furnishing the materials for the formation and maintenance of animal life.

The annexed diagram (taken from Gray's Botanic Text-Book) gives at a glance the relations between the three kingdoms, and shows how nature, from the senseless clod and inanimate dust, forms man with his glorious intellect, and God-like form:

Diagram illustrating the Mutual Relations of the Three Kingdoms of Nature.

I. Simple Vegetation.

Mineral Kingdom.	Vegetable Kingdom.	Animal Kingdom.	Mineral Kingdom.
WATER, ... } HYDROGEN, OXYGEN,	OXYGEN, HYDROGEN, } - Vegetable Tissue, Starch, Sugar, etc.,	Consumed by animals, and in respiration returned to the air, as	OXYGEN, HYDROGEN, } WATER.
CARBONIC ACID, ... } CARBON, OXYGEN,	CARBON,		CARBON, OXYGEN, } CARBONIC ACID.

II. Nitrogenized Elements.

Mineral Kingdom.	Vegetable Kingdom.	Animal Kingdom.	Mineral Kingdom.
AMMONIA, ... } HYDROGEN, NITROGEN,	HYDROGEN, NITROGEN, } -Gluten, Legumin, etc.,	forming { Fibrin (Muscle), Gelatin (Stews), Casein (Curd), etc.,—returned as	HYDROGEN, NITROGEN, } AMMONIA.
WATER, ... } HYDROGEN, OXYGEN,	HYDROGEN, OXYGEN,		CARBON, OXYGEN, } CARBONIC ACID.
CARBONIC ACID, ... } CARBON, OXYGEN,	CARBON,		

ORNAMENTAL AND LANDSCAPE GARDENING.

SECTION XI.

Having selected the grounds for a country residence of third-rate class, it will require some little judgment in locating the house, outbuildings and laying off the approach. In many instances very little uncertainty will exist as to the proper location for the house, etc., yet there are cases where taste, experience and knowledge must be brought into requisition to fix the site of the residence and other important features, such as outbuildings, approaches, entrances, etc.

While the ground occupied by a city residence is supposed to be level, or at least on an easy grade, the surface of a country residence occupying several acres is generally uneven and varied. The residence should be located on elevated grounds, but we do not wish to be understood that it should be built upon the very highest point, where it would be inconvenient and out of place. The entrance should be at the lower portion of the grounds, and the approach to the house should gradually rise through that portion of the foregrounds which is not in direct view

of the entrance or the front of the house; but how far distant the house should be located from the entrance, depends upon circumstances. If the vicinity to the entrance is objectionable or unsightly in character, the house should be placed at some distance, but where no objections of this kind exist, it will add much to the comfort and convenience, if the house is located near the entrance to the grounds. On the other hand, it must be admitted that when the house is located at some distance from the gates, and the road of approach is thus lengthened, strangers and visitors will be favorably impressed as to the extent of the grounds.

The house being placed upon an elevated portion of the estate, it is supposed that a good view is obtained over the most attractive portion of the enclosure itself, or over the surrounding country. This view should be had from the principal rooms of the house. But the arrangement should not be such as to take in every point of interest, inasmuch as we expect new sights from other portions of the grounds.

In regards to outhouses, we have very little to say. Their location should be conve-

nient, but not too close to the residence. They should form a separate and distinct feature.

We shall next consider the approach, to which very little attention seems to be given in our new country, and yet we think it one of the most important features within the boundaries of a country residence. The first impression after entering the gates should be a most favorable one to all who have occasion to visit the grounds. The road itself should be made of good material and should be kept in good condition, fit to be traveled by horses and teams. The direction of the road should be curved, and if there are several curves, they should be of uniform character. If the distance between the gate and the house is not great, two curves will be most judicious; but where the distance is long, more curves may be established. These curves should not be accidental, but ought to be the result of natural or artificial interventions. There must be an apparent reason why the road is curved: a group of trees or shrubs, a body of water, a bridge, a hill, or some other object. As we have said before, the inclination of the road of approach should be uniformly ascending from the gate to the house. The road should be built of good material and should be kept clean and smooth; a good covering of gravel adds much to its appearance. The house should not be within sight from the approach except a striking view of it can be obtained at a certain point. The road should be sixteen feet in width. A good effect is produced by providing a return road, but care must be taken to shield one from the other.

The grounds of a third-rate country residence admit of various provisions: a certain space for a kitchen garden (which should be located close to the outbuildings and also conveniently for the occupants of the house), should be set aside, and also a reservation for trees and vines, which may be either located so as to connect the shrubbery with the kitchen garden; or it may be detached entirely from the ornamental grounds, of which we will now speak.

The ornamental grounds, which should occupy the greatest portion of the enclosure, and which should surround the residence on two, or, better, on three sides, may be divided into three parts, namely: the flower garden, the pleasure ground and the portion surrounding the approach; yet we frequently meet with country residences where the flower garden is not treated as a distinct feature, but where groups of flowering plants are distributed throughout the pleasure grounds with very good effect. For our part, we prefer to have a flower garden somewhere near the house, for various and good reasons: flowers require constant attention, they make the immediate surroundings of the house cheerful and pleasant, perfume the air we breathe, and supply new attractions every day.

In connection with the flower garden we like to see a conservatory, although the necessity of glass structures is not so imperative in California, where the mild climate permits the cultivation of the choicest flowers in the open air with perfect success which are elsewhere treated as green-house plants—there are so many desirable plants of the tropics, which we may successfully cultivate here under glass without that constant and close attention which is required in the East and in England, that a conservatory must form a most desirable feature with all who can afford the expense.

The flower garden should be located on the east or south-east side of the house, and the conservatory should be connected with it in such a manner as not to obstruct the view from the principal part of the house. We are not in favor of attaching conservatories to the residence, on this coast, although proximity to the house is desirable.

The grounds through which the approach passes we desire to place on the opposite side from the flower garden, or as near so as possible, *i. e.*, west or south-west of the house. This ground should be backed by dense groups of trees and shrubs.

CARROTS.—Hoe early, and thin to five or six inches in the rows.

FAULTS IN FRUIT CULTURE.

Cultivation of Fruit—Some Faults—Too close Planting—Too large Crops—Thinning Fruit Required—Profits of Different Kinds of Fruit-Raising—Price of Land for the Purpose—Facilities for the Exportation of Fruit.

Although we are aware that the climates—we say climates because there are many—and soils of California, will bear closer planting of all fruit trees and the smaller fruits, and produce a greater amount of fruit and of greatly larger size, than any other country we know of, yet we have no hesitation in stating, that in most of the orchards we have seen, the trees are too closely planted. It is true in the hot valleys, that a certain amount of shade and more than is admissible in the more eastern regions of this continent, is beneficial, and especially to the small fruits planted between the rows of the larger fruits, but we certainly consider that, in general, this crowding of vegetation is carried to too great an excess. Another error among cultivators or orchardists, is, to allow their trees to mature too heavy crops, and so break down the branches; and this is not all the damage done—the trees are weakened, not only for the following crop, but their future stamina is much injured.

Elevated positions will be found very desirable in promoting the flavor and juiciness of fruits; trees thrive and bear well close up to the mountains, and generally better than those cultivated on bottom lands. This is a very important point to the culturists, as such lands are cheaper than the more level locations. This applies more particularly to the vine when planted far up, as it will yield better wine than is made on the plains.

Another fact in fruit culture to be well understood, is, that the raising of the Grape pays better than cultivating orchards of Apricots, Pears, Peaches, Figs, and other fruits except, perhaps, the sweet Cherries, Currants, Strawberries, and Blackberries; although this, of course, will depend much upon the distance from the markets of large cities. Conse-

quently, of late, vineyards are being extended more than orchards.

There can be no doubt, that fruit in general in California, can be produced at much less cost than at the East, for in most cases land can be obtained of good quality, at comparatively very low prices; in the second range of the coast valleys, it can be obtained from five to twenty-five dollars per acre. But as the balance sheet of the orchardist will be the criterion of success, and as prosperity in this, as indeed, in any other occupation depends upon the adaptability and various other business qualities of the individuals who embark therein, as well as in the cost of conveyance and the prices obtained, it is not an easy matter to estimate the actual results of such undertakings. Several things may be named in addition to what we have said as favorable to cultivators here, compared with the East; one fact is, that the trees grow nearly twice as rapidly as in the East, and come into bearing in less than half the time; another is, that the fruit is larger and handsomer. Still another is, that California fruit is almost entirely exempt from diseases and insects; some more could be named, as for instance, exemption from the decay of fruit on the trees—there being no rain to cause rotting while the fruits are allowed to remain longer on the trees. Also, there is much less annoyance from weeds, and therefore there is not the necessity for so much labor as in the East. Labor at this time is not dearer than with our Eastern fruit men, and Chinese labor is less. Still, our foreign friends must not be deceived into the idea, that the keeping of the ground properly stirred here is unimportant, for we have seen places nearly ruined where this has been neglected for a year. Unless at convenient distances from the great markets, the production of many, perhaps we may say most, of the fruits has been overdone, the prices not justifying their being carried to market. Millions of bushels annually rot on the ground. But the prospect latterly has brightened, for many large cultivators (and these in some instances may include the smaller ones,

as the larger may take the fruits of the smaller at a paying price) have recently sent fruit, chiefly Pears, in the cars to Chicago and New York, at quite remunerative prices. The business is now likely to become better systematized. But there is too much of monopoly and combination for low prices by the dealers (as in other business of this kind) against the growers, and these last have reason to complain, as the salmon catchers do of the fish-mongers in the cities keeping down the price of fish by mutual determination, arrangement, and leaguings together, and the poor fishermen cannot help themselves at all; and so the hucksters or middle-men, get the better of the producers of fruit: these observations are also applicable to the vegetable market.

E. J. HOOPER.

THE LATE HORTICULTURAL EXHIBITION.

In our last number, we gave our readers a full report of the Horticultural Exhibition during the first two weeks, and which comprised all of the more important features. We have endeavored to be just to all, but it will be admitted by every one, that small mistakes will obtrude themselves where there is so heavy and varied a press of business, and where there is so much to be admired, which is so well deserving of notice. If we have omitted anything which deserved mention, we have not done so intentionally and regret it, and request it may be considered an oversight to some extent excusable, from the fact that we had to give a great deal of our time to business directly connected with the Exhibition.

The third week was devoted to the display of cut-flowers and bouquets of all descriptions in the Floral Department, and to the exhibition of Grapes and Seedling fruits in the Pomological Department.

The display of bouquets did not exactly meet our expectations; although a few exhibitors exerted themselves; the majority of those florists who were able to make a good

display, neglected to do so, for reasons best known to them.

Meyer & Co. made the most numerous exhibit, consisting of a basket of flowers, pyramid bouquet, round bouquets, table bouquets, wedding bouquets, funeral wreath and cross, flat bouquet and button hole bouquet.

Mr. W. Robertson came next with a large and fine pyramid bouquet, funeral wreath and cross, wedding bouquet and round bouquets.

Mr. Reimer exhibited a monstrous pyramid bouquet, which was much admired; it was some three feet high, and about two feet in diameter.

Mr. Chiousse placed on exhibition a fine funeral wreath and cross and a wedding bouquet, consisting entirely of Orange blossoms.

The Pomological Department presented a much better appearance than at the beginning of the Fair, but it is to be much regretted that a more general interest was not felt among fruit-growers in this exhibition. It is true, that it is very difficult and expensive, as well as laborious, to keep up a good display during the long period of five weeks; but in this case unfortunately, the burden rested upon a very few, who did all they could to make the exhibition a success. It would have been far more satisfactory, if the display had been made more generally from the various parts of the State, if even by much smaller collections.

West Bros., of Stockton, and R. B. Woodward, of Napa Valley, kept up a continuous display of fine Grapes, Apples, Pears, Plums, Peaches, etc.

E. W. Garritt, of Placerville, also sent in another exhibit of new Seedling Peaches and Pears.

J. M. Patterson, of San Jose, exhibited a splendid collection of fine Plums and Prunes, some of them on branches. Mr. Patterson's Plums are of superior flavor and of unusually good size.

J. Rutter, of Florin, exhibited a very superior lot of Black Hamburg and White Muscat Grapes.

Jacob Long, of Murphy's Ferry, Stanislaus County, showed magnificent samples of Peaches.

Fourth Week.

The last week was set apart for the display of floral decorations and ornamental foliage plants of tender nature.

All the florists began to weaken in their efforts to display, and this was not to be wondered at; to keep up a floral exhibition a month is a rather tiresome and exacting affair, particularly in a warm place, and where a hundred and fifty gas-lights are operating rather severely on the atmosphere. We therefore feel very much inclined to excuse them for having neglected to renew the floral display at the eleventh hour.

The only exhibitors were Meyer & Co., and I. Chiousse.

R. B. Woodward displayed a very choice lot of Ornamental foliage plants, although a larger number of species would have been acceptable and much more appreciated. His Caladiums and Hybrid Begonias reflect much credit upon his gardens.

Miscellaneous Matters and Points of Interest.

A. W. Morris, exhibited quite a curiosity in the shape of a Snail Cucumber, measuring eight feet in length, and averaging two to three inches in diameter.

A. Zabaldano, of the Italian Hospital, exhibited a quantity of California Opium, (the constituent proportion of Morphia in which, being ten per cent.) accompanied by seeds and incised capsules of *Papaver somniferum*, which show the exudation of the Opium.

Dr. F. Delmont also exhibited a large cake of Opium and the capsules of the Poppy grown near Lower Lake, in California.

Some very elegant Amaryllis were shown by Mr. Biebend and Mr. Kruse.

Mr. Gilmore exhibited a well grown Echeveria in bloom.

Mrs. Bell presented a monster leaf of Caladium, measuring nearly three feet in length and two in width.

AWARDS OF PREMIUMS

Of the First Annual Exhibition of the Bay District Horticultural Society.

[CONCLUSION.]

Third Week.

1. Best Basket of Flowers, to Meyer & Co., \$5.
2. Best Pyramid Bouquet, to E. L. Reimer, \$3.
3. Second best Pyramid Bouquet, to W. Robertson, diploma.
4. Best two Round Bouquets, to Meyer & Co., \$3.
5. Best Wedding Bouquet, to W. Robertson, \$3.
6. Second best Wedding Bouquet, to Meyer & Co., diploma.
7. Best Funeral Wreath and Cross, to Meyer & Co., \$5.
8. Second best Funeral Wreath and Cross, to W. Robertson, diploma.
9. Third best Funeral Wreath and Cross, to J. Chiousse, diploma.
10. Best Flat Bouquet, to Meyer & Co., \$3.
11. Best Buttonhole Bouquets, to Meyer & Co., diploma.
12. Best collection of Zonale Geraniums, to Meyer & Co., \$5.
13. Exhibit of Bouquet Paper, to Meyer & Co., diploma.
14. Best six Pansies, to P. Pechen diploma.

Fourth Week.

1. Best and largest collection of Apples, to J. Crosser, \$10.
2. Best twelve varieties of Apples, to R. B. Woodward, \$5.
3. Best and largest cultivation of Pears, to R. B. Woodward, \$10.
4. Best ten varieties of Pears, San Joaquin Co., diploma.
5. Best ten varieties of Plums, to J. M. Patterson, diploma.
6. Best and largest collection of Grapes, to West Bros., \$20.
7. Best ten varieties of Wine Grapes, to N. Eudic, \$10.
8. Best six varieties of Table Grapes, to R. B. Woodward, \$5.

9. Best exhibit of California Seedling Fruit, to E. W. Garritt, diploma.

10. Best exhibit of Floral Decorations, to Meyer & Co., \$10.

11. Best collection of Variegated Foliage Plants of tender nature, to R. B. Woodward, \$10.

12. Best exhibit of Sugar Beets, to D. L. Perkins, \$5.

13. Best exhibit of Seedling Peaches grown in San Francisco, to Mrs. Bennett, diploma.

14. Display of Fruited Grape Vines, in boxes, to J. Putzer, diploma.

15. Best exhibit of Vegetables, to D. L. Perkins, diploma.

16. Exhibit of California Opium, and Preparations, to A. Zabaldano, diploma.

17. Exhibit of Ramie Plant, to J. S. Finch, diploma.

18. Herbarium, to Mr. Cohn, diploma.

H. N. BOLANDER,
FERD. BIBEND,
H. G. BLOOMER,
CHAS. STEPHENS,
C. A. STIVERS, M. D.
WM. ROBERTSON.

Judges.

WORK FOR OCTOBER.

The suggestions which we have given for September, are to a great extent applicable to the month of October.

While all the later fruits of the orchards and vineyards are ripening, much time of necessity must be devoted to the gathering, packing and shipping of the produce.

From various localities, we are informed, that the fruit is wasting for want of a market. There is no reasonable excuse for this. It shows a sad want of management on the part of the owners of orchards when they do not make good use of their fruits; and it is a most singular fact, that the complaints come from those localities which have the reputation of furnishing the very best samples—the railroad and steamboat lines not being in direct communication with them, no effort is made to open up roads to market or to turn their products to good account. It is a fact, that Apples and Pears grown in close proximity to San Francisco lack taste and flavor,

and therefore cannot be readily sold in our fruit markets, but this inferior fruit could be made available if for no other purpose than making vinegar. But when the pomologists of the foothills complain that they have no sale for their fruit, we would advise them to dry a fair portion of it, to make cider of another portion, and to store away the best for use in winter. Dried Apples can always be sold in our markets, in fact we ought to export large quantities. Women and children may assist much in the work of drying fruit. Good cider is a rarity in California, and so much of an inferior article is sold in our market, that consumers have a strong prejudice against that beverage. Let our pomologists go to work and manufacture a good quality of cider, and they will soon establish a fair demand for it. As for the best quality of winter fruit, the producers can not do better than to keep it for winter use, and we can assure them that our fruit dealers will be quite willing to pay the extra freight from more distant points. It must be admitted that the fruit grown in our valleys becomes mealy and stale after being gathered for some time, while the fruit grown in the northern part of the State, and particularly among the foothills, retains its delicious and refreshing qualities for many months after the harvest. This fact, once thoroughly demonstrated to the consumer, will establish an increased demand for the produce of that portion of the State.

In our opinion, it shows bad management on the part of fruit growers, where they lose any of their products.

We like to see abler economy on the part of our farmers, and our pomologists in particular. The fruit business, like any other enterprise, will pay if worked intelligently and systematically, and if individuals in certain districts find the task too difficult, to make fruit growing profitable, let them form clubs in every locality for the purpose of ascertaining the means to make their enterprise remunerative.

The same remarks apply to grape culture, but wine making must be understood, and

besides requires more capital. We cannot consider it sound policy for any man with limited means to go extensively into grape culture, unless he understands the making of wine and has the means to purchase the necessary machinery and to build proper structures for keeping it in good condition.

But we have digressed too far already, our subject being "Work for October," and all the advice we can give is, to turn every pound of fruit to some useful purpose.

In the Vegetable Garden not much can be done, unless there is an abundance of water. Transplanting of young Cabbage, Cauliflower, etc., is useless, unless water can be given in sufficient quantity to produce rapid growth; the same may be said in regard to the sowing of seeds, such as Turnips, Carrots, Ruta Bagas, Lettuce, etc. Seeds which are ripe should be gathered during the warmer part of the day, when the stalks are dry, and stored away in a dry place. Asparagus and Rhubarb beds should not be watered during the latter part of the dry season.

In the Flower Garden we would caution our readers not to water beds where bulbous roots are planted. Irrigation will keep them in a growing state, and unless they have a good season of rest, the flowers in the ensuing spring and summer will be of inferior quality. Save seeds of annuals, when ripe, cut back long shoots of late growth, to produce lateral shoots and to secure a greater abundance of flowers for the future.

Greenhouses and conservatories require less irrigation as the autumn and winter approaches; water should not be given unless the earth is actually dry.

Make cuttings of Geraniums, Verbenas, Petunias, and many other soft-wooded plants, which will make good young stock for spring. Shift the young plants into larger sized pots, when the roots have penetrated the balls of earth. Pinch off the young shoots of your young plants to produce a bushy and symmetrical growth.

Make diligent search for all kinds of insects, and destroy them before they get the best of you.

THE STATE FAIR.

The eighteenth annual State Fair was held at Sacramento, during the week commencing with the 18th, and closing on the 23d of September.

Our reporter was on the ground on Monday, but it was impossible then to form any definite idea, except of the extent of the display. Every one was busy fixing up, and the prospect for a good attendance was encouraging.

The Fair is now over, and as elaborate reports have been published by the most prominent papers, it would be useless to occupy much space in our Magazine except on those departments which were most interesting to Horticulturists, and which received less notice through the various newspapers than they actually deserved.

THE FLORAL DEPARTMENT was a complete success. The room occupied for that purpose was necessarily very limited, and we could not expect a very extensive display, but the small space was ornamented in a very neat and judicious manner, and much credit is due to the managers of the affair.

The grand Ivy Arch at the entrance, the Floral Temple, finished with moss, opposite the entrance and nearly in the center of the conservatory, exhibited much skill; the grass along the borders was well up, and added much to the general good appearance, and, if we take into consideration that only two weeks were occupied in putting up the frame and preparing all this, we must congratulate the designers upon the work so well and efficiently done.

Mr. O'Brien contributed much to the success of this department, and he deserved the appreciation of all visitors to the Fair.

On one side of the Temple, we noticed a magnificent display of Dahlias, from the gardens of Mr. Eugene A. Upton, an amateur and a member of the Bay District Horticultural Society; opposite to this, we noticed a fine lot of flowering plants, contributed by some of the members of the Bay District Horticultural Society.

In the center of the southern wing, a splendid collection of *Coleus* took many of the visitors by surprise, while the outside borders were occupied by a display of flowering plants from F. A. Miller, of San Francisco, and John O'Brien, of Sacramento.

Near the entrance to the right, E. B. Crocker, Esq., a wealthy amateur of Sacramento, made a good exhibit of some choice green-house plants, amongst which, we noticed in particular, the *Strelitzia* in bloom, a fine specimen of *Crissum Africanum* in flower, and other valuable plants.

In the center of the northern wing, a fountain, mounted upon a hill, refreshed the air much with its play of water, although the somewhat yellow color of the water subdued the effect to some extent; however, this was, we suppose, not the fault of the managers, but one of those unavoidable evils, which Sacramento has to contend with.

Around and over the outskirts of this wing, Dr. J. M. Frey made a very creditable display of green-house plants, amongst which were many rare and valuable plants. Although these plants were not in flower, the collection consisted of many choice plants, which after importation from the East, had suffered much.

A table for cut-flowers, was well filled with fresh flowers from San Francisco.

All contributions from San Francisco, were in charge of F. A. Miller, and were entered in his name.

THE POMOLOGICAL DEPARTMENT WAS a complete success, and was particularly interesting, on account of the extensive and fine display of Eastern fruit.

It is impossible for us to do the different exhibitors justice, as our space is very limited. The appearance of the fruit sent here from our Eastern friends, differed much in appearance from the productions of California, and while many varieties from the East showed a marked superiority in size and appearance to the same varieties grown in California, we must, in justice to ourselves, say, that many of our varieties showed a decided superiority

to theirs. Much of the Eastern fruit was green as yet, and unfit for eating, while the same varieties raised in California, were perfectly ripe. As far as the late winter fruit is concerned, we consider the Eastern fruit preferable, because its firmness and unripe state, guaranteed its fitness for long keeping.

From the northern parts of California and the higher foot-hills, fruit could have been sent to the exhibition, which might have shown more similarity to the Eastern fruit, for the reasons which we have frequently given in our Magazine.

As we glanced over the tables filled with Eastern fruit, and again turned our eyes to our California fruit, we, also observed a very remarkable feature in the distinctiveness of the different varieties, which seem to be much more apparent in the Eastern fruit, than in ours.

We also noticed the peculiar polish or metallic lustre of the Eastern fruit; this, however, is due to some extent to our fruit being in a more advanced state of ripeness.

The most important point, however, to be decided is the flavor, and in this respect we had no opportunity to satisfy our curiosity, nor do we know that we shall have that opportunity. In all probability, we shall be compelled to go by the judgment of those who can and will render an honest and impartial verdict.

The display of fruit by Mr. O. B. Shaw, of Sonoma, was one of the best; his Gausel Bergamot, Pound Pears, Duchesse de Angouleme, Beurre Diel, Stevens' Tennessee, Winter Nelis, etc., can not be surpassed.

Of Apples, his Northern Spy, Cayuga Red Streak, Roxbury Russet, Swaar, Gillflower, and Murphy are most superior.

Of Grapes he showed beautiful bunches of the White Hamburg, Malaga Raisin Grape, White Malaga, Black Malaga, Rose of Peru, Rose Chasselas, Black Hamburg, etc.

He exhibited also Japanese Chestnuts, fruit from Lemon and Orange Seedlings, Osage Oranges, Prickly Pears, and other curiosities.

A Mrs. Harrington exhibited probably the choicest samples of Grapes, such as the different Muscats, Tokays, White Nice, Blue Malvoise, Lombardy, Miller's Burgundy, Frankenthal, etc.

The best exhibit of Peaches was made by E. M. Smith, of Coloma. His collection consisted of some forty varieties. He also exhibited some varieties of Grapes, which we have never seen before: White Napoleon, Red Mountain, Purple Damascus, Blue Syrian, and Black Morocco.

On account of illness our special reporter was unable to be in attendance during the entire week of the Fair, and undoubtedly other collections of fruit were added during the latter part of the exhibition, which we cannot notice here.

SILK.—The Silk interest was well represented by our old and esteemed friend Mr. Ed. Muller, of Nevada City. He makes a most complete and interesting exhibit of silk culture, from the egg to the reeled silk. While we see the young worms feeding upon the chopped-up Mulberry leaves, we also notice the worms in a more advanced state, and, finally, spinning the cocoons.

Mr. Muller cultivates the French Annual (White and Yellow,) the Asia Minor, the Monteauban, Rivoltins, (producing two crops a year,) and the Japanese Rivoltins.

He also exhibits three varieties of California Silk Worms, one living upon the California Lilac (*Ceanothus*), and the other two upon the common Oak. Those living upon the Oak furnish cocoons which can be reeled. He thinks they can be domesticated and made profitable.

Mr. Muller exhibited, also, cocoons from other contributors of Nevada County, which demonstrate the fact, that the people of Nevada County are wide awake to their future interests in the Silk business. These additional contributors are: Charles L. Dimon, of Silk Grove Ranch; W. Loutzenheizer, of Grass Valley; Miss Ruth L. Rolfe, of Nevada City; Horace Hale, of Blue Tent; and Mrs. H. S. Bradley, of Nevada City.

REPORT ON THE FRUIT MARKET.

In passing through our Fruit Market this month, my attention has been particularly attracted by the splendid coloring of many of the fruits exhibited for sale, and also by some beautiful specimens among the parcels exhibited on the tables at the Bay District Horticultural Society, at the Fair. The rich blushes and tints of color in the Apples, Peaches, Pears, and some others of Pomona's gifts, are truly delightful to the eye and tantalizingly promising to the palate. I cannot conceive that there can be any climate which in all gradations can excel California in this respect, nor yield more gratifying results of this kind. This is certainly a very important consideration to attend to in the cultivation of those fruits whose complexions are susceptible of improvement, as it has much to do with their successful sale, and also in improving their flavor. It makes them both rich in appearance, and more luscious to the palate.

The high and glowing colors of fruit are, of course, owing chiefly to the effects of sunlight—the juices being elaborated through the foliage and branches whose character and growth maintain a very important part in nature's processes. It is well known by practical men, that the most brilliant colors and the most valuable fruits are gathered on the exterior limbs, therefore the inside branches should not be allowed to grow very close together in the interior of the tree, and that all water-sprouts, (as they are called) at least, should be carefully cut out, that the sun's rays may penetrate, for some portion of the day at any rate, into the heart or middle of the trees. This, however, must not be pursued to excess, as the drying tendency of this climate would create too much evaporation, and the natural processes of secretion of the juicy particles could not be carried on without sufficient moisture. This mistake would induce quite a contrary effect from the gorgeous coloring so much coveted; and, similar in effect to too much deprivation of sunlight,

would impart a green, pallid, sickly or diseased appearance to the Apple, Peach, or Pear, etc., instead of the florid, red, crimson, or golden hue, which always commends itself to the eye and judgment of the beholder, and enables him to revel in fancy as to their flavor and deliciousness. To regulate this happy medium of moisture and sun-light, is the aim of the skilful cultivator, and will prompt him, to a great extent, in the use of the pruning knife or chisel.

The produce of the vineyards, arbors, and trellises, is now making its appearance in all its Californian glories, and in immense abundance and variety. I observe a large quantity of the Isabella Grape in the market than last season. This is a sort more suited, perhaps, to elevated ground than to the warmer levels—at least it is hardier than the majority of the Grapes cultivated here, and will stand frost well, being one of the fast increasing, hardy varieties. It is a kind, though, which requires to be thoroughly ripened, being very different from the Catawba, and many other sorts which are tolerably sweet and palatable when only half colored.

The second crop of Figs is now coming in plentifully. This is to many persons a most delicious fruit. With regard to its healthfulness there is but one opinion. The first crop generally produces the largest specimens. The brown Ischia is the most delicate species in flavor, and preferred to the blue or black varieties. They should be eaten as fresh as possible.

The fourth crop of Strawberries is still holding out well, and Raspberries this cool season, and near the coast, are in fair abundance, though, of course, high in price.

Pears are becoming more and more gigantic as the season advances. In passing along one of our streets I was much astonished at beholding a branch of the Vicar of Winkfield which bore fifteen immense, perfectly formed, and uniformly sized Pears, on a length of limb measuring sixteen inches only. The bearer of them informed me that the same tree bore in perfection forty-five Pears

on a branch only thirty inches long. Some thinning of the fruit should, we think, certainly be practiced even in this wonderfully prolific soil, climate and region, to prevent trees from becoming too much weakened.

Amongst the Peaches one of the juiciest and best flavored is, the old and well known Heath Cling. The greatest objection to the majority of the Free Peaches now in market, is their dryness. The generality of them are yellow. Few of these are juicy, but most of them are now large and handsome. They are also generally wanting in fine flavor. The dryness of this climate and the winds tell much on them, and their flavor is insipid and wanting in richness and saccharine matter. The large and beautiful late Crawford Cling is plentiful now, and is rich and very juicy.

The Seckel Pear is mostly small this year owing, probably, to too heavy crops and want of thinning out.

The Belle de Flandres Pear is, on the contrary, very large and fine. This Pear is very different from the old reliable Bartlett, lasting but a short time, from its more tender and delicate texture.

Apples have come in plentifully, and are generally of good size and coloring. The only places to grow them to advantage, are, in the more elevated regions in this State; this makes them tolerably juicy compared with those raised in valleys.

The Gravenstein is now the most popular Apple on the stand. It is of second quality. Its color a bright yellow with distinct red and orange stripes, and very handsome. It is good eating, sweet, and of a sprightly acid, and excellent for cooking. The Jonathan is just coming in, of the first quality, tender, juicy and rich, with a good deal of the Spitzenberg character. It is a very fine and attractive Apple, from its rich red color, with light yellow ground. The best Apples raised in this State are chiefly from Sonoma and Napa counties.

Some boxes of the Catawba Grape are to hand. It is not very marketable here. Wine is not made of it, being too acid among so many sweeter wines.

The Kittatinny Blackberry is in market, a large, richly flavored fruit. It is a late kind.

Huckleberries are in small quantities at present—and Sweet Almonds are scarce.

The late true Damson Plum is in fair quantity—excellent for pies and preserves from its tartness.

Hovey's Seedling Strawberry is still the prevailing kind—with a few Triomphe de Grande. Vegetables in general, are at the height of their excellence. E. J. HOOPER.

EDITOR:

C. A. STIVERS, M. D.

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F. A. MILLER,

C. STEPHENS.

Editorial Portfolio.

Force of habit has, from time immemorial, held a controlling influence over nearly all pursuits and occupations of life; and although new circumstances and new conditions have to a certain extent modified it, yet still we have too much of that adherence to old customs, old ways and old ideas. It is in agriculture and its kindred branches, that this force of habit is oftenest displayed, and where it has intrenched itself against agricultural enlightenment and intelligence.

It is the common impression, that, that which our fathers were accustomed to in farming, will answer every purpose for ourselves, and too often, the farmer of to-day follows in the footsteps of his ancient predecessor. This, as might be expected, prevents that advancement which we have a good right to look for. Farming to be successful, (in its broadest sense,) must be intelligent, awake to all that shall increase its crops or lessen its labors.

Agriculture, too, must be progressive—caring not only for the present, but looking well to the future and the needs of a people who are to come after us. The world requires larger supplies of food at the present time than it did a hundred years ago, and will require still more in the next hundred.

With this increasing demand, comes also the fact, that new lands are becoming scarcer, and as a consequence the area of tillable land to be added to the agricultural field, is diminishing.

This destruction of the equilibrium between supply and demand, is only to be arrested by elevating agriculture and its kindred branches, to a more scientific standing. More attention must be paid to thorough cultivation; deep and careful plowing; the study and application of fertilizers; an intelligent and practical system (especially for California) of irrigation, are all subjects for careful and studious consideration at the hands of our agriculturists, and those who have at heart the welfare and advancement of this noble profession.

The whole science of the cultivation of the soil, is as yet in its infancy, despite the study and research it has received. Farmers are every day working out wonderful chemical changes by means of their growing crops, and yet a knowledge of the process, is to most of them unknown. Surely none will deny, that the result of intelligent labor, is much greater than that which is ignorant of cause and effect, relying solely upon what it has acquired by habit, or been handed down to it from a former age.

Here in California, the farmer occupies a new field, and, to a certain extent, is not to be governed by the same rules as his Eastern or European brethren. By a combination of soils and climates almost unparalleled on the globe, he is enabled to so broaden and extend his field of labors, as to embrace nearly all the products of the world. But to be successful, he must not let habit or custom rule him, only in so far as it shall result to his benefit, or be required by the existing circumstances.

What we want, is, active intelligence—a knowledge that shall be progressive, and not the exclusive property of any one man. Agriculturists should deem it their duty to exchange knowledge one with the other, and thus promote the general interests of all, as well as their own. The means by which this

is to be done, are the patronizing of local journals and papers devoted to agriculture; by supporting and encouraging fairs and exhibitions, and by establishing district societies which shall serve as a medium through which all the agricultural information of the different localities can be disseminated.

It is conceded on all sides, that California must depend, to a great extent, upon her agricultural interests to sustain her: Let us, then, bring intelligence into the field, make it work hand in hand with stout, sturdy labor, throwing aside erroneous and binding habit as not suited to our field of labors in this new and wonderful State.

UNION SQUARE.

This Square, which has been occupied for a number of years by the Mechanics' Institute for their grand industrial fairs, is to be delivered up to the City again, and a resolution has been passed by the Board of Supervisors to appropriate the sum of \$10,000, for improving and beautifying this plot of ground.

Although the Square has served a noble purpose while under the control of the Institute, and the Pavilion erected there by that Association has attracted a larger number of people than the public square will, it is nothing but right that the original purpose should be carried out, and that the grounds should be dedicated to the public as an ornament and source of recreation for that class of our population, in particular, who cannot enjoy the privilege of walking amongst trees, shrubs and flowers of their own.

Every important city has its squares, parks and avenues; while San Francisco is much behind in this respect, although her climate admits of a far grander display of trees and shrubs, than is practicable in our Eastern cities.

However, our administrators and public officers have never attached much importance to the character of such public improvements, and as a consequence our squares are in a

deplorable condition. We hope most sincerely that our present and future officers who have control over this matter, will do justice to our wants.

Money has been squandered most recklessly and no equivalent obtained for it. One half of the amount of money which has been expended in this direction might have produced a much better result.

But how was this done? The entire work of grading, fencing and planting was deputed to some unscrupulous contractors, who were made the tools of peculating committemen. What sense is there in giving the selection of trees, the arrangement of the grounds and the planting of lawns to parties totally ignorant of what is desirable and appropriate? Why should we not consult men who make it their study and profession to produce the best possible effect with the least possible expense?

The proper way to have such work done is to invite competition and to accept the most practicable, best and most economical plan. The work of the contractor for grading should stop after the grading is done, and the work of the carpenter should stop when the saw and plane have finished their work. To plant and arrange a public square is the profession and art of men, who are neither grading contractors, nor carpenters, and to them belong the work of making the grounds that which a considerate public has a right to expect. It is to be hoped that our Supervisors will exercise good judgment in the management of our public squares in the future.

HORTICULTURAL NOTICE.—At a meeting of the Oregon State Horticultural Society held in Portland, June 28th, 1871, the following resolution was passed, to wit:—

Resolved, That a committee on fruits be appointed, whose duty it shall be to examine the various fruits in their season, to correct the names, to examine and report on the probable value of new seedlings, and make their report at the annual meeting of this Society to be held at Salem during the State Fair.

AMERICAN POMOLOGICAL SOCIETY.

The meeting of this Society, held at Richmond, (Va.) Sept. 6th, 7th and 8th, was an important event in the Pomological history of the country. The session was in every way harmonious and pleasant, and we have no doubt but that it will prove highly productive of good to the general interest of fruit growers throughout the United States.

The address of the President, the Hon. Marshall P. Wilder, has been received by us. It is an able paper and well worthy of perusal by all our Pomologists.

We make the following extracts from the concluding portion of it:—

“The importance and value of our calling in developing the resources of our country, in the occupation of unimproved lands, adorning our homesteads, enhancing the value of real estate, multiplying the blessings and comforts of life, and promoting a great source of national wealth, cannot be too highly appreciated. The more I reflect upon the progress we have made, the more am I confirmed in the belief that this branch of culture will ere long become second only to the growth of the bread and meat of our country. The enormous production of Strawberries and other small fruits, the millions upon millions of baskets of Peaches,—not to speak of the Apples and Pears and other fruits that are now annually produced—give promise that the time is fast approaching when all classes of society may enjoy these health-preserving edibles as a portion of their daily food. Nor can I refrain from referring once more to the benign influence which our employment has upon the moral and religious instincts of the heart, the refinement of taste, and the welfare of society. Whatever pleasure may be derived from other pursuits, there is surely none that has afforded stronger evidence of a high and progressive state of civilization, or a more ennobling influence than the culture of fruits. ‘This,’ says Gen. Dearborn, ‘must have been the first step in the march of civilization, while the method of

ameliorating their character and multiplying their varieties may be considered as taking precedence of all human efforts in the industrial arts.’

From the day when God gave our father in Eden, trees ‘pleasant to the sight and good for food,’ down to Solomon, who said, ‘I made me gardens and orchards, and I planted in them trees of all kinds of fruits,’ and through the successive generations of men the cultivation of trees and plants has been the criterion of taste and refinement. No object of attachment is more naturally allied to the instincts of the soul, and truly did Emerson remark: ‘He who knows the most, he who knows what sweets and virtues are in the ground, and how to come at these enchantments, is the rich and royal man.’ And what greater benefactions can you leave for posterity than these memorials, which shall live and grow, which shall tell of your love of the most beautiful works of nature, kindred and home when you are slumbering in the grave? Far better these, for the perpetuation of your memory and the benefit of the advancing millions of coming time, than all the monumental shafts and pillars of polished marble that ever graced the hero’s tomb.

With the deepest sense of gratitude do I rejoice in the presence of a few of the founders of this Society, whose lives have been prolonged to this day. Ere long all those who were present at its first meeting, and he who by your indulgence has occupied this chair so long, will vacate their seats. Others will fill the places which we now occupy; but our Society and the cause it seeks to promote, will live on to bless the generations which shall succeed it.

Long may the members of this Society meet together as friends and mutual helpers, dispensing and receiving good; and may your efforts for promoting this most beautiful of all arts—this health-preserving and life-prolonging industry—be crowned with continued success. May the Society go on conferring blessings on our country until every hearthstone and fireside shall be gladdened with the golden fruits of summer and autumn; until

thanksgiving and the perfume of the orchard shall ascend together like incense from the altar of every family in our broad land, and the whole world realize, as in the beginning, the blissful fruition of dwelling in the 'Garden of the Lord.' And when at last the chain of friendship, which has bound so many of us together in labor and in love, shall be broken; when the last link shall be sundered, and the fruits of this world shall delight us no more; when the culture, training, and sorrows of earth shall culminate in the purity, perfection, and bliss of Heaven, may we all sit down together at that feast of immortal fruits—

Where life fills the wine cup and love makes it clear;
Where Gilead's balm in its freshness shall flow
O'er the wounds which the pruning-knife gave us below."

SANTA CLARA VALLEY AGRICULTURAL FAIR.

The enterprising Agricultural Society, of Santa Clara Valley, held its Fair during the latter part of August, and with much better success than in former years.

The Floral Department consisted of the display of a fine collection of evergreens and flowering plants, by Mr. Wm. O'Donnell and Mr. L. F. Sanderson, very creditable to the exhibitors; also of a meritorious display of cut-flowers, from the gardens of Mr. Sanderson.

Of the Pomological Exhibitors, Mr. Fox made the grandest display. The varieties of Pears and Apples exhibited by this gentleman were very numerous.

The following is the list of

PREMIUMS AWARDED:

Plants and Flowers.—Best collection Hot-house Plants, premium to L. F. Sanderson.

Best collection Hardy Ornamental Plants, premium to Wm. O'Donnell.

Fuchsias and Geraniums, premium to L. F. Sanderson.

Plants, all varieties, premium to William O'Donnell.

Best assortment Cut-flowers, premium to L. F. Sanderson.

Second best collection of Cut-flowers, premium to T. D. Appleby.

Two Vase Bouquets, premium to L. F. Sanderson.

Two Parlor Bouquets and two Hand Bouquets, premium to L. F. Sanderson.

Also, special premium recommended to L. F. Sanderson, for his collection of Ferns, which the Committee consider "one of the most attractive features of the Fair."

Fruits.—Single bunch California Grapes, premium to D. M. Harwood, of San José.

Collection of Foreign Grapes, premium.

B. S. Fox (S. J.), collection Apples, prem.

Collection twelve varieties Apples, prem.

Collection Pears, premium.

Collection Nectarines, premium.

Collection Plums, premium.

Collection Currants, premium.

Collection Strawberries, premium.

Collection Pomegranates, premium.

Wm. Daniels (S. J.), Pears, single variety, three specimens, premium.

Charles LeFranc (S. J.), collection Wine Grapes, premium.

D. M. Harwood (S. J.), single bunch Foreign Grapes, premium.

S. B. Stockton (S. J.), collection Foreign Grapes, premium.

Nuts.—S. Lonnar (S. J.), Hard-shell Almonds, premium.

B. S. Fox (S. J.), best collection of Nuts, premium, \$10.

SHIPPING FRUIT EAST A SUCCESS.

Mr. Reed, of Yolo County, has forwarded three car loads of Bartlett Pears to Chicago and New York, which arrived there in excellent condition. His agents there disposed of them at \$6,50 per box, and Mr. Reed has netted about \$4,000 out of this one shipment. This fact goes far to prove that fruit can be shipped East with safety, if judiciously packed; and it also demonstrates the fact, that the business may be made a profitable one. Enterprise and perseverance have met with success, and always will do it.

MAMMOTH SQUASH.

Mr. Robinson & Son, No. 217 Washington Street, of this city, has on exhibition a Marrowfat Squash, which weighs 195 pounds. It was raised on Brannan Island, Sacramento River, above Sherman Island.

THE WINE CROP OF LOS ANGELES.

The Viniculturists of Los Angeles County have just commenced pressing the Grapes for Wine. The crops of the smaller vineyards have been bought up by speculators and their agents: the average price paid is about one cent per pound, and even at this rate the vineyards will pay a handsome profit.

It is said that the bunches are not as full and the berries of less uniform size than was anticipated, but notwithstanding this, the crop is generally larger than that of last year.

BIG PEARS.

At the San Joaquin Valley Fair, a Mr. Peters exhibited sixteen Pears, grown on one tree, which weighed one pound each.

NEW PUBLICATIONS.

We have just received the *Young Folks' Rural*, a monthly journal for the young people of both country and city, and designed for the cultivation of a taste for rural life.

It is published by H. N. F. Lewis, of Chicago, and deserves an extensive patronage.

We are advised of the publication of a new work on "FOREST TREES," for Shelter, Ornament and Profit: by ARTHUR BRYANT, President of the Illinois State Horticultural Society.

We have not seen the work, but judge it to be of much value.

CATALOGUES RECEIVED.

During the past month we have received many valuable Catalogues, most of which are neat and valuable publications. We mention—

"Catalogue of Stove and Green-house Plants, including Orchids, Palms, Ferns, etc., for sale by Geo. Such, of South Amboy, New Jersey."

"Descriptive Catalogue of New and Beautiful Plants, Fruit Trees, etc., cultivated and for sale at the Dobroyde Nursery, Ashfield, Sydney, N. S. W."

"Dreer's Descriptive Catalogue of Bulbs

and other Flowering Roots, sold by Henry A. Dreer, of Philadelphia, Pa."

"Vick's Illustrated Catalogue of Hardy Bulbs, for sale by James Vick, Rochester, N. Y."

"Wholesale Catalogue of Hyacinths, Tulips, Crocus, Lilies, French Hybrid Gladiolus, etc., for sale by C. L. Allen & Co. 76 Fulton Street, Brooklyn, N. Y."

"Hovey's Illustrated Catalogue of New Plants. Hovey & Co., Boston, Mass."

"Catalogue of the Reading Nursery: by J. W. Manning, Reading, Mass."

"Wholesale Catalogue and Trade List of Fruit and Ornamental Trees, for sale by F. L. Perry, Canandaigua, N. Y."

"Wholesale Price List of Burrow & Wood, Nurserymen and Florists, at Fishkill, Dutchess County, N. Y."

"Semi-Annual Trade List of Hoopes Bro. & Thomas, Cherry Hill Nurseries, Westchester, Pa."

"General Trade List of Nursery Stock, for sale by Wood & Hall, Geneva, N. Y."

"Wholesale Catalogue of Superior Dutch Bulbs, for sale by L. Van Waveren & Co., Holland. Richard Lauer, New York, Sole Agent."

"Trade List of W. F. Heikes, Dayton, Ohio."

"Trade List of Fruit and Ornamental Trees, for sale at the Monroe Co. Nurseries, Rochester, N. Y."

"Wholesale Trade List of T. Sprague & Co., of the Erie Commercial Nurseries, Erie, Penn."

"Descriptive Catalogue of Pot, Plant, Garden and Veranda Trellises, by Nourse, White & Co. 1 Westborough, Man."

NURSERIES OF ELLWANGER & BARRY,
ROCHESTER, N. Y.

We call particular attention to the advertisement of these gentlemen, in another column. The stock which they have sold to parties on this coast, during the past season, has generally given satisfaction.

WOODWARD'S GARDENS.

Since our last visit to these Gardens, we note that many additions have been made to the interesting collection of choice plants in the conservatories. Among them we notice several new varieties of Ferns, also of Azaleas and Hybiscus. A new Passion Flower—(*Passiflora trifasciata*)—flower pure white with light purple edges, small, and particularly well formed. Some new Begonias of considerable beauty. One of several specimens of a new tuber *Biedenbergia* has thrown up a vigorous flower stem and is rapidly developing; this is a particularly interesting plant. We also noticed a new variety of Aloe. A fine specimen of *Gloria superba* in full flower. A very pleasing double Geranium (*Empress Eugenie*) of particularly delicate tint.

But what pleased us most was, the Gem of the Gardens, the *Espiritu Santo*, (Holy Ghost Flower,) in full flower, its delicately white and elegantly formed wax-like blossoms present, in the centre, a curiously close resemblance to a dove with partially extended wings, as depicted in many church embellishments, hence, its name. The perfume of this flower is peculiarly rich and delicious, and, combined with that of a neighboring *Stephanotus*, also in full flower, was almost overpowering.

Our attention was also drawn to a specimen of *Marauta tuberspatha*, and to several Alligator Pears, starting into vigorous growth. We were disappointed of seeing the Night-blooming *Cereus* in flower. Some ungracious wretch had wilfully destroyed the bud. Strange! that among a people who justly pride themselves on their education and refinement, and among a concourse of well dressed visitors, so large a percentage can be found who are capable and guilty of the meanness of not only stealing a flower, (frequently a choice and only one,) but of fatally tearing a plant to gratify this detestable passion. The Managers of the late Horticultural Exhibition, know too well how fearfully this was exemplified on that occasion.

SQUASHES.—Treat the same as Cucumbers, and cultivate until they cover the ground.

Correspondence.

POMOLOGICAL CONVENTIONS.

WASHINGTON, Sept. 11th, 1871.

Editor *California Horticulturist*:

Last week, at the joint Convention of the "National Pomological Society," and the "Virginia State Society," I witnessed the largest and richest display of Fruits, of every variety, ever exhibited in this country.

They met in "Assembly Hall," in the City of Richmond, Va., and continued in session Wednesday, Thursday and Friday, the 6th, 7th and 8th of September, instant.

The increased and growing interest for Horticulture, the favorable season in most sections of the country, and the increased railroad facilities over previous years, have conspired to render the present Fruit Exhibition in Richmond the finest and largest ever before witnessed in this country. Besides, it is the first ever held by the National Society south of the Potomac. The Biennial Convention was held two years ago in Philadelphia, and was a very splendid and satisfactory affair, but this one eclipses all previous ones, both in the matter of delegates and fruits, and the extent of country represented.

Some twenty-six States and Districts were represented by delegates and fruits. The principal exhibitors were—

From the District of Columbia, John Saul, with Potomac Fruit Growers, exhibited fifty six varieties of Pears and eighteen of Apples, besides Figs, Grapes, etc.

Mr. D. O. Munson, of Fall's Church, Virginia, fifteen varieties of Pears, and a quantity of Apples, Grapes, etc.

J. B. Clagett, some fine specimens of Pears, the Duchess.

Mr. William Saunders, Superintendent of the Agricultural Grounds, etc., at Washington, exhibited forty varieties of Pears, a number of Southern Grapes, and other fruits, all very fine.

Virginia—Gillingham, Wright, Cox, and others, a fine show of Apples, Pears and Grapes, from Fairfax Co.; G. F. Leighton, of Norfolk, exhibited, of his own growth, specimens of the Duchesse d'Angouleme Pear, weighing thirty and a half ounces. From one tree he took two of the size specified, and another weighing twenty four ounces. His Pears look as if they were grown to feed giants.

From New York—Ellwanger & Barry exhibited one hundred and fifty seven varieties of Apples, with other fruit.

Iowa—Mark Miller, and others from this State, had on exhibition a collection of two hundred and fifty varieties of Apples, representing the staple fruit of this growing young State. Many of them were beauties in appearance, while others were equally remarkable for their size.

Nebraska—Mr. R. W. Fernas, of Nebraska, showed sixty nine varieties of Apples, a number of Pears and Peaches, and some Grapes; while Mr. J. H. Masters, of the same State, had sixty five varieties of Apples, thirteen of Pears, and a variety of Plums, Grapes, etc.

Massachusetts—The President of the Society, Marshal P. Wilder, exhibited two hundred and fifty varieties of Pears, and it would be hard to name a variety which he had not in his collection.

California—This distant State made a splendid show, of many varieties, showing her rich in many things. The Bartlett Pear, for example, was as large as our ordinary Duchess, and Seckles were as big as good sized Apples, and beautiful in proportion. Amber Plums as large as goose eggs were flanked by mammoth bunches of "White Muscat" Grapes larger and greener looking than the Malaga, while Flemish beauties, (Pears,) twenty ounces in weight, which would have excited the admiration of a painter, were brought in contrast with blushing Tokay Grapes in bunches large enough to suggest those found in the land of Ca-

naan. Then there were native Olives, green Oranges, "pound Pears," varieties of Grapes, and all in a fine state of preservation.

Many other States were represented.

COMMITTEES ON PREMIUMS.

To decide on the various Premiums, the following committees were appointed:—

On Virginia State Agricultural Society's Premium of \$100, for best collection of fruit—Apples, Pears, Peaches and Grapes: Wm. Saunders, of Dist. Col.; P. J. Berckmans, of Ga.; and W. T. Smith, of Geneva, N. Y.

On Premiums offered by Marshall P. Wilder on Pears \$30, Ellwanger & Barry on Apples \$50, Thos. P. James, on Peaches \$30: Chas. Downing, of N. Y.; W. L. Steele, of N. C.; and P. T. Quinn, of N. J.

On Premiums offered by Chas. Downing of \$50, R. L. Page of \$10, Jno. B. Whitehead of \$20, Downward, Anderson & Co. of \$10, C. T. Wortham & Co. of \$10: Wm. Perry, of N. J.; G. F. B. Leighton, of Va.; and Robert Corse, of Md.

On Premiums for Figs, Oranges, Olives and Pomegranates: Hon. J. B. Whitehead, of Va.; John Feast, of Baltimore; and Col. Hardie, of Fa.

On Gratuities offered by G. F. B. Leighton, Randolph & English, the Southern Fertilizing Company: J. H. Masters, Henry Ellwanger, of New York, and O. T. Herstine, of Pennsylvania.

On Premium of \$25—best Apples for general culture in Kentucky—by J. S. Downer: Wm. Heaver, of Tennessee; Dr. William M. Howsley, of Kansas; and John S. McIntosh, of Ohio.

On Fruits exhibited by the American Pomological Society: John E. M. Gilley, of Massachusetts; B. K. Bliss, of New York; and Dr. James T. Johnson, of Virginia.

On Premiums offered by Smith, Clarke & Powell, and D. D. T. Moore, of New York, *Southern Planter and Farmer*, and the *Rural Carolinian*: W. C. Barry, of New York; R. J. Page, of Virginia; and D. B. Weir, of Illinois.

AWARD OF PREMIUMS.

The Committee on Special Premiums for the best collection of Apples, Peaches, Pears and Grapes, reported that the only entry meeting the requirements of this premium is that from Nebraska, and respectfully recommend that the premium of \$100 offered by the Virginia Pomological Society be awarded accordingly.

(Signed) W. SAUNDERS,
W. B. SMITH,
I. BERKSMAN,
Committee.

On the reading of the report, Col. Furnas, of Nebraska, stated that the Nebraska Society donated the American Pomological Society the premium which had been awarded them.

The donation was accepted, and three cheers proposed and given for Nebraska.

The Committee on Grapes presented the following report:—

We, the undersigned, appointed to award premiums on American Grapes, as per special premiums contributed by Chas. Downing, General L. R. Page, Hon. John B. Whitehead, Messrs. Downward, Anderson & Co., and Messrs. Charles T. Wortham & Co., respectfully submit the following report:—

1. No collection of twenty varieties of American Grapes found.
2. No half bushel of Flowers Grapes found.
3. Premiums of \$20 awarded to John Hopkins, Wilmington, North Carolina for half bushel of Scuppernong Grapes; who also exhibited a half bushel of large Black Grapes, which he called Muscadine Superior, and which he claims as a seedling of his.
4. Premiums awarded to Michigan State Pomological Society of \$10, for best twelve bunches of Delaware Grapes.
5. Premiums of \$10 awarded to J. W. Porter, for best twelve bunches of Northern Seedling Grapes.

WILLIAM BARRY,
G. F. B. LEIGHTON,
Committee.

The President, M. P. Wilder, delivered his Biennial Address—a sound, instructive paper.

TREASURER'S REPORT.—Mr. T. P. James, Treasurer, submitted his Biennial Report,

showing that the receipts of the Society have been \$1,003 03, and that there is a balance of \$124 16 on hand.

It was voted to hold the next meeting at Boston, Mass.

After business and discussion, the Society adjourned. D. S. C.

Editorial Cleanings.

EFFECTS OF DEEP PLOUGHING.

We consider the matter of deep and thorough cultivation so important, that we feel justified in frequently dwelling upon it. In this instance we make room for an article under the same heading, which was recently published in the *Rural Carolinian*, and which suits us exactly. Here it is:

A correspondent, who has experimented in deep ploughing, thinks it don't pay—in fact, that it is wrong in principle and ruinous in practice. He took a fair piece of ground—a sandy soil with a good clay subsoil—and turned it over to the depth of twelve inches, throwing up considerable clay. The result was not more than half the crop which the land would have produced, if ploughed in the usual (shallow) manner.

We see no reason to doubt this statement: but we protest against the *Rural Carolinian* being held in any way responsible for the result. While we fully believe in a deep breaking up of the soil as a general principle and a general rule, and have frequently said so, we have also frequently warned our readers against *turning under their shallow soils too deeply*, or turning up too much of the subsoil at one time. He should have *gradually* deepened his soil, breaking up below with a subsoiler.

But while our correspondent has fallen into an error, he is too hasty in his inference, that the land is ruined. Unless there be something actually deleterious in the subsoil, we venture to predict that that piece of ground in question, if peas or some other green crop be grown on it and turned under

the present season, will next year produce a fair crop, and will continue to improve till it will be far more productive than the adjoining land treated in the ordinary way. The action of the atmosphere, the sun, the dews, and the rains, assisted by the roots of plants, will finally make of the crude materials turned up a fertile soil. A case in point falls under our observation as we write. A correspondent of the *Prairie Farmer* turned up a piece of land, with a side-hill plough, to the depth of fifteen inches. He got scarcely any crop. He seeded it to grass and pastured it for several years, when it was turned over again as deeply as before. It yielded better and continued to improve for years. He adds:

This was twenty years ago and upward. The land still shows the benefit. It has, since it became established, acted like a different soil. The deep ploughing—and that repeated—drained it and mellowed it so that it withstood the drought and the wet—the drought especially, which is severe on elevated drift soil. But it had clay enough and was mellow. On the yellow knolls there was the old condition; the clay was missing, and so were the grain and the grass; it was too dry.

The editor of the *Carolinian* concludes as follows: But the best way to deepen a soil, is, to do it gradually. In this as in everything else, good judgment is essential. We can only supply facts and principles. Our readers must make use of brains, as well as muscle, in applying them to the preparation of the soil and the making of the crops, adapting the teachings of science and experience to each particular case. Never blindly follow any leader, while you have eyes of your own and know how to use them.

TREE CULTURE—The *Prairie Farmer* very justly commends the spirit that has seized the farmers of Illinois, to plant forest trees. It is clearly a providential instinct, for it has swept the country like an epidemic. Every one asks: "How many trees have you planted

this year?" Not one in a hundred answers "None." At every agricultural meeting, members vie with each other in reporting the largest number and the greatest variety set out. They are mostly from seed, and usually eight feet apart, to be thinned out as they expand in dimensions. Every one speaks of the increased retentiveness of the soil for moisture, within the influence of their protection. Especially they attest their sheltering effect against the desiccating and disagreeable winds that are the great objection to life on the treeless prairies. They report a notable improvement in health—less ague and rheumatism, and less catarrhal disturbance. A few years ago, some leaders of the movement planted trees as wind-brakes to their orchards and their dwellings. In every instance these have worked wonders in giving increased fruitages, exemption from spring frosts, and unspeakable comfort to the family and to the barn-yard. The saving of cattle feed is found to be no small item; for every protection from adverse weather enables stock to thrive on less fodder. Villages, which a few years ago wore a bare and cheerless look, are now assuming the sweet attraction of their old New England homes. It favorably affects immigration. First impressions have driven many a new comer from the prairies. Since the furor for tree planting, the repulsiveness is fast being changed to attractiveness. Among the beneficial effects of the young forest may be mentioned many permanently-flowing springs, which had long ceased to run, and new ones not previously observed. We wish this tree planting epidemic would extend to California. There are premonitory symptoms indicating that the contagion has reached our borders.

FOOD.—Diet has much to do with health, and also something to do with mental condition. It is held to be an axiom that a gross feeder will have a gross mind. I doubt if true refinement of manners can exist in conjunction with an exclusive pork diet. It is

certain, at least, that children will grow up more healthful and beautiful in families accustomed to a variety of well cooked food, than in those dieted upon invariable salt pork, or food fried to the pliability of leather. In one case clear complexion and plump figure will be the rule, and in the other a leathery skin, angular features, lean forms, and irritable and selfish dispositions.

There is great diversity in farmers' families in this respect. A large number combine the best known hygienic regimen, good cookery, fresh material, and variety with simplicity of serving. Farmers have an advantage over all others in fresh vegetables, milk, cream, butter, and eggs, and some disadvantages in variety and convenience of meat supplies, which can all be easily overcome, however, by a provision of fowls, lambs, and a little neighborhood arrangement for the exchange of other meats. On the other hand, then, there are farmers abundantly able to provide wholesome fare who live abominably, and their children are neither handsome, healthy, nor good-natured!

Careful observation and a little reflection will teach them the importance of diet in *education*. A dyspeptic stomach can never rest, and without periodic repose of stomach and brain, mental labor cannot be long performed. Farmers who bestow so much attention upon the thrift and fattening of domestic animals, should at least allow their children equally favorable conditions of health. It is indisputable that in many cases the cattle are the favored party, and the children are neglected.—*Ag. Rep.*

MANAGEMENT OF DAHLIAS.—In growing Dahlias for exhibition, it is a great mistake to try to have a large number of blooms. It is much better to pluck off all small and unpromising flowers, and to save a few of the choicest for culture. The supports of the plant should be looked to, and stakes added wherever they are required. Some experienced growers prefer wire trellises to stakes, as the branches can be well secured on them.

It is a common practice to remove some of the side branches, but this is an error, as the shock is surely felt by the plant. If the Dahlia be pruned as fruit trees are, that is, the weak and worthless branches and such as are crossing and crowding each other are removed, the flowers will be larger and finer than if the plant is cut more. The foliage of the Dahlia is of too much use to be wantonly decreased by breaking off large branches. If great care is not taken, branches that cannot be spared will be broken by high winds.

When a flower bud or two have been selected on a branch, all other buds on the same branch should be removed, so that the flowering strength may be thrown into the buds that remain. Some growers advocate covering the blooms, as it preserves them better, but the petals of the covered flowers are always thinner, and the colors less vivid than those which are exposed to the sun. A flower that has been fully exposed will bear carriage much better than one which has been covered. Every flower should be cut off as soon as it has passed its prime, or is known to be useless. Producing flowers weakens and exhausts a plant very much, and the removal of such as are past their prime is a relief which is immediately felt. A shade which will protect from the stronger rays of the sun is useful, but light and air should not be excluded. Weak liquid manure is very grateful to the plants, but where they are watered, the whole ground about them should be well soaked, and not merely the roots.

Mulching has been frequently tried, and as often abandoned. Its faults are, that it encourages injurious insects about the roots, and induces the fibers of the root to come to the surface. All plants are the better for sending down their roots after moisture, instead of deriving it from near the surface; for this reason all irregular and partial waterings are bad. The foliage of Dahlias should be well syringed with soft water after the sun is down.—*Western Rural.*

RADISHES.—Sow occasionally for a succession, if desired.

NEW ANNUALS: *GODETIA WHITNEYI* AND *PHLOX HEYNHOLDII*.—The first-named of these newly-introduced annual flowers having been figured, and very highly spoken of in more than one horticultural periodical during the past spring. I was consequently induced to use it rather freely, and I confess was beginning to entertain doubts as to its realizing the good opinion I had been led to form of its merits, as it did not begin to flower until the first week of July. But I am now glad to be able to say that it has fully realized all my expectations. It is without doubt one of the most showy and attractive annuals that has ever been introduced; but to do it full justice, it ought to be grown *en masse* in a bed of considerable dimensions, or to form a line in a ribbon border of considerable length. It is then in appearance really magnificent, resembling, at a distance, a line of the finest dwarf *Rhododendrons* in full flower, or of some fine variety of *Hibiscus*. It grows from a foot to fifteen inches high, and is exceedingly floriferous, each bloom being quite three inches in diameter, color rosy-pink, with a crimson spot in the center of each of the four petals; this spot, however, is more clearly defined in some plants than in others, and on this account care ought to be taken in selecting seeds from the best colored plants. Should this plant prove to be continuous in blooming, as it has at present the appearance of being, it will certainly prove very useful, even as a bedding plant. I sowed the seeds about the middle of March in pans in a gentle heat, pricked out into pans or boxes when large enough, and finally planted out about the middle of May. *Phlox Heynholdii* is also an annual of recent introduction, which I think only requires to be better known to insure its being more extensively used. It belongs to the *Drummondii* section, but is more dwarf in growth, seldom exceeding six or eight inches in height, and producing an abundance of rich flame scarlet-colored flowers. It has also the property (not always possessed by the finest annuals) of producing itself quite true—that is, without any variation either in the color of the flower or in the habit of the

plant, and continues to flower until late in the season.—*P. Griese, Culford.*

[The *Godetia Whitneyi* is a native of California, and was found in Humboldt Co., by Professor H. N. Bolander, who transmitted the seeds to England. It is in great favor there, while in its native state we do not think there is a single plant cultivated.—Ed.]

INFLUENCE OF CLIMATE UPON VEGETATION.—

It is not alone the exterior appearance of plants which climate alters, it has a distinct action on the chemical compounds of vegetables. Dr. Darwin says, the chemical qualities, odors and tissues of plants, are often modified by climate in a manner which seems to us extraordinary, and is remarkable, because it might have been thought that definite chemical compounds would have been little liable to change either in quantity or quality. The Hemlock yields no Conocine in Scotland, the *Aconitum napellus* becomes innocuous in frigid climates. The Rhubarb flourishes in this country, but does not produce those medicinal substances which make the plant so useful when grown in its own country. The China Tea Tree grows well in the west of England, amazingly so in South Carolina, in neither case is Theine yielded. The wood of the American Locust Tree in England is as worthless as that of the Oak (*Quercus robur*) grown at the Cape of Good Hope, or as the Tasmanian Gum Tree grown in the vicinity of Melbourne. Dr. Falconer says, there is a great difference in the fiber of the Hemp, in the quantity of oil in the seeds of the Linum, and of Morphine in the Poppy, when these plants are cultivated on the plains or on the mountains of India. The same species of Cactus has been carried from Canton, Manilla, Mauritius, and from the hot-houses of Kew. They were all alike in appearance, but the Cochineal insect thrives only on the native plant, on which it thrives prodigiously. Monsieur Berthier says, if we compare amongst themselves the ashes of wood grown on land of different kinds, it is seen they differ remarkably, which seems to establish the fact that climate has an influence on their consti-

tution. These examples are pertinent, so far as they go, to show how comprehensive and complete must all circumstances be to bring a plant up to its maximum state.—*Ex.*

HOW CHERRY TREES SHOULD BE GROWN.—

Years ago it was just as easy to raise a good crop of Cherries as to raise a good crop of Apples. We remember, when a boy, we made good wages picking this fruit at fifty cents the bushel, the trees gave such an abundant crop. Several years ago a change seemed to come over the Cherry Tree. When grown too rapid, they burst their bark in many places, permitting the gum to exude in abundance; and finally, the limb or branch would die. Warts, also, became numerous, and did considerable damage; the curculio began to destroy the Cherry as he had already the Plum; and lastly, a severe drought followed by a severe winter, seemed to give the finishing touch to many of the Cherry-trees. The remedy for the first trouble, we believe is within our reach. We remember, some years ago, a neighbor bought a hundred Cherry-trees, and set them out in an orchard, and began to manure, and treat them in this respect as he had done his Apple orchard, which was in a very thriving condition. In a year or two many of the trees burst their bark, turned black, and parts died; and this continued until three-fourths of the whole were dead, or nearly so, being quite worthless. It was evident to the farmer that he had killed his trees by kindness; and he stopped manuring, and sowed his land down to grass; and this saved them. What would do for the Apple-tree would not answer for the Cherry. We know another orchard, now some years old, that we set out for a neighbor, where the trees have been kept in grass ever since the second year after they were set; and these trees have made a good, sound, healthy growth each year, and latterly, even for ten years past, except a single year, have borne good crops of fruit. There is not a more healthy Cherry orchard in the country. These trees have never suffered by the bursting of the bark, nor from warts.

The best trees may be so forced in growth as to become tender and diseased, and in a short time worthless, as neighbor Jones' trees did. We are perfectly sure that all who have been troubled by diseased Cherry-trees, will, if they adopt the plan we have referred to, soon see the beneficial effects of it, and, though they may have to wait longer for fruit, will succeed in saving their trees.—*Journal of Horticulture.*

FIBROUS AND OIL-YIELDING PLANTS.—Some consideration has of late years been given towards the growth of Fibrous and Oil-yielding Plants in our colonies and foreign possessions, and amongst the latter the Sunflower, *Helianthus Annuus*, has been favorably spoken of. The plant is largely grown in Russia for the sake of the oil; and it is said that, under a good system of cultivation, a bushel of seed will yield a gallon of excellent oil, which can be used for burning in lamps, for soap-making, or painting, and if properly refined, it makes an excellent table oil. It is said to be much used for adulterating Olive oil, and is exported from St. Petersburg in large quantities, fetching about 10s. 6d. per cwt. The refuse, or marc, after the expression of the oil, is an excellent food for cattle. Horses, cows, and poultry are said to fatten rapidly after being fed with these seeds. In many places in Russia they are boiled and eaten by the people, and, when properly shelled and pulverized, they make good flour, which being sweet, is very suitable for making cakes. The dried leaves are given to cattle instead of straw, and the stalks are said to produce a large quantity of alkali. One of the most recent applications, however, that has been advocated for the stems of the Sunflower is the manufacture of paper. Considering the ease with which these plants can be grown, and the quantity of seeds each one produces, it is time, if they are so really valuable, that they were made more generally useful.—*Gardener's Chronicle, London.*

PEAS.—Vines which have borne an early crop should be pulled up and burned, and their place occupied by Cabbage plants.

OUR NEWLY APPOINTED COMMISSIONER OF AGRICULTURE.—HON. Frederick Watts, of Carlisle, Pennsylvania, has been appointed successor to General Capron as Commissioner of Agriculture, to date from the 1st of August. Judge Watts is a native of Carlisle, and was educated at Dickinson College, where he graduated at the age of nineteen. Immediately after his graduation he went to Erie County, Pennsylvania, and there lived three years with an uncle, working daily on his farm. It was while residing with this uncle that the taste for farm life, which has characterized his whole career, was fully formed, and a practical knowledge of its essential requirements thoroughly learned. Returning to Carlisle, he studied law with Andrew Carothers, and was admitted to the bar. He practiced his profession until 1848, when he was commissioned by Governor William F. Johnson as presiding judge of the ninth judicial district of Pennsylvania, composed of the counties of Cumberland, Perry, and Juniata. This office he held for three years, when, it having been made elective, and the district being under the control of the political party with which he was not in sympathy, he retired from the bench and returned to the bar. He did not, however, actively engage in his profession—a large portion of his time being devoted to the personal superintendence of a farm near Carlisle. For many years he had been a farmer as well as a lawyer, and had become known as one who believed in the application of science to the tilling of the soil. In 1858 he abandoned entirely the practice of law, and since then has been exclusively a farmer. During the last few years he has resided on his farm, giving to all the details of its management his personal attention. He is also the owner of another farm, which he manages through a tenant.

Judge Watt's prominence as a farmer led to his election, in 1856, as the first president of the Pennsylvania Agricultural Society, which office he held until 1862, when he declined a reelection. He was elected the first President of the Board of Trustees of the Agricultural College of Pennsylvania, a po-

sition which he still holds. He has never been prominent as a politician, although entertaining at all times positive views of public policy, and has never been a candidate for either congressional or legislative honors. He was not an applicant for the distinguished position to which he has just been appointed, and its duties and responsibilities have been accepted with reluctance.

Judge Watts is a practical and scientific farmer. He has devoted his life to the practice of progressive methods of diversified agriculture, and has always manifested a deep interest and genuine enthusiasm in the advancement of the farmer's calling. In his new office he may be expected to give to all the agricultural interests of the country the same intelligent and industrious attention he has bestowed upon the varied operations of his own farm and the agriculture of Pennsylvania.

MAMMOTH CLUSTER RASPBERRY.—Bush very rank, upright grower, but with few thorns; foliage rich dark-green; fruit extremely large, and holds out large to the very last picking. Black, with a rich purple tinge or bloom; very juicy, high flavored and delicious. Plant does not sucker, but increases by layering the tips. Perfectly hardy, having stood the most severe winters, (with mercury down to 28 degrees below zero,) without the least particle of damage. Surface sufficiently firm to carry to the most distant market. Season extremely late, which makes it very valuable on account of filling in a blank space, heretofore felt by all, between Raspberries and Blackberries.—*Small Fruit Recorder.*

DEATH FROM MULBERRIES.—Five persons have recently been found dead in Mississippi under Mulberry trees. Death in all these cases has been attributed to eating Mulberries which have been impregnated by locusts. In the stomach of one colored boy, says the *Woodville Republican*, was found a quantity of Mulberry seeds and the locust eggs. Two children in Williamson County are also reported to have died from eating Plums similarly impregnated.—*Pomologist & Gardener.*

A CALIFORNIA HEDGE PLANT.—The California *Agriculturist* recommends the California Wild Cherry (*Cerasus illicifolia*) as a very superior plant for ornamental hedges. It is an evergreen, with foliage of a sprightly, delicious green, that sparkles in the sunlight. It is very dense and compact, stands pruning well, and with its crinkled leaves hides both limbs and stocks. F. B. Fuller, opposite the Los Gatos Nursery, has a splendid showing of hedges of this plant, from seed which he planted where they were to grow. The hedges are in their fourth year, having been pruned twice each season, and stand now about three feet high and two broad—models of neatness, elegance and thrifty growth.

We clip the following from the July Report of the Department of Agriculture:—

“CULTIVATION OF ASPARAGUS.—The culture of Asparagus was lately the subject of discussion by the members of the Horticultural Society in Dessau; and among the views expressed were the following: That the old method of burying large quantities of manure deep under the surface was objectionable, since Asparagus does not derive its nourishment from a great depth, and the plants often become too deeply imbedded when the thick substratum of manure collapses by rotting. The preference often given to old plants, in making selections for a new bed, was also considered a mistake. Plants become sickly and less vigorous in the seed bed, so as to be much more sensitive to the change in transplanting. Southern exposure, shelter from cold winds, a porous soil, and the total absence of trees, were recommended as essential conditions to the highest success. The soil is to be turned to the depth of from two to three feet, and then manured to the depth of one foot. This is most conveniently done in autumn, during dry weather. Spring is the best time for planting, and the best direction of the trenches for the reception of the plants is from north to south. The earth taken from the trenches is “walled up,” as it

is termed, between the rows, and upon these other vegetables may be cultivated while the Asparagus bed is young; but they are eventually absorbed in filling up the ditch around and between the plants. Well-rotted manure, or suitable compost, is combined with the earth of the walls for this purpose. Besides giving constant attention to stirring the soil and weeding, the young plants need to be watered regularly whenever the state of the weather requires it.”

VALUE OF THE SUNFLOWER PLANT.—“Attention is called by the editor of the *Journal of Applied Science* to the great value of the Sunflower plant in various economical applications. According to this article, the Sunflower can be cultivated very readily, an acre of land sustaining 25,000 plants at twelve inches distant from each other. The flowers are very attractive to bees and furnish a great amount of honey. The average production of seeds may be estimated at fifty bushels to the acre, yielding fifty gallons of oil. This is said to be equal to olive oil for table use, and is well adapted to burning in lamps, soap-making, and painting. The refuse of the above quantity of seed will produce 1,500 pounds of oil-cake, and the stalks may be either burnt to furnish potash, or, when treated like flax, may be made to yield a fiber as soft as silk, and in large quantity.”

INDIAN MALLOW.—The truth that a weed is only a plant out of place is again illustrated, this time with the Indian Mallow, a weed that has greatly troubled the Illinois farmers, being more difficult to eradicate than the Canada Thistle. But now it is discovered that the fibrous formation of the stalk of this plant is such that cordage, textile fabrics and paper can be made out of it, and the hated weed may yet become the staple agricultural product of the State. If half what the inventor of the method of manufacturing the fibre claims for it is true, the plant would seem likely to become one of the most valuable in cultivation.

THE MESQUIT BEAN.—Every one who has traveled in Texas, Arizona or Mexico, knows what the Mesquit Bean is. In Texas, forests of Mesquit trees occur in regular succession, which bear so close a resemblance to Peach orchards that the illusion is only dissipated by looking after the fruit. These trees produce Beans of two or more kinds. One of the varieties is enclosed in a pod, like the ordinary Garden Bean; the other is bifold—the two parts being spirally interlocked—constituting a Bean from three to four inches in length. This Bean is remarkably juicy and nutritious. The flavor is a pungent, sour-sweet, and is highly prized as food by the Indians—still more so by horses and cattle, which will thrive and fatten in a Mesquit range. This variety is called the “Screw Bean,” and the crop this year is said to be unusually large in Western Texas. The trees are represented to be bending and breaking under the unparalleled weight of the yield. The farmers of that region, who are rather few and scattered, are gathering the Beans and garnering them for a winter supply for their stock. This suggests that the Mesquit might be transplanted into localities of this State, where timber is needed, and the soil otherwise non-productive. The timber of the Mesquit tree is excellent for firewood—perhaps for other purposes—in addition to yielding its annual abundant crop of the nutritious Screw Bean.—*Morning Call*.

[We have now a few plants under trial, and we hope to be able to give a satisfactory result. So far, the young plants are doing well.—Ed.]

THE COTTON EXPERIMENTS IN CALIFORNIA.—The *Morning Call* of the 27th has the following:—“The editor of the *Snelling Argus* supplies us with information concerning Colonel Strong’s experiment in cotton raising on the Merced. He recently paid a visit to the field, and says some of the stalks have over two hundred well-developed bolls each, and one contains two hundred and fifty bolls, all of which will mature. Colonel Strong now calculates upon gathering a bale and a half

of clean Cotton to the acre, which is more than three times the average product of the cotton lands of the Southern States. Several thousand pounds of the Seed Cotton has already been picked out, and is ready for ginning, which process will commence in a few days. Major Strong, brother to the Colonel, has a cotton field in Los Angeles County. He passed through this city a few days ago, on his way to the Merced, and informed us that his crop bade fair to realize his expectations. It only needs the withholding of frost to make a good yield.”

THE CURRANT-WORM.—The *Boston Journal of Chemistry* gives the following:—We are informed by Dr. E. Worcester, of Waltham, that the Currant-worm, so destructive to a favorite fruit, may be fully and almost immediately destroyed by the use of carbolate of lime. The doctor tried the powder in many instances during the summer, and found that while it was fully as effective as hellebore, it was less disagreeable, less costly and perfectly safe. The method of using it, is, to sprinkle it over the vines as soon as the worm makes its appearance, bringing it well in contact with the leaves, and soon the insect is destroyed. It will need but two or three applications, and the work is done. In this way, for a few cents, large quantities of Currant bushes may be saved and the fruit allowed to mature, and no danger whatever incurred. Neither the foliage nor the fruit is in any way injured by the carbolate of lime.

The *Mendocino Democrat* is responsible for the following:—

“A PRECOCIOUS GRAPE VINE.—There is a Grape Vine in the garden of Joel F. Noel, of Calistoga—two years from the cutting—which has Grapes upon it that will weigh, when ripe, from 75 to 100 pounds!”

SPINACH.—Sow the New Zealand for summer use, three or four plants to a hill, which should be rich, and about six feet apart, as the plants spread.

T H E

CALIFORNIA HORTICULTURIST

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HARDY FLOWERING SHRUBS.

To enumerate all the Flowering Shrubs which are hardy, *i. e.*, adapted to out-door cultivation, in our Californian climates, would make up a list too extensive for our Magazine, and we are therefore compelled to confine ourselves to the best and most promising kinds.

There are many hardy flowering shrubs, which would be desirable in our gardens, but local circumstances are adverse to their successful growth: we mention, for instance, the Azalea, flowering Pomegranate, Oleander, etc. The two latter grow to perfection in Sacramento, Marysville, Stockton, San José and in all similar climates, because the climate there is well adapted; but the Azalea has not been cultivated with any encouraging result anywhere in California, and we give as the sole cause, the want of the proper soil. In some portions of the State we meet with very extensive groups and masses of Azaleas, and Rhododendrons, but so far no one has succeeded in cultivating them with any success outside of the districts where they grow wild. This matter requires explanation and some new efforts on the part of our nurserymen and gardeners, to bring them under cultivation. The same may be said with regard to the Calycanthus, which grows very luxuriantly by the side of the various river-

banks of California, but does not seem to flower in San Francisco and its vicinity.

Although our San Francisco climate is adverse to the cultivation of these very desirable plants, the list of flowering shrubs adapted to it is far greater and more varied than that of any other locality of the same latitude. It is also worthy of notice, that many of the flowering shrubs cultivated here, continue in bloom for a much longer period than is usual in other climates. This fact is principally attributable to our moderate temperature, which keeps our shrubs in constant growth and development.

We have also frequently noticed that the flowers themselves, remain perfect and fresh much longer than in the East, where the scorching sun causes the Roses to drop their leaves before they are fairly opened.

We shall now enumerate a number of flowering shrubs which deserve a place in every garden, and which are known to grow here to perfection:—

Diosma alba.—This plant is not generally known among our amateurs, or it would certainly be cultivated much more extensively. It is an evergreen with delicate foliage and graceful habit; its small white flowers are very numerous. The foliage as well as the flowers are exquisitely fragrant, particularly so when the branches of the plant are moved or shaken. Foliage as well as flowers are exceedingly pretty for bouquets. The *Dios-*

ma alba flowers here out of doors during the winter months, and continues in bloom during spring and summer. It attains a height of from two to four feet, and may be trimmed into any shape and style. It is easily propagated by planting the young shoots in sand, under glass, and keeping them shaded for a time in a warm situation.

Plumbago, bears flowers in clusters of a beautiful blue, and is in bloom during the whole year. It is an evergreen, and may be used as a climber, but we prefer seeing it cultivated as a shrub. The flowers are not fragrant but very desirable for their fine blue color. The *Plumbago* is propagated by cuttings under glass, which, however, do not strike very readily, as they are apt to turn black before making roots. This shrub grows very luxuriantly in and about San Francisco.

Polygala, an evergreen flowering shrub of great merit. Its foliage is pale green, and its flowers of a light purple. During the entire winter and summer this shrub is literally covered with flowers, but particularly so during our winters. It may be trimmed into any shape and at any time. Undoubtedly it would make a beautiful ornamental hedge. The *Polygala* is propagated by cuttings of the young wood, and strikes root readily if placed under glass in clean sand, and in a moderately warm situation; care must be taken, however, to keep the cuttings free from insects and the soil well drained. Too much moisture will cause them to rot.

Deutzia, is one of the prettiest deciduous flowering shrubs we have. It is a native of Japan, but has been cultivated in the United States and Europe for many years. Its flowers are of a pure white in the shape of little bells. Although it has no fragrance, yet its graceful habit and purity of color make amends for it. It flowers in the early part of spring, but may be easily forced under glass. The best known varieties are *D. gracilis* and *D. scabra*. They are propagated by cuttings, offshoots, or by dividing the roots; are easily transplanted, and grow well under ordinary treatment.

Laurstinus, is so well known here that no description is required from us. Many refuse to cultivate this shrub because "it is common," as they say. We do not justify the discarding of any class of plants on this ground. If a plant merits extensive cultivation, and our climate is well adapted for its successful growth, it should be one of our favorites. The *Laurstinus* deserves a very extensive cultivation. It flowers with us at all times, and is an evergreen. It may be trimmed into any shape, and its propagation is very easy. It may be grown by cuttings, like the *Polygala* and others, or by layers. It makes an excellent ornamental hedge, and its white swanlike flowers are very extensively and advantageously used for bouquets and other floral decorations.

Lilac, of which the blue, white and Persian varieties are known here, is an old favorite shrub, but we have frequently noticed that it does not bloom so freely with us in San Francisco, as we have had the pleasure of seeing it in Europe and in the East. The Persian *Lilac* flowers much better than the others, but we prefer the purple and white on account of the fragrance of their flowers, which are much larger than those of the Persian. Give them a warm and somewhat protected situation, and they will both thrive and bloom well. Suckers should be broken off whenever they appear near the stock on the surface, as they draw away much of the strength of the plant which would otherwise develop itself in flowers. The *Lilacs* are easily propagated from cuttings, which may be planted in the open ground where there is sufficient moisture for vegetation; also from the suckers which come from the roots, and which will grow readily and forthwith, having mostly a few roots, when taken off the parent plant.

Spiraea (Bridal Wreath), is another victim of bad taste and unjustifiable prejudice. Many hesitate to cultivate it, because they consider it common. The *Spiraeas*, and particularly the double flowering, deserve a conspicuous place in every collection of flowering plants. They flower early in spring, be-

fore the leaves are fairly developed, and their stems are completely covered with white flowers. Their appearance is graceful, and with a great deal of propriety they have been called the Bridal Wreath. They are of easy cultivation and are satisfied with almost any kind of soil. They are propagated without any trouble from cuttings or by division of the roots, which are easily transplanted. They grow from two to four feet in height. The most favorite varieties are, *S. Douglassii*, *prunifolia* and *rosea*.

Philadelphus grandiflorus (Mock Orange), a very remarkable shrub, robust in growth, in bloom here for several months. This shrub will thrive well in any kind of garden soil, and grows to a considerable height; we have seen it covering large arbors and garden frames. Its flowers are very fragrant, and it is said by some, that the perfume will produce headache when inhaled in excess. Strangely enough, the flowers here are much less fragrant than they are in the older countries. It is easily cultivated and propagated, and we should like to see it in every garden. It requires about the same treatment as Lilacs and Deutzias.

Bouvardia, is a most exquisite flowering shrub, and we are sorry to say it has been exclusively cultivated as a greenhouse plant on this coast, when no doubt can be entertained that it is well adapted for open air cultivation. The colors of the flower are white, pink, rose and deep red, and of a waxy appearance. In the open air it flowers during the whole year, and makes a bushy, compact growing shrub, while under glass it will always grow spindling and rarely flowers. We do not know of any specimens growing out of doors, but we hope to see it so treated. One reason for this is, probably, that the Bouvardias are very little known here except to our nurserymen and florists, who keep only a small stock on hand, as there seems to be no sale for them. Once introduced properly into our gardens, the Bouvardias cannot fail to become popular. The best and surest mode of propagation, is by cut-

ting up the roots of the plants in small pieces a quarter to half an inch in length, each one of which will form a new plant in course of a month or two, if covered with light soil to the depth of about one fourth of an inch and placed close under glass in a warm situation.

In one of our next numbers we shall conclude our descriptive list of flowering plants, which comprises the most noteworthy species.

TIMBER TREES.

[Continued from page 327, of last number.]

MISCELLANEOUS TREES, NOT CONIFEROUS.

Acacia decurrens Willd. (*A. mollissima* *A. dealbata*.)

The Black Wattle or Silver Wattle. From the eastern part of S. Australia, through Victoria and N. S. Wales, to the southern part of Queensland, in open plains a small or middle sized tree, in deep forest recesses a lofty tree, of singularly rapid growth. Its wood can be used for staves and many other purposes, but its chief use would be to afford the first shelter, in treeless localities, for raising forests. Its bark, rich in tannin, and its gum, not dissimilar to Gum Arabic, render this tree also important. Other quick growing trees, useful in various ways, growing in any soil and enduring drought, can be used simultaneously, by mere dissemination, in ploughed ground, for dense temporary belts of shelter, or for quick yielding fuel plantations, such as *Acacia pycnantha*, *A. lophantha*, *Casuarina quadrivalvis*, *C. suberosa*, *Eucalyptus melliodora*, *E. viminalis*, and many other Eucalypts, all easily growing from seed.

[The *Acacia decurrens* thrives well on the Pacific coast, and besides being a useful tree, is a beautifully ornamental one. Many specimens are growing in our gardens around the Bay.—Ed.]

Acacia homalophylla.

The Victorian Myall, extending into the deserts of N. S. Wales. The dark brown wood is much sought for turner's work on

account of its solidity and fragrance ; perhaps its most extensive use is in the manufacture of tobacco pipes. Never a tall tree.

Acacia melanoxylon.

The well known Blackwood of our river flats and moist forest valleys, passing also under the inappropriate name of Lightwood. In irrigated valleys of deep soil the tree will attain a height of eighty feet, with a stem several feet in diameter. The wood is most valuable for furniture, railway carriages, boat-building, casks, billiard tables, pianofortes (for sound-boards and actions), and numerous other purposes. The fine-grained wood is cut into veneers. It takes a fine polish, and is considered equal to the best Walnut. Our best wood for bending under steam. For further details, refer to the volumes of the Exhibitions of 1862 and 1867.

[The last two Acacias are very scarce with us yet, but they will also thrive well in our climate.

Mr. Mueller next refers to the different kinds of Maple trees, many of which are well adapted to the climate and soil of the Pacific coast.

Maples are desirable for various purposes ; they furnish superior charcoal, and are used for fine furniture and musical instruments.

We select the following out of the list arranged by Dr. Mueller.—Ed.] :—

Acer campestre.

Extends from Middle Europe to North Asia. Height forty feet, in shelter and deep soil. The yellow and purple tints of its foliage in autumn render the tree then particularly beautiful. The wood is compact and fine-grained, and sought after for choice furniture. The tree can be trimmed for hedge growth. Comparatively quick of growth, and easily raised from seed. These remarks apply to almost all kinds of Maples.

Acer dasycarpum.

The Silver Maple of North America. Likes rather a warmer climate than the other American Maples, and is therefore particularly desirable for us here. Height fifty feet; wood

pale and soft, stem sometimes nine feet in diameter.

Acer saccharinum.

One of the largest of the Maples. In the colder latitudes of North America, eighty feet high. Wood of rosy tinge, when knotty or curly, it furnishes the Birdseye and curly Maplewood. In the depth of winter the trees, when tapped, will yield the saccharine fluid, which is so extensively converted into Maple sugar, each tree yielding from two to four pounds a year. The trees can be tapped for very many years in succession, without injury. The Sugar Maple is rich in potash. Numerous other Maples exist, among which as the tallest, may be mentioned: *Acer Creticum*, L., of South Europe, forty feet; *A. levigatum*, *A. sterculiaceum* and *A. villosam*, Wallich, of Nepal, fifty feet; *A. pictum*, Thunb, of Japan, thirty feet.

Æsculus hippocastanum.

Indigenous to Central Asia. One of the most showy of deciduous trees, more particularly when during Spring "it has reached the meridian of its glory, and stands forth in all the gorgeousness of leaves and blossoms." Height sixty feet. It will succeed in sandy soil on sheltered spots; the wood adapted for furniture; the seeds a food for various domestic animals; the bark a good tanning material. Three species occur in Japan, and several, but none of great height, in North America and South Asia.

Ailantus glandulosa.

S. E. Asia. A hardy deciduous tree, sixty feet high, of rather rapid growth, and of very imposing aspect in any landscape. Particularly valuable on account of its leaves, which afford food to a silkworm (*Bombyx Cynthia*), peculiar to this tree; wood pale yellow, of silky lustre when planed, and therefore valued for joiners' work. In South Europe planted for avenues.

Alnus glutinosa.

The ordinary Alder. Throughout Europe and extra tropical Asia, seventy feet high; well adapted for river banks; wood soft and light, turning red, furnishing one of the best

charcoals for gunpowder; it is also durable under water, and adapted for turners' and joiners' work. *A. incana* Willd., is an equally high and allied species.

Amyris terebinthifolia.

Brazil. Is here perfectly hardy, and is content in dry ground without any irrigation. It proved one of the best among the smaller avenue trees, is beautifully spreading and umbrageous, and probably of medicinal value.

Angophora intermedia.

South East Australia. This is the best of the Angophoras, attaining a height of fifty feet, and growing with the rapidity of a Eucalyptus, but being more close and shady in its foliage. It would be one of our best trees to line public roads, and to afford shelter plantations.

[Of the last three varieties there are none cultivated on this coast, but we do not see why they should not be introduced here, as they seem to be well adapted to our climate.

Mr. Mueller next describes a number of varieties of *Betula* (Birch). We do not think favorably of them for cultivation here, and various trials of them have not been successful.—Ed.]

Castanea sativa.

The Sweet Chestnut Tree. South Europe and temperate Asia, as far as Japan, and a variety with smaller fruits extending to North America. It attains an enormous age; at Mt. Ætna an individual tree occurs with a stem two hundred and four feet in circumference. The wood is light and coarse-grained. The importance of the tree rests on its adaptability for shade plantations, its nutritious nuts and its timber value.

Casuarina glauca.

The Desert Sheoak, widely distributed through Australia, but nowhere in forest-like masses. This species attains, in favorable places, a height of eighty feet. Its hard durable wood is valuable. Important for its rapid growth, its resistance to exposure for shelter plantation, and a speedy supply of

fuel, a remark which applies also to the following specie.

Casuarina quadrivalvis.

The Coast Sheoak of South-east Australia, not only lives in coast sand, but also on barren places up to the hills inland. Height to sixty feet. The male tree is very eligible for avenues, the foliage of the species being drooping. Cattle are fond of the foliage. For arresting the ingress of coast sand by belts of timber, this is one of the most important trees. It produces, like other Casuarinas, seeds early and copiously, and is easily raised.

[The Casuarinas seem to do well here under ordinary treatment. As ornamental trees they have been discarded by many of our gardeners, their habitus being not very satisfactory to their taste; but we saw some very fine and well grown specimens in the nurseries of Mr. Nolan, of Oakland, and we are satisfied that their cultivation should be encouraged.

We now come to the different varieties of the Eucalyptus; and as this tree is now so largely planted upon this coast, we feel justified in devoting considerable of our space to a description of the leading varieties, with special reference to their utility and adaptability to our climate.—Ed.]

Eucalyptus amygdalina.

In our sheltered, springy forest glens, not uncommonly attains a height of over four hundred feet. The stem is smooth and the leaves broad. Its seedlings also produce a foliage different from the ordinary *E. amygdalina*, occurring in more open country.

This species or variety, which might be called *Eucalyptus regnans*, represents the loftiest tree in British territory, and ranks next to the *Sequoia Wellingtonia* in size anywhere on the globe. The wood is fissile, well adapted for shingles, rails, for house-building, for the keelson and planking of ships, and other purposes. Labillardière's name applies ill to any of the forms of this species. Seedlings raised on rather barren ground near Melbourne have shown the same amaz-

ing rapidity of growth as those of the *Euc. globulus*; yet, like those of *Euc. obliqua*, they are not so easily satisfied with any soil.

Eucalyptus citriodora.

Queensland. It combines with the ordinary qualities of many Eucalypts the advantage of yielding from its leaves a rather large supply of volatile oil of excellent lemon-like fragrance.

Eucalyptus diversicolor.

The Karri of S. W. Australia. A colossal tree, exceptionally reaching to the height of four hundred feet, with a proportionate girth of the stem. The timber is excellent. Fair progress of growth is shown by the young trees, planted even in dry, exposed localities in Melbourne. The shady foliage and dense growth of the tree promise to render it one of our best for avenues. In its native localities it occupies fertile, rather humid valleys.

Eucalyptus globulus.

Blue Gum Tree of Victoria and Tasmania. This tree is of extremely rapid growth, and attains a height of four hundred feet, furnishing a first-class wood: ship-builders get keels of this timber one hundred and twenty feet long; besides this they use it extensively for planking and many other parts of the ship, and it is considered to be generally superior to American Rock Elm. A test of strength has been made between some Blue Gum, English Oak, and Indian Teak. The Blue Gum sustained fourteen pounds weight more than the Oak, and seventeen pounds four ounces more than Teak upon the square inch. Blue Gum wood, besides for ship-building, is very extensively used by carpenters for all kinds of out-door work, also for fence rails, railway sleepers (lasting about nine years), for shafts, and spokes of drays, and for a variety of other purposes.

Eucalyptus gomphocephala.

The Tooot of S. W. Australia; attains a height of fifty feet. The wood is close-grained, hard and not rending. It is used for ship-building, wheelwrights' work and other purposes of artisans.

Eucalyptus marginata.

The Jarrah, or Mahogany Tree of S. W. Australia, famed for its indestructible wood, which is attacked neither by Chelura nor Teredo nor Termites, and therefore so much sought for jetties and other structures exposed to sea-water, also for any underground work, and largely exported for railway sleepers. Vessels built of this timber have been enabled to do away with all copper-plating. It is very strong, close-grained, and of a slightly oily and resinous nature; it works well, makes a fine finish, and is by ship-builders here considered superior to either Oak, Teak, or indeed any other wood. The tree grows chiefly on iron-stone ranges. At Melbourne it is not quick of growth, if compared to our Blue Gum (*E. globulus*, Lab.) or to our Stringybark (*E. obliqua*, P'Her.), but it is likely to grow with celerity in our ranges.

Eucalyptus rostrata.

The Red Gum of Victoria, South Australia and many river flats in the interior of the Australian continent. Although a native tree of this colony, it has been introduced into this list on account of its wood being of extraordinary endurance under ground, and for this reason so highly valued for fence-posts, piles and railway sleepers; for the latter purpose it will last at least a dozen years, and, if well selected, much longer. It is also extensively used by ship-builders—for main stem, stern post, inner post, deadwood, floor timbers, futtocks, transomes, knight head, hawsepieces, cant, stern, quarter and fashion timber, bottom planks, breasthooks and riders, windlass, bowrails, etc. It should be steamed before it is worked for planking. Next to the Jarrah from West Australia, this is the best wood for resisting the attacks of sea-worms and white ants.

Eucalyptus sideroxydon.

Iron-bark Tree. Attains a height of one hundred feet and supplies a valuable timber, possessing great strength and hardness. It is much prized for its durability by carpenters, ship-builders, etc. It is largely employed

by wagon-builders for wheels and poles; by ship-builders for topsides, treenails, the rudder (stock), belaying pins, and for other purposes; it is also used by turners for rough work. This is considered the strongest wood in Australia. It is much recommended for railway sleepers and underground mining work.

[To be continued.]

A FEW NOTES

On certain Varieties of Fruits especially suitable for the Soil and Climate of California.

Longworth's Prolific Strawberry is evidently the favorite variety of this fruit, and is the sort most cultivated in this State. It is a seedling which was raised, in 1848, by Mr. Schneicke, a tenant of the famous horticulturist and millionaire, Nicholas Longworth, at a station of the latter named the "Garden of Eden," only half a mile from Cincinnati. Its flowers are hermaphrodite, vines very hardy. Fruit, above medium to large, sometimes irregular in shape, but generally regular; flesh firm, bright red, sub-acid, rich, high, but not very delicate in flavor. Ripens in medium season. For market culture it is very valuable, being immensely productive.

Red Astrachan.—An Apple of extraordinary beauty, first imported into England with the White Astrachan, from Sweden, in 1816. It bears abundantly in this State, and generally well in other climates suitable for the Apple, and its singular richness of color is heightened by an exquisite bloom on the surface of the fruit, like that of a plum. It is one of the handsomest dessert fruits, and its quality is good, but if not taken from the tree as soon as ripe, it is liable to become mealy. It ripens here about May or June. It is pretty large, rather above the middle size. Skin almost entirely covered with deep crimson. The first crop comes in, in April; the second crop, this year, did not come in until August; the third crop, in October.

Seckel Pear.—This is—unfortunately for its very ready sale—a small fruit, especially when

too many are allowed to remain on the tree; but owing to this American fruit being one of the richest, if not the very richest flavored variety known, it is beginning to be duly appreciated by the public. The *Belle de Flandres*, or *Flemish Beauty*, approaches as nearly to it as any pear in sweetness, richness and great juiciness. It is, too, about the healthiest and hardiest of all pear trees, although these qualities are not found to be so important in this mild climate as in the East.

The *Seckel* originated on the farm of Mr. Seckel, about four miles from Philadelphia. If the fruit is properly thinned out in rich soils in California, the size of this Pear becomes quite respectable; but this is rarely the case, owing to the labor in thinning costing too much in the opinion of most cultivators, particularly if they are rather distant from good markets. Season: from August to October.

Green Gage Plum, or *Reine Claude*.—This unequaled fruit I find as yet but very sparsely cultivated here—I mean the genuine article. There are other plums raised under the same name, or offered for it on the stalls, but almost as far from it in high, preserve-like flavor as the Crab-apple is from a Newtown Pippin. This fruit is universally admitted to hold the first rank in flavor among all plums, and is in every land where grown, highly esteemed. It is said to have been introduced into France by Queen Claude, wife of Francis I. During the last century, an English family by the name of *Gage* obtained a number of fruit trees from the monks of Chartreuse, near Paris. It is rather a slow growing tree comparatively, even in this fast growing climate. It is an abundant and pretty regular bearer. I have not found it to crack in this dry country. Fruit round and rather small, but here, when in suitable soil and aspect, it is often of nearly medium size. Skin darkish green, or only slightly yellowish at full maturity, when it is generally dotted or blotched with brown-reddish spots or blushes next the sun—suture faintly marked. Flesh pale green, exceedingly melting and juicy, and separates well from the stone. Flavor at

once sprightly and very luscious. Ripe about July and August. The finest specimens I have met with were at Mr. Thompson's orchards, at Suscol, Napa County. There are several seedling varieties of this plum, but none that I have met with equal to the old. I strongly recommend fruit cultivators to give considerable attention to this unequalled fruit, and the discriminating public will not be slow to appreciate its worth, as with the Seckel Pear. This plum rejoices (if it can be any matter of gratulation) in numerous synonymes, among sixteen of these: Bruyn Gage, Reine Claude, Grosse Reine, Damas Vert, Vert Bonne, Sucre Vert, etc., indicating its great value.

Napoleon Bigarreau Cherry, or generally, here, called Royal Anne, is one of the finest of the firm-fleshed cherries; very large, well flavored, handsome, and wonderfully productive even in this prolific country. It was introduced into the United States from Holland by the late Andrew Parmentier, of Brooklyn, N. Y. Fruit of the largest size, sometimes three inches in circumference; very regularly heart-shaped, a little inclining to oblong. Skin pale yellow, becoming amber in the shade, richly dotted and spotted with very deep red, and with a fine marbled dark crimson cheek. Flesh very firm, (almost too much so,) juicy, with an excellent flavor. Ripens about June, and is a good, constant and immense bearer, as was proved by a most astonishing specimen of fruitfulness shown at the Industrial Exhibition, in the Department of the Bay District Horticultural Society. This cherry is firmer in texture than the *Bigarreau* or *Couleur de Chair*.

Madaline or *Madeleine* Pear, or *Citron des Carmes*.—I first tasted fine specimens of this most refreshing and excellent of early pears at the Suscol Orchards, about forty miles from this city. It seems to me to be much the best at the time of its ripening—before the Bloodgood, and especially before some of the early abortions called pears. It takes its name from its being in perfection, in France, at the Feast of St. Madeleine. It is

called, also, *Citron des Carmes*, from its being first cultivated by the Carmelite monks. It richly deserves a place in all collections. The tree is fruitful and vigorous, with long erect olive-colored branches. Its size is medium, obovate, but tapering gradually to the stalk. Skin smooth, pale yellowish-green. Season, early in June to last of July.

Easter Buerre Pear.—Now, for a good winter and excellent keeping pear, this is one to bear company with the Glout Morceau and Winter Nelis, and I rather give the preference, for size and flavor, to the Easter B. It is, at any rate, certainly, one of the best late winter or spring Pears. In this moderately warm climate it seems to arrive at full perfection, the Eastern States being rather too cold for it. If packed away in boxes with sawdust, and ripened off gradually in a cool temperature, it is a delicious, melting, buttery fruit with even a tender skin. It grows well, as a standard, trained to a good height and breadth. Fruit large, roundish-obovate, often rather square in figure. Skin yellowish-green, sprinkled with many russet dots, and some russet, which give it a brownish cheek in most specimens. Flesh white, fine grained, very buttery, melting and juicy, with a sweet and rich flavor. The Glout Morceau is very rich, but does not keep so long. The Winter Nelis, also, is sweet and juicy, but does not last like the Easter B. so long into the spring.

E. J. HOOPER.

How to DESTROY ANTS.—It is said of old that "in the multitude of counsel there is wisdom." While disavowing any pretensions to be considered a wisacre, or any wish to disparage the methods suggested by other correspondents for destroying these pests, permit me to recommend to any one so troubled to lightly dust their haunts with the best Peruvian guano, dried, and finely powdered—they seem to shun it as they would a pestilence. I have repeatedly adopted this method, and have recommended it to others, always with satisfactory results.—Geo. Neville, Gr. Leigham Court, Streatham Hill, S. W.

ORNAMENTAL AND LANDSCAPE GARDENING.

SECTION XII.

The pleasure grounds of that class of residence, which we have now under consideration, may extend over the entire enclosure, where there is no other object desired than the cultivation of flowers, shrubs and trees, but when with the enjoyment of country life other purposes are sought for, such as the cultivation of fruits and vegetables, the raising of poultry, etc. etc., the ornamental grounds must necessarily be circumscribed to that portion which immediately surrounds the lawn, reserving the land in the rear for out-houses, kitchen-garden and orchards.

This rule is of general character; in many cases it may become necessary to deviate from it; all will depend upon the nature of the ground, and upon the expense families may be willing to incur for ornamental purposes.

We will now go into details, and endeavor to furnish our readers with our own experience, and that of many eminent landscape gardeners in laying out, planting and embellishing grounds of the extent of from one to two acres. In doing so, we shall first treat of the

Approach road, respecting which, Loudon says: "The approach road, next to the house and offices, is one of the most important features of a place, not only on account of its uses, but because it is that, by which an impression, favorable or unfavorable, is first made on a stranger."

Many mistakes are made in fixing the course of the approach road, and the road is frequently in direct antagonism to that which was intended. We have seen approach roads traversing the most frequented and most attractive portions of the ornamental grounds before reaching the house, and again, we have seen them constructed, so as to keep constantly within sight of the residence. These are mistakes, and contrary in principle to our rules of landscape gardening. We hold, that the approach road should form the margin of the ornamental grounds, cov-

ered by undulations of the surface, and by the growth of trees and shrubs, in such a manner, as to confine the view to the immediate surroundings, and to conceal the most prominent features of the grounds from first sight.

The approach road, should enter at right angles, or nearly so, with the enclosure or public road, and its length should be as much as possible, the direct distance between the entrance to the grounds, and the entrance to the house, making allowance for graceful curves, which are necessitated by the undulations of the surface, or by other obstacles. The road should be on a gradual rise, if possible, all the way, as we have stated on several previous occasions, unless the undulations of the surface make a slight descent necessary.

Cases have come under our observation, where approach roads were lined with single or double rows of trees. It is not necessary, we believe, to say, that this is altogether out of taste. Such planting is well adapted for public roads, or long drives, but it will never do for approach roads within the enclosure.

The approach road should arrive alongside of the porch, having the front door to the left. This will enable ladies to alight from the carriage within cover of the house. The road should merge into the return road, or may pass on the opposite side of the house, where it may lead through dense groups of shrubs and trees, to the stable or carriage house. A proper width for the carriage road is sixteen feet; this may appear an extreme width, but we insist, that much of the appearance and dignity of a country residence depends upon the width of the drives and walks.

The surface of the road should be on a level with the grounds, over which it passes; never will it be justifiable to raise the road above the level, or to form embankments, or make cuttings through the rising ground.

The planting of trees and shrubs along the approach road, is also important. Where no direct necessity exists for curves in the road, the planting and growing of shrubs

and trees is needed, to create plausible reasons why curves should be formed. But this is not all. We have stated before, that the approach should form part of the ornamental grounds, and for this reason, the grouping should be planned in such a way, as to form the foreground or margin to the ornamental grounds and surrounding scenery. By such arrangement, the approach will be most pleasing to the eye of the visitor, and the first impression will be favorable, and not likely to cause disappointment.

There is nothing further left for us to consider but the material out of which the road should be constructed. This depends, to a great extent, upon the resources near at hand. The road must be hard, durable and smooth. Any stone, which is easily broken, will answer for a road bed, but for the surface, material is needed which will grind up into powder, and which will give a clean appearance. Broken slate, passed through a quarter inch screen, or ordinary gravel, will answer best. In many localities, in this State, beds of gravel are found mixed with a small percentage of cement; if properly screened, this forms a most compact and smooth surface.

While the approach road forms a necessary portion of the surroundings of a country residence, and while its proper management is indicative of the style and manner in which the ornamental grounds and the house itself are arranged, it forms but a subordinate feature to the

Ornamental Grounds, which are the next subject for consideration.

The ornamental grounds of a third-rate, suburban, or country residence, are of an extent to admit a number of walks, lawns, flower-beds, groups of trees and shrubs, single specimen plants, and other embellishments which may be introduced, in accordance with the means at hand.

Walks are necessary structures for comfort, but their real design, is to bring us within sight of the various points of interest, which form the attractions of the place. If a walk is constructed merely for the purpose of having a walk, or if a bend is made in order to

avoid a straight line, it shows an absolute disregard for Nature's laws. What we have said in this connection, with regard to the approach, applies with equal force to the walks. They should be formed apparently, to touch, and to bring us in contact with points of interest, which may be artificial or natural; and if curves are needed, obstructions must be made to appear, if they do not already exist in nature. Walks are necessary, but unless they are justified, we should do without them.

The greatest fault we find in most of our gardens here, is the endless number of walks by which lawns are cut up into small strips, offensive to the observer.

In our next, we shall lay down some rules for the formation of walks.

POPULAR BOTANY.

CHAPTER XII.

In our descriptions thus far of plant life, we have confined ourselves to its development and growth; but we now come to consider a new phenomenon that gives rise to new organs, the production of which round out the circle and complete the work of vegetable life. These organs are those of reproduction, and the phenomenon is that of flowering.

All plants have certain definite periods for coming into flower, determined by the class to which they belong. In annuals, this process commences a short time after their development from the seed, and as the plant has no reserve of sap, (the process being an exhaustive one,) it dies by the time the seeds are ripened. In biennials, flowering does not take place until the second year, when the stored-up sap of the previous year is consumed and the plant perishes. Perennials on the other hand, do not bear flowers for a long period, (in some several years being required,) or, when the plants are well established, and thus enabled to stand this exhaustive process without injury to themselves.

The mode of arrangement of flowers upon their stems or branches, is termed *inflorescence*; the simplest kind of which is a single flower, that is to say, where the flower-stalk or *peduncle*, as it is called, is tipped by a solitary flower. All flowers are not placed upon a peduncle, but many are found springing directly from the flower-stalk, in which case they are said to be *sessile*. Where flowers are developed in the axils of leaves, (their points of attachment to the stem or stalk,) the main stem is then called the peduncle, and included in the inflorescence, while each separate stalk which bears a flower, is called a *pedicel*; the leaves of the plant out of which this pedicel arises being termed *bracts*.

The production of a single flower in the axil of each leaf, (supported on a pedicel,) while the main stem continues to elongate, forms what is called a *raceme*, an example of which can be found in the Currant. *Corymbs* and *umbels* are but modified forms of a raceme. In the first, we find the lowest pedicels so elongated as to place their flowers on a level, or nearly so, with the upper ones; while in the second, the pedicels all arise from one point, forming a cluster of flowers which in outline might be compared to a bell-glass with its mouth turned upwards. Examples of this form are seen in the Primula, Water Hemlock, etc.

As said in the first part of this chapter, all flowers are not placed upon pedicels, but are often found springing directly from the flower stem; yet here, the system is much the same as in former cases, a *spike* being but a raceme with the flowers sessile, or in other words without proper stalks. When a spike is enclosed by a large bract, or enveloping leaf, such as is seen in the common *Calla* in our gardens, it is termed a *spadix*. *Catkins* (of which the Willow and Poplar furnish examples) are a kind of spike having small scaly bracts, which are produced so close together as to make a continuous mass of flowers and bracts along the entire length of the peduncle.

As the three forms of inflorescence just named, might be said to be but modifications of a raceme, so do we find the corymbs and

umbels modified by what is called the *capitulum*, or head, a term given to a round cluster of sessile flowers, which is formed by the absence, or nearly so, of the pedicels to be found in the umbel or corymb. In this case, the point in the head from whence the flowers arise, is termed the receptacle. The capitulum being flat, or slightly depressed, allows a large number of flowers to stand on its surface, as we see in the Sunflower, and many other plants of this class, which have from early times been called *Compound flowers*.

The forms of inflorescence, so far described, are but simple ones, and where only a single flower has been developed from a lateral bud. But, as the flower stalks may divide just as the several stems or branches of a plant do, there necessarily results a form of compound inflorescence. Thus, a raceme may become compound by being elongated, and giving off other flowers, similarly arranged as the first, or where the branching is irregular, a *panicle* is formed. This panicle, may also become compound, having the form of a pyramid with contracted base, and it is then called a *thyrsus*, a form of inflorescence which we see in the Grape, Lilac, etc.

We have also, compound corymbs, and compound umbels, which the reader will understand as modified forms of the primary ones. These are the principle forms of inflorescence—all others being but modifications of them.

We shall now take up the flower itself, and endeavor to explain the different parts and their relations to one another. Flowers are divided into two parts; first, the exterior or envelopes, and second, the interior or seed-bearing organs. The envelopes are also divided into two sorts, the lower and outer one of which, is termed the *calyx*, and is generally of the same green color as the leaf of the plant. The second or inner row, is of various colors, being of delicate texture, and unlike in appearance to any other part of the plant; it is called the *corolla*, the several parts or leaves of which, are termed *petals*, the same divisions in the calyx

being called *sepals*. The inner organs are also divided into twos, and are placed in two rows, the outer of which are the *stamens*, and the inner the *pistils*. A stamen is made up of a column which is termed the *filament*, having on its summit a small round body (*anther*) containing a substance in a fine powder called *pollen*. Pistils are divided into three parts, viz: The *ovary*, which is a hollow receptacle containing the *ovules*, which are destined to become seeds; *styles*, prolongations of the apex of the ovary, and the *stigma*, which terminates the style in a round blunt point.



CYCLAMEN.

As winter flowering-plants for garden or window culture, there are few which are more deserving than Cyclamens.

In the East and Europe, their flowering season is during the Spring; but with us, they begin to flower in the Fall of the year, and continue to bloom freely during the entire Winter, in fact, they seem to rest but very little here, our climate being favorable to a continuous flowering. As, however, the Cyclamen is a bulbous root it should have its rest, as the plant will certainly be exhausted in the course of two or three years if kept in constant vegetation; and we are not surprised to hear so frequently of the loss of plants. In the old country, Cyclamens are transplanted every year. After a season of rest, plants treated in this way are in good condition for many years, and show much more vigor.

While some florists plant the bulbs deep, so as to cover the entire root with earth, we know of others who plant them so that one half of the bulb remains above the surface of the ground. Planting them above ground, has the advantage of keeping the crown of the bulb free from moisture, which is often the cause of decay. Experience, however, has shown that bulbs grown in their native soil, do better if planted deep, while bulbs raised from seed and under a state of cultiva-

tion do better by being planted partly above ground.

The most popular variety is the *C. Perri-cum*, of which there are several shades and colors: white, with a pink center; entirely white; spotted with pink; a delicate purple, etc. etc.

They are easily raised from seed, if a little patience is exercised. The seed often lies in the ground for months before germination takes place. The young plants will do much better by being often transplanted, and if properly treated, they will flower in the second year.

The following method for propagation has also been used successfully.

The leaves with the stem, are carefully removed from the bulb, so that a very small portion of the bulb remains on the leaf stalks. These are planted out in pots or boxes, which should be placed close under glass in a moderately warm house. These offsets, as we may call them, will make good flowering bulbs in the following year.

The bulbs may also be divided, but this method is objectionable, as the bulb will never be perfect, and always apt to decay. After the flowering season, the bulbs should be taken up and covered with soil, which should be kept moderately dry, yet sufficient moisture must be given to prevent the bulb from shrinking or drying up. In the Fall of the year, they should be planted in pots and kept in a very shady or even dark place, giving water sparingly, until the roots have again established themselves properly in the new soil. When the first leaves make their appearance give them more light and water, and from the time when they begin to show their flower-buds, frequent watering is beneficial, although the soil should be of a porous nature and well drained. Standing water is very injurious.

TEA-SEED FROM JAPAN.—W. W. Hollister, of Santa Barbara, California, has received fifteen to twenty bushels of Tea-Seed, from Japan, to plant on his farm near Santa Barbara.

WORK FOR NOVEMBER.

The rainy season is fast approaching, and as many have suffered during the past season through neglecting to plant early, we have every reason to believe that their sad experience has made our cultivators wiser, we therefore anticipate active preparation for early planting.

The fruit crops are gathered in, with the exception of the very late Winter fruit in the foothills, which will improve by letting it remain upon the trees as long as possible.

Wherever the Grape crop has been an unusually large one, the harvesting has not been entirely completed during the past month, and much work is still on hand in making wine and storing it.

In most parts of the State, the young wood, both of vines and fruit trees is sufficiently hardened to permit pruning, and we advise that this work be done at the earliest opportunity. After pruning, and as soon as the first rain has come, the ground of orchards and vineyards should be thoroughly plowed.

In the pruning of fruit trees, we frequently observe that serious mistakes are made in attempting to give trees a uniform shape. If this were practicable, we would be very much in favor of it; but when we take into consideration that the character of one Apple tree differs as much from another variety, as the Oak does from the Weeping Willow, it will at once be very apparent, that by pruning, a uniformity of growth cannot be established. While one variety of Apples has a tendency to an upright growth, we find another which spreads, and still another which grows weeping. To preserve the character of a tree, must be the object of pruning, and the operator, therefore, requires to be a man who understands something about it.

While some neglect pruning entirely, and permit their orchards to go to ruin, we have met with others, who prune too much. In regard to this, we would say that young trees, particularly after transplanting, should be cut back considerably, in order to give them strength, body and shape, but after they

have once commenced bearing fair crops, less and less pruning should be resorted to every year. Trees which are in bearing condition, should be kept clean of suckers and water-shoots, and such branches only should be cut out, which interfere with each other. This applies principally to Apple and Pear trees. Cherry trees need but very little pruning, except to keep them clean from suckers, and to cut away the chafing branches.

We may say the same about Nut trees, and would advise our readers not to cut off the tops of young trees, as many do very erroneously.

Peach trees should receive severe pruning every year, but we object to the cutting away of some of the largest limbs merely for the purpose of reducing the size of the tree. The young wood should be cut back about half or two-thirds of its length.

In the kitchen garden, little remains to be done until the rain comes. Cabbage, Cauliflower and Tomatoes, may be sown in frames for early planting. As soon as the first rains come, prepare some ground for Lettuce, Onions, Radishes, etc., which will readily grow in climates similar to that of San Francisco. Asparagus beds should receive early attention; the beds should be cleaned and spaded to the depth of from eight to ten inches.

Early Peas may be planted very successfully.

The flower garden has its worst time during November; flowers are very scarce, and florists have difficulty in procuring sufficient for their business. Shrubs and trees should receive a thorough pruning. After the first rain the ground should receive a good top-dressing of manure, and subsequently, a thorough spading. Whatever is to be transplanted, should be done now. Dahlias are better out of the ground and stored away in a dry, cool room.

Greenhouse-plants should be watered carefully. Gardeners are apt to give too much water during the Fall and Winter months.

Cinerarias, Cyclamens and Chinese Primroses, should receive the attention of florists in order to have them in bloom at the begin-

ning of January. The best place for them is close under glass. Cinerarias may have plenty of water, if a warm and sunny exposure can be given. Primroses and Cyclamens do better in a partly shaded place.

Camellias require an abundance of water as their flowering season approaches.

All kinds of seeds of greenhouse-plants and evergreens, may be sown in boxes and pots as soon as they ripen. It is much better for the seeds to be in the ground than to lie upon the shelves, especially as without resorting to artificial heat, the Autumn and Winter months with us, are generally more favorable for the germinating of seeds under glass.

Hyacinths can be safely planted for greenhouse and window culture. After potting, place them in a dark room for a week or two, and allow them to form roots before the leaves make their appearance.

The vines in Graperies must be kept very dry and airy.

PLANTING VINEYARDS.

There is nothing about Grape culture which requires so much careful attention as the planting of the vineyard.

First. The ground should always be plowed *twice*, and plowed deep. If there are any wet places in it, either an underground or surface drain should be made; the ground should first be plowed as soon as the rain falls, and the second time immediately before planting.

Second. If cuttings are used instead of roots, the holes should be made with a shovel for their insertion, and *the entire cutting should be covered up*. Planting Grape cuttings with a crowbar is simply barbarous. If the season is dry, not one in three of them will root; while if the ground is well prepared and holes are dug for them, at least eighty per cent. ought to grow. Nothing can be made by planting a vine yard hurriedly.

Third. The planting should be done early, so that the rains which fall after the planting, may settle the earth close about the cutting,

which should be fresh from the vine, that is, recently pruned; and from the time of its removal from the parent stock until it is planted, it should be kept in a moist place or completely covered up with straw or earth. It is true that cuttings, although dried and withered by the sun and atmosphere, will *sometimes grow*; yet, as it is desirable to secure a *successful* growth of a vineyard, such experiment would prove dangerous. If the cuttings have been pruned for any length of time, they ought at least to be soaked in water one or two days before planting out. By doing this, the fine particles of earth cling around the bark and keep the external portion of the rod perfectly moist.

Fourth. Vines are usually planted from six to eight feet each way—from six to seven feet is the most advantageous distance. The question of distance, however, depends much upon the character of the soil. I would never plant vines eight feet apart; my experience is, that this is unnecessarily distant. The rows should of course be made straight, and small pins or stakes should be placed at each plant to indicate its locality, else by the first plowing the cutting may be disturbed, and most probably killed. It is an easy matter to cultivate Grapes when once started, but it is a difficult task to sufficiently impress upon the minds of vineyardists, and especially new beginners, the great necessity for careful planting. If the cutting is *entirely covered up* by earth—which *should always be done*, then from fifteen to eighteen inches is a sufficient length for the cuttings.

M. M. ESTEE.

RAISING APPLES AND PEARS IN DRY SEASONS. An eminent Pomologist in Brussels, De Jonghe, has succeeded in obtaining well-grown Apples and Pears in dry seasons by watering the trees from time to time, and by making holes in the ground underneath them and occasionally introducing some liquid, but not very highly concentrated, manure. This application is stated to be particularly important at the time when the fruit is setting.

REPORT ON THE FRUIT MARKET.

Although there are a few localities in the eastern portion of the States, where there are fruits grown with fine complexions, high color and of large size, yet these places are few compared with similarly favored localities in this State. A glance only, at any of our fruit stands, where the fruit is good and of many varieties and well arranged in the boxes or compartments, will convince any person who has had any experience in such matters, that for the liberal developments of nature in brilliant and splendid paintings, varied colors and grand effect, combined with magnitude of measurement, no fruit stores in any other part of the world can rival California in these respects. Indeed, so much is this the case, that many fruits cultivated in this region, can hardly be identified as the same varieties as those grown in the more easterly States.

What is the cause of this very striking difference between the products of California and those of the other States? The following may be assigned as some of the reasons: that in the Eastern States, there is a great fickleness of weather and temperature—the extremes of heat and of cold;—excessive rains, and sometimes great droughts;—in some years in the autumn, a favorable ripening of the wood, while in others this is incomplete; and at all times, the serious ravages and injuries of destructive and noxious insects, which disfigure the fruits and damage the trees themselves. Here, on the contrary, there is comparatively, uniform and equable climate and temperature. How much brightness of sunlight have we,—what a continuous and almost unchecked growth,—how few troublesome insects, and what a naturally rich and deep soil!—in short, as a writer in one of our agricultural papers observes: “California is one of the best growing countries in the world, and we really have no true standard by which to compare and test the names and qualities of our fruits.” This year, all our fruits seem to have outshone themselves in beauty and lustre, and the products of Po-

mona, in our markets are, even for this region, unusually bright and pure in appearance, and from the greater number of varieties, especially of Apples, uncommonly gorgeous and attractive in their appearance.

The great abundance of Grapes in the market this month, is particularly noteworthy, and the unusually large size of bunches and berries, and the fine rich coloring, especially of the Flaming Tokay and Rose of Peru with some others, renders the display much more attractive than last year. The flavor of the Muscat of Alexandria, when fully ripe, is very luscious to the palate,—but, the general quality of the majority of the Grapes in market is rather inferior this season. The apples are; on the contrary, superior in both quality and appearance, the coolness of the summer having been much in their favor for both flavor and juiciness.

For the information of fruit raisers at a distance from this State, we will give a brief account of the time when the different fruits come in here. Strawberries, in general, appear about the beginning of June. Apricots in June and July. Peaches in the latter part of June and beginning of July; Figs the same; Plums, too, are then plentiful. Raspberries, Goosberries and Blackberries, about the beginning of July. In August, commences the melon season. Grapes from May to December and January.

Most of the vegetables may be said to be here all the year round. The last of the Blackberries came in on the 10th of this month (Oct.), at twenty cents per pound. In the season, they are from six to ten cents per pound.

The Imperatrice Plum is now in market, partially dried, and very sweet and well-flavored. The Beurré Clairegeau Pear is now in, and very large and beautifully colored, with a rich red next the sun. The later Pears are also on the stalls—and the Easter Beurré, Winter Nelis, Orange Bergamot and White Doyenne. with a remnant of Bartletts. Those coming in are: the Russet

Pear, President, and Glout Morceau. The Nelis is a little later than the above.

As to the vegetables, Asparagus has appeared,—the first of the season, and without rain! It sells now, from twenty-five to thirty cents per pound, in the height of the season from six to eight cents. I see also, yet in market: Gumbo, French Artichokes, Egg and Oyster Plants, with plenty of Green Peas and String Beans. E. J. HOOPER.

BURSARIA SPINOSA.

This beautiful evergreen is a native of New Holland, and is classed in the order of *Pentandria. Monogynia, Pittosporaceae*. It should by all means, be more generally cultivated by our nurserymen, but it seems to be very little known here by our gardeners. Its very beautiful and graceful spikes of pure white flowers, would be quite an addition to bouquets and flower baskets. So far, I have noticed but two plants in our gardens around San Francisco; one at Woodward's Gardens, which is now in bloom; and the other at Wm. Patterson's Nursery, on the San Bruno Road, which is now out of bloom, and has set a few trusses of well developed seeds. It can be grown from cuttings, by taking the half ripe wood, keeping them in a gentle heat under glass, when they will root in about from four to six weeks. The *Bursaria* is a hardy evergreen here, and would make a fine addition to our lawns and gardens. I have had twice, a small quantity of the seeds from Australia, but did not on either occasion succeed in raising them; they could not have been ripe, as, knowing the value of the plant, I took particular care of them. I should like to see this shrub extensively cultivated by our nurserymen, so that we would see a plant of it growing in every garden.

E. L. REIMER.

ONIONS.—Keep the ground free from weeds by frequent hoeing; be careful not to stir the soil very deep. Salt, sown broadcast at the rate of two or three bushels to the acre, is beneficial.

EDITOR:

C. A. STIVERS, M. D.

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F. A. MILLER,

C. STEPHENS.

Editorial Portfolio.

In a country like the United States, where the cultivation of the soil is the great interest, and the one upon which it must depend for a large measure of its permanent prosperity and wealth, it would be but reasonable to expect a large representation of the agricultural element in its legislative bodies.

Just as this conclusion is, yet it is very far from being the case, and we search in vain for evidences of a proper representation on the part of the farming interests. Year after year, our representatives are chosen from a certain restricted class, who seem to have made politics a profession, but for their own aggrandizement. They represent no one but themselves, and have come to look upon the Government and its offices, as existing only for their especial benefit.

While we admit the necessity for a certain number of lawyers and other professional men being selected to represent the people, we also claim, that it is equally necessary, that a like number of agriculturists, and those engaged in the industrial pursuits of the country, should likewise be chosen. As this has not been done, agriculture has been forced to occupy a false and subordinate position, instead of standing in her true and proper place.

This condition of things is wrong, and so long as it continues, agriculture and its kindred branches must languish. The remedy is in the hands of our farming population, if they will only view it in the right light, and use the proper exertions.

The benefits which will be derived from a larger representation of the cultivators of the soil, will not be confined to that class alone; such reform will have its influence over all the land, in the cities and towns as well as in the country districts. It will have

a moral effect upon the entire body politic, driving out in many cases, the professional politicians, and replacing them with honest and upright men. It will bring the hearty, vigorous life of the country into contact with the pent-up existencies of the city, and will pour into the channels of our Legislature a purer and less contaminated vitality.

But, to effect all this, farmers must rid themselves of the impressions, too common among them, that lawyers are necessary to legislate for them; and that the machinery of law is something in which they are but indirectly interested, and which has but little to do with their occupation. They must come to understand, that it needs no special education to state and ably to advocate the wants of a section of the country, or even the necessities of the entire nation, with regard to its agriculture, other than that which they already, and indeed alone possess.

Among our farming people, are to be found men of sound judgment, liberal ideas, large experience and superior scholarship, as well as among the other classes from whence so many of our legislators are selected.

Let our agriculturists, and those interested in the advancement of this interest, look well to this matter, and henceforth strive to attain their proper places in our legislative halls.

Already the subject is commanding attention in the Southern and Eastern States, and it should commend itself to California with special force. In this connection, we give the following extracts from an exchange upon the subject.

"The interests of agriculture are so immense and are so vitally connected with the welfare and prosperity of the whole country, that it is a matter of great surprise that so little attention has been given to it by our law-makers generally. The impression appears to prevail largely amongst farmers that their interests and the interests of the community at large, can be best subserved by sending lawyers and other professional men to the Legislature. In pursuance of this idea, comparatively few farmers are selected, and as a

natural result, agriculture has come to be regarded as a matter of secondary importance so far as legislation is concerned.

The sooner, therefore, that the cultivators of the soil take the position that they are, by virtue of numbers and in the magnitude of the interests involved in agriculture, entitled to a full and fair share of legislative representation, the better it will be for all parties. Let them agree to send as representatives, men of known practical ability and thorough integrity, and they can accomplish it without the least difficulty."

DARLINGTONIA CALIFORNICA.

We have read with a great deal of interest the notes on this much talked of plant, in a late number of the *Pacific Rural Press*. A Mr. Lemmon of Sierra Valley, presented to the *Press* a specimen of the Pitcher Plant, which was recently found at Black Hawk Creek, near Quincy, in Sierra County; and which, from its peculiar and different appearance from what has been heretofore described as the Californian Pitcher Plant, the *Press* pronounces to be a new species.

We have not seen the specimen in question, but from the cut before us, we must certainly consider it the same plant previously described, and which grows in Nevada County.

Mr. Lemmon pronounces it a new species, because its leaves are thirty inches long, while those of the previously exhibited specimens are only about ten inches. But we can assure that gentleman, from our own experience, that we have seen leaves of the same plant in Nevada County, fully thirty inches in length.

As we have not seen the flower, we cannot pass an opinion on it.

As far as the cultivation of the Pitcher Plant is concerned, we entirely differ from Mr. Lemmon, as to the difficulties. At Woodward's Gardens they did not grow, because they were treated as a hot house plant and did not receive proper soil; and not, as Mr.

Lemmon says, because the gardner there "could not produce the cold necessary."

The summers in Sierra County are much warmer than in San Francisco, and it is during the Summer months that the Pitcher Plants are in a developed state. All that this *Darlingtonia Californica* requires, is a strong black loam (or what is much better, peat) and any amount of moisture, and it will then thrive well in the open air.

LAKE TAHOE WATER COMPANY.

We have every reason to believe, that the Lake Tahoe Irrigation scheme will be carried out at no distant day. Colonel Von Schmidt proposes, to cut a tunnel through the Summit, about five miles in length. The immense expense of a work of such magnitude, might have delayed the enterprise for many years, but fortunately, the Central Pacific Railroad Company, saw a great advantage in this Tunnel project, as it would lower the line nearly one thousand feet, and shorten their route considerably.

It is now believed, that both of these companies will act jointly, in cutting through the tunnel, and an early completion of the work is looked for.

We mention these facts, because we attach much importance to a good supply of water for irrigating purposes, and the sooner the work is completed the better. It is estimated, that the supply of water from this source will amount to nearly two hundred million gallons per day.

We hail this enterprise with delight, and hope that nothing will be left undone, to carry the work through at an early period.

A FLORAL CURIOSITY.

The Sacramento *Record* of late date says: "Some time ago Mrs. M. S. King, who resides on Seventh Street, between G. and H., noticed signs of life upon the withered remains of a dead rose. These signs were carefully watched, and presently they put forth a bud, then another, then a third. A

few days ago these three buds blossomed into as many roses, and we have now in our office these three full-blown roses growing from amid the ashes of a former rose, from which, Phoenix-like, they have arisen."

RICE CULTURE IN CALIFORNIA.

The Sacramento *Bee* states that Rice culture has been successful in the swamp lands. In district No. 28, two persons planted a few acres in rice, last year, with results so encouraging as to induce them to greatly extend their enterprise this year. There is reason to believe, that this branch of production may be greatly enlarged in these swamp lands.

CRANBERRY CULTURE.

To many inquiries about the cultivation of the Cranberry on this coast, we may say that our dry lands and our dry climate are not favorable to its successful growth; yet we have many hundreds of acres of land, which are well adapted to its culture.

The Cranberry wants moist ground, and if land can be had where water is found within eighteen inches to two feet from the surface, it is so much the better. Along our river beds, and on lands which are subject to overflow in winter, Cranberries could be cultivated for profit with much success. The culture is easy and comparatively cheap.

There are several methods of planting Cranberry Vines; one is to cut the sod, which is soon formed by the vines, and set in rows about three feet apart each way. The plantation should be kept clean from weeds, for a year or two, until the vines cover the ground.

Another method is, to cut the vines into short pieces, sow them over the newly plowed land and harrow into the ground. These cuttings will soon strike root and form a sod, in the course of a year or two. If cultivated in this manner, the only way to keep the plantation clear of weeds, is by frequent

hoeing, while if planted in rows, the plow may be used to facilitate the work.

A third method, consists in planting the seed, which is not so certain, and takes longer time to produce a good sod.

The best varieties, are the Cape Cod, Black-Bell, Cherry and Bugle; the two first named, are better adapted for upland, while the latter do better in low lands. The Cherry and Bugle varieties, should be cultivated for profit upon low or overflowed lands, and the Cape Cod and Black-Bell are preferable for planting in gardens for family use.

We like to see the Cranberry cultivated in every garden, where room and plenty of water can be had; fresh Cranberries, are a great addition to the table, and are much more desirable than those we purchase at the markets, or in our grocery stores.

Also, for ornament, Cranberry vines are deserving of extensive cultivation. The Bell variety is adapted for pot culture; its growth is of a drooping nature, the foliage of a vivid green, and in addition to this, its delicate flowers and coral-like berries, make it a very desirable house-plant.

If cultivated in gardens, a place twelve feet square, will yield about two bushels of Cranberries a year.

If cultivated for profit, not much can be realized during the first three years, but after that, an annual yield of one hundred bushels to the acre, may be depended upon.

We would like to see enough of them cultivated for home consumption, and we are satisfied the business would prove to be a profitable one.

NEW AND RARE PLANTS.

Delphinium nudicaule.—This is a native of California, and although it deserves extensive cultivation, we do not see it in any of our gardens. Strong efforts are made in Europe and the East to introduce this *Delphinium*, while in its native state it is totally ignored.

Tilton's *Journal of Horticulture* speaks of it thus :

The Larkspurs (*Delphinium*), hitherto cultivated in our gardens, have been in color

confined to the different shades of blue, purple or white, but in the species now under notice we have a flower with sepals of orange red, the petals being yellow, which is not only valuable in itself, but will, doubtless, afford the means for the production of varieties of new and beautiful colors.

Mr. Guerineau, of the Botanical Gardens, at Harvard University, Cambridge, describes it thus : " It is a native of California, and I should call it a biennial, if not a perennial. It flowered all through the summer, and gave me sound seeds, which, being sown in the following autumn, came up very freely this spring, began to flower in June, and have continued in succession until now (July 25), for, after a stem has grown to perfection, several others start from the base and flower again, and so on. The old plant which flowered last year grew up again this spring from the slender, fleshy, tuberous roots, and continues to flower."

This would indicate that the *Delphinium nudicaule* will much improve under cultivation. In its native localities it flowers early in May, and by the latter part of June nothing of the plant is visible above the surface. The root then remains in a dormant state, and is so brittle that it can be pounded up into a fine powder. On applying water to its root a fizzing noise is plainly perceptible, and a few days afterwards the plant will show vegetation, if the ground is kept moist. This phenomenon we should like to see explained. If it is characteristic of plants in localities where no rain falls during the summer season, it will establish a theory which is not generally known to exist.

Adiantum Veitchii.—A distinct and fine fern, introduced from Peru. It is extremely ornamental, attracting the eye by its rigid character and the symmetry of its growth; and we recommend it as a most desirable evergreen fern for a warm greenhouse or intermediate stove. The young fronds are very beautiful, being of a fine red color: that of the mature fronds being of a pale green. The largest pinnules measure about an inch in their longer, and half an inch in their shorter

diameter, and are set stiffly on the plane of the fronds. The full-sized fronds attain an average length of one foot.—*Gardeners' Monthly*.

Begonia Chelsonii.—This is one of the finest of the flowering begonias. It is a hybrid, raised at Veitch's Nursery, between *B. Boliviana* and *B. Sedeni*, both now so well known. It is very free in growth, and of good habit. The flowers are of a bright glossy red color, and of very large size. The plant continues in bloom from May to November. As a decorative plant it cannot fail to be most extensively grown, and it will form an excellent companion to the *B. Sedeni*, sent out last year. It has received first-class certificates, both at the Royal Horticultural Society's exhibitions and also at those of the Royal Botanic.—*Gardeners' Monthly*.

Croton Johannis.—The leaves attain a length of twenty to twenty-four inches, and are of a glossy green color, the center and margins being bright orange-yellow.

Croton multicolor.—The leaves attain a length of from seven to nine inches, are very irregular in shape, oblong, spatulate, tapering at the base and irregularly contracted in the center. The young leaves are of a light green, blotched with yellow, but turning with age on the upper surface into a glossy green, puckered, and irregularly blotched with yellow, reddish-yellow, and red, the midrib crimson, the secondary veins yellowish, the under surface being red.

Croton Hookeri.—Forms a handsome, compactly-growing shrub, with broadly-ovate lanceolate leaves, abruptly tapering or rounded at the base. The upper surface of the foliage is of a beautiful dark shining green, broken at the base with a broad blotch of golden yellow, and with irregular stripes of the same color running from the midrib towards the margin, the midrib being golden-yellow, as are also the young stems and leaf-stalks. All of the above crotons are from the South Sea Islands, and were discovered by Mr. J. G. Veitch.

Dracoena magnifica.—Is very free in growth, and the leaves, which have a spiral growth, attain a length of one and a half to

two feet, and a width of eight to ten inches. They are of a beautiful bronzy pink color, changing when old into a somewhat darker shade. The leaf-stalks are nearly purple.

Dracoena perphyrophylla.—A South Sea Island species of noble habit, with bold, erect, broadly-oblong leaves, which are of a fine, deep, bronzy hue, and remarkable for the contrast presented by the glaucous hue of the under surface.—*Gardeners' Chronicle*.

EXPERIENCE WITH TOMATOES.

Much has been said about this most useful vegetable, and we believe, its proper cultivation is well understood and comparatively easy. In California, we have fresh Tomatoes in the market, about eight months in the year. Almost every year brings out new varieties, and for many it seems difficult to determine which particular ones should be cultivated.

At present, we think the Trophy Tomato has no superior, and we support our opinion with the experience which the *Rural Carolinian* gives :

"It is claimed, that the Trophy is the earliest of all Tomatoes, but the best we can say of it in this respect, is, that it proved with us as early as any that we had on trial, several others ripening at the same time. In other respects, too much can hardly be said in its praise. It is unquestionably the largest, smoothest, most fleshy and heaviest of all the kinds yet introduced. The fruit on our vines of this variety, was at least a third larger than that on any other kind, many specimens weighing over a pound. The plants are productive, the fruit not inclined to rot, and the flavor excellent. It must, we think, take the place of all others as a market fruit."

To advance the growth of Tomato plants, and to insure a good crop, the *Journal of the Farm*, recommends the following treatment:

"To induce a rapid growth and full bearing, many of our largest growers are employing Baugh's Raw Bone Phosphate, and the results are highly satisfactory. This is particularly the case with several large canning

establishments located in the vicinity of New York. The usual plan of applying is, to furnish each plant with a small handful, mixed well with the earth, at transplanting time. After the plant is started, and while cultivating, let another small handful be scattered as a top dressing around each stalk. A very great improvement in size of fruit and smoothness of surface surely follows this application."

TROPICAL FRUITS AT LOS ANGELES.

The Los Angeles *Star* has received a ripe pineapple from Rev. Father McGill, which was raised on the grounds of the St. Vincent College in Los Angeles. The *Star* says that bananas and other tropical fruits are also thriving well on the same grounds.

NEW PUBLICATIONS.

EVERY WOMAN HER OWN FLOWER GARDENER: By Mrs. S. O. Johnson. This neat little volume has been laid before us, and we recommend it to those of our lady friends who take an interest in gardening. It contains 148 pages of practical instruction and advice for amateur gardeners. The price is only fifty cents. Cheap enough for everybody.

NEW CATALOGUES.

We have received the following Catalogues within the last month, and keep them filed at our office for inspection:

Niagara Nurseries.—Wholesale Trade List of Fruit and Ornamental Trees, for sale by E. Moody & Son, of Lockport, N. Y.

Wholesale Trade List of Plants, etc., offered for sale by George Such, of South Amboy, New Jersey.

Nursery Trade Catalogue of Frost & Co., Genesee Valley Nurseries, Rochester, New York.

Preliminary List of Tree Seeds; by Thomas Meehan, Germantown, Philadelphia, Pa.

Wholesale Trade List of Fruit and Ornamental Trees, etc.; by Sears, Henry & Co., Geneva Nurseries, Geneva, Ontario Co., N. Y.

Wholesale Price List of Fruit and Ornamental Trees; by J. M. Jordan, St. Louis, Mo.

Wholesale Price List of Fruit and Ornamental Trees; by A. Bryant Jr., of Princeton, Illinois.

Price List of Fruit and Ornamental Trees, Vines, etc.; by William Parry, Pomona Fruit Farm and Nursery, Cinnaminson, N. J.

Catalogue of American Forest Trees, for sale by A. Battles, Girard, Pa.

Wholesale Catalogue of Fruit, Evergreen and Ornamental Trees, Shrubs and Greenhouse Plants, for sale by John Saul, Washington, D. C.

Correspondence.

SAN FRANCISCO, July 28, 1871.

Editor California Horticulturist:

DEAR SIR: Will you enlighten me on the subject of the blossoming and fructification of the fig? Although I have several growing in my garden, I have never been able to distinguish any semblance of a flower; yet they must blossom in some manner. I have heard a strange yarn among the Mexicans and other people of Spanish descent, in which is administered a marvelous admixture of demonology and diablerie, pointing out St. John's Night (Xmas. Eve) as the time of efflorescence.

The Virgin Mary, on her flight into Egypt with the infant Jesus, is said to have sheltered herself from the pursuit of the Jews beneath a fig-tree, and, in recompense for the shelter afforded, is said to have blessed the tree, and bestowed on it abundant fruitfulness, with the faculty of producing two crops every year, and also to have endowed the flower with a charm. On the night of St. John, at midnight, the fig-tree puts forth a single blossom—a large white flower, brilliantly phosphorescent. This fructifies the whole tree, and is itself possessed of a magical power. Whoever can obtain that flower acquires a charm which will assure him the possession of whatever he desires (a sort of Aladdin's lamp affair); but on this special occasion the fig-tree, "for this night only" is

guarded by reptiles of repulsive and horrible appearance—snakes, lizards, toads, etc., insects of enormous size and venomous properties, birds and animals of ill-omen; and these so effectually bar the way that it is not recorded that any one has obtained the flower, although some, it is said, have seen it. The guardian reptiles, etc., are only seen when an approach to the tree is attempted.

This fable I of course treat with ridicule, but I wish to rebut all this nonsense with a plain and straightforward statement of the actual mode of fructification of the fig-tree.

Yours, respectfully, S. C.

Editorial Gleanings.

THE CULTIVATION OF SMALL FRUITS.—“The progress of small fruit culture in the United States is very encouraging, though it has not as yet reached anything like the perfection to which we hope and believe it will attain within the next twenty years. Not only should our city markets be bountifully supplied with the best fruits at moderate prices, but every farmer should have an ample supply for his own family. There is no more pleasant or healthful diet during the warm weather than well ripened fruits, and the only cause for surprise is, that our country farmers have not long since learned to know this fact, and turn it to advantage.”—*Journal of the Farmer*.

DETERIORATION OF GUANO.—“The predictions which we have so often published in this journal relative to the deterioration, sooner or later, of the quality of the Chincha Island (Peruvian) guano have been verified, and somewhat sooner than we had anticipated. About twelve years ago this variety of guano was a remarkably uniform composition, and when the relative proportions of its constituents did vary, it was generally the most valuable of them that preponderated over the others. Thus the average amount of ammonia (or the substance equivalent to that

compound) was about sixteen per cent., but the proportion more frequently rose to eighteen per cent. than it sank to fourteen per cent. At this time there can be no doubt that Peruvian guano deservedly stood at the head of all natural and artificial manures. From the year 1855, or thereabout, there has been a very slow, but still sensible, diminution in the per centage of ammonia in Peruvian guano, until quite recently, when almost suddenly the composition of the recent imports has undergone a serious change. Specimens are still to be met with containing sixteen per cent. of ammonia, but they are rare; whilst on the other hand, in some samples, the amount of ammonia has fallen to less than ten per cent.”—*Farmers' Gazette*.

COTTON EXPERIMENTS IN YOLO.—“On the unclaimed tule lands above the town of Knight's Landing, Mr. Charles F. Reed, President of the State Agricultural Society, last Spring planted about two acres of cotton, as an experiment. We learn that the seed was the Sea Island variety, and imported. It was supposed to be somewhat imperfect, as it did not germinate as evenly and quickly as was expected. However, a tolerably good stand was produced, and about one and one half of the two acres looks very promising. It is about three feet high. It commenced to bloom about the 10th of this month, and the balls are forming on the early bloom. The growth of the stock is very rapid, equal at present to two inches a day, and new blossoms are constantly making their appearance. Persons familiar with cotton-growing pronounce the prospect very flattering, and believe this soil to be admirably adapted to the growth of this staple. This has not been a fair test of the adaptability of the land for this purpose, however, as the seed was not planted until the last week in May, and consequently, will not have time to mature the late bloom. Had it been planted a month earlier, the early bloom would now be ripe and ready to garner, and picking would continue until frost came. As it is, there will be a good yield of both cotton and seed.

The latter will be fresh for use next year, and we confidently believe the growing of cotton will prove a success on this class of lands, which heretofore have produced nothing, and were considered valueless."—*Woodland Democrat*.

DRIED FRUIT.—The ground in many of the orchards of California is covered with fruit which is permitted to lie and rot. It would be very easy to utilize this waste fruit by drying it for home consumption. We are now importers of dried fruit, which is not nearly so good as the specimen lots of the home-cured article we occasionally find offered for sale. Apples dried in California are worth more than the best imported varieties. The demand for the article is steady. Last year, on account of a scarcity, Eastern dried-fruits advanced materially in prices, which were maintained throughout the season. We observe that a merchant named Kennedy, in Chico, Butte County, offers the highest market prices for dried fruits, as an encouragement to the farmers of that region to go more extensively into the fruit-raising business. There would be little expense to farmers elsewhere in thus preserving their fruits, for which the market might be considered as assured at fair profits. We believe a fortune is in store for the individual who will dry fruit on an extensive scale in California."—*Morning Call*.

TEA CULTURE.—HON. W. G. Howard writes to the Department of Agriculture as follows, from San Antonio, Texas: The culture of the plant and the manufacture of the tea is a much simpler and easier process than most persons think. Of the hardy nature of the plant you have abundant evidence in those planted out in the gardens at Washington. And from my own experience in many climates of India, from Arracan to the Himalaya Mountains, neither frost nor snow, drought nor rain, sunshine nor shadow, materially injure the "tea plant." Nor is it subject to the visitation of any worm, bug, or disease.

When I first went to India, all knowledge with respect to tea was very scant and limited, and everything had to be done by hand; but afterward, when the capital invested in tea had increased to enormous proportions—indeed, many millions of pounds sterling—the cost of manufacture was much reduced. When I left India the only manual labor was the picking of the leaves, which was best done by women and children. It is true that a man here would cost twenty or twenty-five dollars per month, against two dollars and a half per month there; but when you take into consideration the great lack of economy in the management there, the difference would not amount to so much. In India all tools and lead have to be brought from England, and transported on men's backs for many miles; the constant rebuilding of houses, rendered necessary by the white ant and fire, every year or two; the enormous cost of management, which amounts to more than one-half of the actual amount spent in the year; the physical inability of the Bengalee coolies to do much labor; the difficulty of procuring labor, and the unhealthy climate, all combine to bring the cost per acre to as much as it would be in America.

The Tea once planted only requires to be kept free from weeds, which can be done here with the plough, the same as with Indian corn, and at the same cost. In India they have neither horses nor plows, and all weeding must be done with the hoe in the hands of a lazy and weak coolie. After the Tea is pretty well grown, say four or five years old, its own shade pretty much keeps the ground clean.

Should our Government once take hold of the subject, and demonstrate that Tea can be grown, and to a profit, the demand for seed alone, would soon pay all cost. The yield of seed is, on an average, four "maunds" (a "maund" is eighty pounds) to the acre, and I sold one year from my garden four thousand "maunds," at two hundred rupees per "maund," and could have sold forty thousand "maunds" at the same figure.

JUST TO THE POINT.—Mr. Reed, President of the State Agricultural Society of California, in his opening address at the State Fair in Sacramento, made the following suggestive remarks, which thousands of our able bodied men might take to heart and better their condition:

“And right here, lest I forget it in a more appropriate place, I propose to say what would make my own ears tingle, and I fear unduly excite me should I hear it said by any other than a Californian, viz: that it is a shame—a disgrace—a burning sarcasm upon the intelligence and industry, and financial common sense of Californian agriculturists that, in such a country, where dairy products might be more abundant, and secured at less expense than anywhere else in the land, so many sit down and fold the hands, or roam from place to place looking for “situations” behind the counter, where they may sell tape and calico to lady shoppers, or in some counting-room where they may play second fiddle to an assistant book-keeper’s clerk, while we pay for making and bringing three thousand miles a hundred tons of butter a week—and all this while tens of thousands of acres of as good dairy lands as ever lay out door, and as many lowing herds of the best dairy kine unite in calling you young men to marry wives, and milk the cows and make the butter and get the money for your purse. If you have no capital, take a farm, as the old folks say, “on shears,” and my word for it, the clippings of those “shears” will, the first year, enable you to begin to buy, begin to breed, begin to multiply your stock, begin to be an employer, an independent influential member of society and a benefactor of the State.”

Mr Reed’s remarks may be applied with great force to the class of people which Mr. Phelps describes thus:

“Many old Californians are too restless and too much occupied with the golden dreams and visions of the past to settle down to any steady or safe employment. If they would build themselves houses they might at least be surrounded with every comfort. The next most serious hindrance to our prosperi-

ty is the tendency of our people to drift into our large towns and cities. This disposition is not only manifested by the people of California, but of the whole country, and must be regarded as one of the most evil tendencies of the age. One-fourth of the population of this State to-day resides in the city of San Francisco, and one-fourth of the balance in the six or seven next largest cities of the State. Rural life is fast losing its charm for our people, who are exchanging their quiet homes and simple habits, the pure air and pleasant scenery of the country, for rented rooms amid the restless confusion of city life.”

SUGAR, FLAX, COTTON AND WINE.—Extracts from the annual address of Hon. T. G. Phelps at the Sacramento State Fair.

“The experiment of making Sugar here having proved an entire success in every particular, it is confidently predicted that in four years from to-day we will produce all the sugar consumed in the Pacific States and Territories, and in ten years we will send to other States and countries, of our own production, three times the amount we now import.

There is now quite a large amount of flax raised in this State, for the seed alone, no use being made of the fiber. This is a great waste, which should, if possible, be avoided. Cannot some cheap method be devised for preparing this fiber for use, though it may be in the coarsest products, such as grain-bags, or rope? He who can utilize this material and prevent its waste will confer a great benefit upon the State.

One experiment, at least, upon a scale sufficiently large to test our climate and soil for raising Cotton successfully, is being made. A field, embracing seventy acres, is now growing on the Merced river, five or six miles below the town of Snellings. When I had the pleasure of visiting the field, some six weeks ago, the Cotton was in a very thrifty condition, with the early seed bolls closed. The harvest of the fiber is probably now about commencing, and will continue until November or December. Experi-

enced Cotton growers from the Southern States informed me that the field was a fair average of the crops in Louisiana, and would probably yield three-fourths of a bale of ginned Cotton to the acre. The entire crop was planted and cultivated by three men. This is more ground, I am informed, than the same men could have cultivated in the Southern States. The experiment, therefore, bids fair to prove a satisfactory one; and it is quite probable we may hereafter be able to add Cotton to our regular productions.

The raising of Grapes and the manufacture of wine and brandy seems now to be firmly established as one of our leading and most profitable industries. There is no longer, I am informed, any difficulty in marketing the entire product at remunerative rates, and it is quite probable the demand will increase faster than the production can be increased. Last year we produced six million gallons of wine, worth \$3,600,000 and one hundred and fifty thousand gallons of brandy, worth, duties unpaid, \$112,500. This year it is estimated we will produce from eight to ten million gallons of wine, worth, say \$4,500,000, and two hundred thousand gallons of brandy, worth \$150,000, and it is fair to calculate that this ratio of increase in production and value will be kept up for years to come. It is estimated by our principal wine merchants that one half of our product is consumed by the States to the east of us, while they are regularly shipped to Mexico, South America, Sandwich Islands, Australia, Japan, China, England, and occasional lots to the continent of Europe. From every part of the world to which they are sent fair reports come back as to their excellence, and orders increase, showing that they have a better standing abroad than at home. Of course their reputation has suffered somewhat from unskilled makers, and from counterfeiting. Messrs. I Landsberger & Co. are now putting up 1,500 dozen per month of their champagne wine, and are unable to supply the demand. What may we not expect from

this industry, when we reflect that the entire champagne district of France is not greater in area than Sonoma county, and yet employs ten thousand men in the cultivation of the Grape, and ten thousand more in the preparation of the wine for market? We have now 35,000,000 bearing vines growing on 47,000 acres. The average yield per acre for the Grapes is about \$60, but the choice varieties will yield \$100,000 or more, and this, too, on our poorest soil. What more profitable or sure investment can a poor man desire? Uncle Sam gives the land, and his own labor is sufficient to put out a vineyard from which a sure annual revenue may be derived for himself and his children. One of the strange peculiarities of our people, showing their singular attachment to articles of foreign growth and manufacture, may be noted in the fact, that while we are sending wine to the four quarters of the globe, a wine that we know to be pure juice of the Grape, we imported during last year 451,947 gallons of wine costing, duties paid, more than \$550,000." •

BE JUST TO THE GARDENERS.—A friend called at my office last week and asked me if I could recommend him a gardener who could manage his place. Knowing that he already had one of the best men in the vicinity of New York, I asked him what was the matter. He replied, that Mr. ——— was perfectly incompetent, that his grounds were overgrown with weeds and everything in disorder. Further inquiries elicited the fact, that he had reduced his assistants, to curtail expenses; which, coupled with the fact that this vicinity has been deluged with rain during the whole of August, readily accounted for the weeds and disorder. It is short-sighted economy to withhold labor in the garden or on the farm, whether it be worked for pleasure or for profit. Surely it is anything but pleasing to see grounds overgrown with weeds, and as to profit, we all know that weeds in the ascendancy are the bane of all profit to the worker of the soil.

Ten minutes of this kind of reasoning

seemingly convinced my friend that he, rather than his gardener was at fault.—*Peter Henderson, in the American Agriculturist.*

We make the following extracts from the monthly report of the Department of Agriculture for August and September:

ADULTERATION OF CLOVER SEED.—A confidential circular from an enterprising German in Hamburg has lately come to light containing an offer to sell several tons of sand suitable for mixture with Clover seed, the grains of which resemble the seed so closely that it is almost impossible to distinguish them by the eye. The writer of this circular announces that this sand is in great demand, especially in England, for purposes of adulteration. Two colors are supplied, one for red clover and one for white.

THE EUROPEAN PLANE-TREE IN CITIES.—No tree resists so well the smoke and impure air of European cities as the Plane, (*Platanus occidentalis*,) although it is not a native of that continent. It is the tree most generally seen in the churchyards, squares, and other open spaces in London, thriving well, and living to a considerable age. This is probably in part due to the fact of the outer layer of bark being shed yearly, and thus not becoming choked with smoke so that its functions are destroyed. The rows of young Plane-trees planted along the recently opened portion of the Thames embankment, from the Houses of Parliament to Charing Cross and the Temple, are growing vigorously, and promise in a few years to afford a grateful shade, and to add much to the beauty of the banks of the river.

INFLUENCE OF CONDITIONS OF HEAT ON THE GROWTH OF PLANTS.—A paper has lately been published by Köppen, upon the relationship of conditions of heat to the phenomena of growth in plants; his first inquiry being limited to the questions connected with the germination of the seed. The general conclusion arrived at, was, that variations of

temperature were in all cases prejudicial to the growth of the germ, even when amounting to but a few degrees, and these within limits favorable to energetic growth. That is to say, the germination proceeds more rapidly at a low temperature of a uniform degree, than at a higher, when subjected to more or less variation. From this we derive the inference that a nearly uniform Spring temperature, with a cloudy sky, is more favorable to rapid development of vegetation than the alternation of hot days and cool nights, it being of course understood that the mean temperature in each case is about the same.

TREMELLAT PROCESS FOR PRESERVING GRAPES.—A recent process for preserving Grapes through the Winter, introduced by M. Tremellat, of Marseilles, is commended in agricultural journals as answering its purpose better than many of the improved methods of the day. This depends upon the fact, that in the ordinary storage of Grapes, a portion of the water, both of the stem and of the berry, is lost by evaporation, so that they dry up unless moisture is restored to them. To obviate this difficulty, the bunches are cut in such a manner as to leave a considerable portion of the adjacent woody part of the vine, and are then suspended over a vessel filled with water, so that while only hanging near the surface of the water the ends of the stems are immersed. As the moisture evaporates from the Grapes it is restored by capillary absorption through the stem, and no change takes place. By means of the arrangement thus indicated, M. Tremellat has succeeded in keeping Grapes from one year over into another, fresh and fair as in the moment of gathering, and his method is now used on a large scale in Paris and elsewhere.

MATHOIT'S GRAPES.—We have seen several boxes of grapes from Mathoit's vineyard, near Butteville, that are at least equal to those brought from California. The varieties tasted were the Black July and Royal

Muscadine. They are as sweet and well flavored as any grape we have tasted this season, and are a sufficient evidence, to us, that some localities in this valley are well adapted to grape culture. Mr. Mathoit's vineyard will produce for the market over a thousand boxes the present season.—*Willamette (Oregon) Farmer.*

Extracts from Monthly Report of the Department of Agriculture, for October, 1871.

DETERMINING TANNIN IN OAK BARK.—A method lately introduced by Loewenthal for determining the amount of tannin in oak bark, is based upon the fact that tannin, in the presence of indigo, is decomposed by permanganate of potash in such a manner that, with the final disappearance of the blue color, the last trace of the tannin is also decomposed. For this inquiry, the following liquids are needed: First, a solution of indigo carmine; second, a solution of tannin; third, a solution of the chameleon mineral or permanganate of potash; and, fourth, a solution of oxalic acid.

UTILIZATION OF SURPLUS POTATOES.—In cases where the potato crop is so large as not to be readily marketable, and more or less in danger of decaying through the winter, the surplus can be so treated as to furnish a valuable article of food, capable of preservation for a long time. For this purpose, the potatoes are to be washed clean, steamed, peeled while still hot, and finally pressed through a fine sieve. The potatoes thus compressed are then to be laid, while still hot, upon gratings and dried as quickly as possible, say in ten or twelve hours, in order to avoid any souring or putrefaction—this being generally the result of drying too slowly, or with an insufficient heat. The potatoes dried in this way are of an excellent flavor, and can be packed and kept for years in a dry place, and are serviceable for provisioning ships, armies in the field, etc. About one thousand pounds of fresh potatoes will make one hundred pounds of the dry article, which, when pro-

perly prepared, will have precisely the flavor and appearance of freshly-boiled potatoes.

SPEEDY GROWTH OF RADISHES.—In the publications of the Acclimatization Society of Palermo, we are informed that radishes may be obtained at any season, and very quickly, in the following manner: The seeds are to be first soaked for twenty-four hours and then placed in bags and exposed to the sun. They will begin to germinate in about twenty-four hours, and are then to be set in a box filled with well-manured earth, and moistened from time to time with lukewarm water. In five or six days the radishes will attain the size of a small onion. To grow radishes in winter, the box is to be placed in a warm cellar, covered with a top, and the earth moistened from day to day with lukewarm water.

CUNDURANGO. — The Secretary of State, Hon. Hamilton Fish, has transmitted to this Department a package containing specimens of the fruit and seed-bearing capsules of the "cundurango" plant or vine, received from Charles Weile, United States Consul at Guayaquil, together with the following extract from the official letter of the Consul:

"I have just returned from a visit to the cundurango region, in the province of Loja, where I spent a month in collecting the different species of the plant. Dr. Destruge, of this city, an excellent botanist, has classified the vine as belonging to the order *Asclepiadaceæ*. The word "cundurango" is a compound of "cundur," eagle, and "ango," a vine. The aborigines probably applied this name owing to the winding growth of the vine, and because it seeks the highest trees for its support. Its growth is most vigorous in moist places, on the banks of rivers and creeks, where the body often attains a diameter of two to three inches, diminishing gradually to tendrils at the top. The family is a numerous one. Leaves, vines, fruit and flowers of the species differ materially, but all contain—some in a greater degree than others—a liquid that resembles milk, and which, ex-

posed to heat, or coming in contact with other bodies, coagulates and forms an aromatic resinous substance."

Inclosed was a list of the specimens and a piece of the balsam which the milk produces. The list names the following varieties, all found at Zaruma : No. 1, *Cundurango Pepino*; No. 2, *C. Tumbo Grande*; No. 3, *C. Tumbo Chico*; No. 4, variety of *C. Tumbo Grande*; No. 5, *C. Paloma Grande*; No. 6, *C. Batea Grande*.

The seeds received by this Department will be propagated, with the design of testing the practicability of the cultivation of the plant in some section of this country, should its production be found to be desirable.

WARM WATER FOR PLANTS.—Mr. R. G. Williams, of Vermont State Normal School, writes us upon this subject as follows :

"I see some remarks in your monthly report upon the benefit of watering house-plants with warm water. Last winter we had about one hundred plants in the house, and usually gave them warm water, and very frequently water that was much too warm for the hand; some water at or very near the boiling point has been poured into the saucers of the pots and just on the sides. We have about forty persons in the family, from different parts of the country, and their testimony is, that they never saw so fine geraniums, heliotropes, fuchsias, verbenas, passion-flowers, and oleanders. These plants show very marked improvement; others have flourished finely under the treatment."

All house-plants are better for being watered with water several degrees warmer than the atmosphere in which they are grown.

INFLUENCE OF HEAT OF SOIL ON GROWTH OF PLANTS.—The result of a recent investigation by Bialoblocki, in regard to the influence of the warmth of soil upon the development of certain cultivated plants, is summed up by him in the following words: The influence of warmth of the soil is made manifest in two directions; in the shortening or lengthening of the period of vegetation, and in affecting

the external form of the plant; the acceleration of growth of vegetation occurring principally in the earlier periods. With an ascending temperature of the soil, vegetation is forwarded up to a certain point. From the moment, however, when this point is reached, an increase of temperature in the soil actually retards growth. The maximum point of favorable temperature of the soil varies for different plants; but the maintenance of a constant temperature has for its results a more vigorous growth of the plant experimented on. The extreme limit of a constant temperature of the soil at which a growth of the roots can still take place, we may assume to be below, but very near 104 degrees Fahrenheit. A ground temperature of 50 degrees Fahrenheit barely allows plants to fulfil completely all their functions of life and conditions of development. An increased ground temperature has no special influence upon the absorption of nutritious matter through the roots; and the accelerated growth resulting from increase of heat is usually accompanied by a greater percentage of water in the plant.

REGIANINE.—According to Dr. Phipson, the English Walnut, (*Juglans regia*,) and probably the American species also, contain, among other substances, one which he calls *regianine*, (obtained by treating the green husk of the fruit with benzole,) which appears in the form of a yellowish substance crystallizing in groups of feather-like crystals. These are easily decomposed, and when treated with alkalies or ammonia, yield a splendid and durable red solution, which by a subsequent treatment, becomes the jet black, amorphous pure regianic acid.

EGG-PLANTS need all the encouragement that frequent hoeing and liquid manure can give them; destroy the Tomato worm, which is often found feeding upon them.

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No. 1.

FLOWERING BULBS.

In one of our former numbers we have given our readers descriptions and the proper mode of treatment of Hyacinths and Tulips, they being the most popular of bulbous-rooted plants. In fact, Hyacinths and Tulips are entitled to as prominent a position among the bulbs as the Roses are among the flowering shrubs. Yet there are many other kinds of bulbous-rooted flowering plants which deserve most extensive cultivation, but few of which we see in our gardens—their absence being almost entirely attributable not only to the fact that they are but very little known, but also to the erroneous idea that their proper cultivation requires too much care. In regard to this latter point we may say, that the culture of hardy bulbous roots is comparatively easy, and for a short space of time during dry weather the bulb itself is self-sustaining, furnishing some nourishment to the leaves and flowers. The best general mode of treatment is to keep the soil loose and free from weeds. Bulbs prefer a deep soil, and manure should be applied sparingly and in a thoroughly decomposed state.

We shall now speak of the

PAEONIES,

which are divided into two classes—Herbaceous and Tree Paeonies.

The Herbaceous Paeonies are most popular

lar, and have become indispensable to flower gardens of any extent. They are perfectly hardy, and grow in almost any situation. The flowering season is far more extended than was the case in former years—some varieties blooming quite early, while others flower during the latter part of summer; many are also sweet-scented.

The Paeonies require a deep soil, but are satisfied with almost any kind of ground. They should not be crowded by other plants, as they require a great deal of room, when they form much better plants. The foliage is very ornamental, and the flowers are large and showy. The colors are also very vivid and striking. The flowers are either single or double, but the double ones are exclusively cultivated for ornament.

One of the oldest and most popular varieties is *Paeonia tenuifolia flore pleno*, producing a large double flower, five to six inches in diameter, and of a brilliant blood-red color.

Another much-admired variety is *Paeonia albiflora*, indigenous to Siberia, and originally single, but the art of floriculture has improved it, and we have now several varieties of fine double flowers from it, some of a fine rose color, and others of a pure white.

The more recent varieties are a decided improvement on the older ones as far as color is concerned. We mention

P. festiva maxima, very large flower, of a pure white, tipped with crimson.

P. grandiflora nivea, double white, with yellow center.

P. edulis, of a rosy-violet color, flowers fragrant.

Some of the large bulb dealers in the East advertise over three hundred varieties of all shades and all colors, which fact in itself gives evidence of the extent to which this class of plants is cultivated.

In California we often see mistakes made in the taking up of bulbous roots. Very little knowledge seems to exist as to whether roots should be taken up every year or not, and also as to the proper time for taking them up. In regard to Paeonies, we wish to say, that they should remain in the ground for a number of years. When transplanted, little growth and hardly any flowers can be expected during the first year. The second year is an improvement, and during the third and fourth years a near approach to perfection may be anticipated. However, it is at times desirable to propagate by dividing the roots, in which case the plants should be carefully taken up in the fall, so as not to break off the young shoots which are already formed, then divided and planted again as soon as the ground can be prepared for them. The roots should never be kept long out of the ground, and should always be well covered with soil. In dividing the roots, it is necessary to leave an eye or young shoot to every set which is to be planted, as although it is often the case that roots which have neither eyes nor shoots attached will form them after planting, yet we cannot advise trusting to such a chance.

Paeonies can also be raised from seeds. These will frequently lie dormant in the garden for a year or two, and finally make their appearance. But to obtain strong-flowering plants in this way is slow work, and, after all the trouble and anxiety, we may not succeed in obtaining anything which is worthy of cultivation.

The price of Paeony roots is now so low that we recommend the purchase of roots in all cases, if good varieties can be obtained.

There is still another way of propagating them, which is by letting the shoots pass through a flower-pot or box, which is placed a little above the surface of the ground. The stems, surrounded by soil, will make roots as far as they are covered with it, and may then be cut up into as many pieces as eyes can be found upon them. Each piece of the rooted stem, with an eye attached, will make a new plant.

The Tree Paeonies, *Paonia arborea*, are natives of China and Japan, and are not as yet extensively cultivated, although they promise to form a very important feature in floriculture. They are reported to produce flowers of almost every color, blue and yellow not excepted. Their cultivation is probably well adapted to our Californian climate, and we should like to see them introduced extensively.

We shall next call the attention of our readers to the splendid class of plants called

GLADIOLUS,

which of late have attracted so much attention. No class of plants has within so short space of time made so many admiring friends as the Gladiolus. One of our principal florists in the East speaks of it thus:

“It would be difficult to conceive anything more beautiful than a collection of Gladioli in full bloom, with their tall spikes profusely covered with flowers of the most varied and richest hues. They are of many colors, ranging from vivid scarlet, orange and vermilion, to white, salmon, pink, carnation and many other shades, which are rarely to be met with in such close affinity.”

The Gladiolus has been found growing wild in Turkey, at the Cape of Good Hope, and at Natal on the Southern coast of Africa. But these are nothing in comparison with the numerous and elegant hybrids produced within the last few years by floral establishments; and we believe that the French have been more successful in producing new and excellent varieties than any other nation.

It is useless for us to name varieties, as we could not do justice to the large number of

them, and we must refer our readers to the various price-catalogues of responsible dealers in the East.

But we shall have to make a few remarks in regard to the proper cultivation of the *Gladiolus*. Contrary to the treatment necessary for the *Paeony*, the *Gladiolus* should be taken up every year. After the leaves have wilted, the young bulbs which have been formed around the old bulb should be separated and planted by themselves during the latter part of the rainy season, and then these little bulbs will form good and strong flowering bulbs in two or three years. Flowering bulbs may be planted here almost at any time, as we have seen them in bloom during nearly every month of the year, and we would therefore advise those who have a collection of them to plant them consecutively and from month to month, unless they are planted for contrast and effect in more extensive gardening.

After flowering the stalks should be cut off, unless it is wished to ripen the seed. The roots are very much weakened and exhausted by allowing the flower-stocks to remain; and if the bulbs are left in the ground too long, there is danger that vegetation may set in again, before they have sufficiently rested; in which case, little can be expected from them in the shape of flowers. The roots should be kept out of the ground for from four to six months, and during that time stored in a cool and dry place. The colors should be marked before taking them up, so that they may be planted again effectively.

Gladioli may be raised from seed, and this is mostly done to produce new varieties. The seed should be sown in boxes, soon after it has ripened; it should be covered with a very little soil and should be placed under glass. These little seedlings make flowering roots in about three years, and should be transplanted into new quarters every year.

We recommend the very extensive cultivation of *Gladioli*. They are of easy culture, strong and effective, and flower abundantly

for some length of time. California is well adapted for the successful growth of them.

THE "MAJETIN," vs. APPLE BLIGHT.

Through the kindness of W. H. Treen, Esq., of Melbourne, we have received his elaborately written essay on the above subject, and we purpose giving it to our readers in full by monthly instalments. Some of our fruit growers may doubt the propriety of affording so much space to an evil which has as yet hardly made its appearance in the orchards of the Pacific Coast, but we are of opinion that as we are liable to be annoyed by this pest at any time, a proper degree of caution on the part of our fruit growers can not be out of place.

This essay, which we propose to give to our readers, is ably written and must be interesting to our pomological friends throughout the country. We would also impress upon our readers the fact, that in climates similar to those of Australia and California, insects which have once effected a settlement will multiply to such an extent as to become very soon most injurious; while in cold climates, the heavy frosts destroy a large proportion of them, and thus hold them somewhat in check.—Ed.

"The Apple Tree is the most popular of all British fruit trees. In its wild state it is the common crab of the British woods, blossoms in England during the months of April and May, lives to a great age, affords valuable timber for the turner and cabinet-maker, and usually grows to the height of twenty feet. Unfortunately, of late years the apple has become more and more subject to blight, and much has been done, and more written with the intention of, in some way or other, arriving at satisfactory conclusions as to the best and most reliable means of preventing the apple blight scourge.

"The *Aphis lanigera* (or the American woolly blight), is one of the most mischievous of the whole *Aphis* family. It often reduces apple trees to sterility. It is of the

middle size, pitch brown color, and envelopes itself in white silky down. In spring a slight hoariness appears upon infested trees, and as the season advances this increases, and becomes cottony, and towards the end of the summer it looks like thick down upon the lower sides of the branches. Quantities of small wingless insects lie concealed in this downy substance, and are preying beneath upon the bark of the tree. The sap of the wood being wounded by them, rises up and nodes, and the branch thus deprived of its nourishment becomes sickly, loses its leaves, and perishes. Branch after branch is thus assailed and dies, and finally the stem and roots, deprived of every connexion with living leaves, decay beyond all remedy. *Aphis pomi* has prevalingly a yellowish-green color; its ears and legs are dark brown, the remaining parts of it are black, its eggs also are black and oval, and are deposited on the spurs of apple trees in the autumn, and hatched at the budding of the leaves in the spring. The *Anthonomus pomorum*, has long been distinguished as a formidable pest in all apple orchards. Its color is pitchy red, obscured by a sprinkling of short ash-grey hairs. This insect passes the winter beneath the bark of the apple trees, and in early spring emerges from its winter quarters, and begins to rove our orchards or fruit gardens. The female lays her eggs when the flower-buds of the apple trees are either beginning to expand or have fully developed, and with her long auger-like proboscis she pierces a deep hole in the calyx, and deposits her eggs beyond the reach of small birds, etc. A small white grub speedily evolves from the egg, eats up all the interior parts of the flower, utterly destroys its powers of fructification, and occasions it soon to assume the shriveled form and sickly brown color which is popularly denominated "apple blight."

"*Aphis lanigera* must be classed as one of the most destructive enemies the cultivator has to contend against; for, although an active warfare has been carried on by growers against them for a long period, still they decrease not; the economy of their natures is

so favorable to their reproduction, and so small is the modicum of knowledge, as regards their natural history, in the possession of the majority of growers, that the various schemes for their annihilation have hitherto failed, and they are still left in possession of the vantage ground, to the yearly loss and discomfort of cultivators. The study of entomology has only of late years been called in to the aid of the grower; the beneficial effects resulting therefrom are already becoming duly appreciated, and in some cases abundantly demonstrated. The study of entomology is simple, and not attended with any great expense in its pursuit. It is also pleasing and interesting, and may be pursued with equal success by those in the humblest as well as in the higher walks of life; for by carefully observing the different changes which these insects undergo from the embryo to the attaining their perfect form, so much of their habits will be discovered as will materially aid in devising effective means for the destruction of those species which are most injurious.

"The introduction of *Aphis lanigera* into England has been traced to the year 1787, at which period it appears to have been brought from America to an old nursery situated in Sloane Lane. Fifteen years after this time, this great pest had extended itself into most parts of Britain and Ireland, and now it is indeed difficult to enter a Victorian garden or orchard where its destructive effects are not more or less evident; and although the late Sir Joseph Banks investigated the history and economy of this insect, *Aphis lanigera*, and also Mr. Joseph Kirk, of Brompton, a cultivator of great experience in the management of fruit trees, both of whom laid down what appeared to them to be effectual modes of disposing of it, so far as dressing and anointing the trees with numerous compounds and washes, still nothing seems to have been done by them, or others, at that time, with regard to the finding out or the introduction of "*Aphis lanigera* resisting stock;" but one of the principal reasons of this might have been, the roots not having been infected at

that period to such a serious extent as of late years. The greater part of their study and attention was most likely devoted to the *tops* and *boughs* of the trees, when no doubt many of the remedies proposed by them for the extirpation of this destructive insect, as far as the tops of the trees were concerned, if properly applied and constantly persevered in, were effectual. But when it is considered that the celebrated naturalist, Reaumur, states that one insect in five generations may be the progenitor of 5,904,900,000 descendants, and it is supposed that in the course of twelve months there may be no less than ten generations, thus exceeding in fecundity that of any other known animal, I think it will be obvious to any one reflecting for a moment, that the difficulty of destroying and of keeping clear such an insect is a very serious one.

“In experimenting with the numerous washes and compounds so much in vogue for dressing apple trees for blight, I have come to the conclusion that in lieu of many of the various compounds, most of which are expensive, or at least soon become so, where many trees are cultivated, the great secret of success is the “way in which it’s done.” A simple solution of soap and water, if properly applied, is generally all that is necessary; for it is thorough brushing, and going minutely over each bough of the tree requiring to be operated upon, in fact energetically applying the brush to all crevices, that is really effective; for unless the silky down enshrouding this insect—*Aphis lanigera*—is broken, the insect still lives, even though the solution used be of great strength. For instance, boughs thickly covered with blight, having been immersed in strong solutions of lime-water, lime-wash, caustic potash, and even sulphuric acid, and afterwards taken out, it was found that this insect even then not only lives, but still thrives; whereas, if a tree receives a thorough brushing all over with simple soap-suds, the silky down or protection enveloping this pest being broken, the insect is, for the time being, effectually destroyed. During these exper-

iments the only solution that seemed to break through the silky down on the bough by simple immersion was a powerful solution of carbolic acid. Such being the case, many of the expensive compounds for tree-dressing can, I think, be very well dispensed with, and a thorough and careful brushing with soap-suds substituted in lieu thereof, thereby also avoiding any chance of injury to the wood of the tree by the use of noxious compounds.”

HINTS ON THE PROPAGATION OF ROSES.

If the operation of making rose cuttings has not already begun, it is now high time to commence. I for my part usually begin making them about the 15th of October, and have always succeeded well.

It should be understood that a bed should have been prepared two or three weeks previously, of either good fresh horse manure or of tan bark, firmly packed in the frame, which should be covered with a sash; in a few days the manure will have heated, and if needed it should be well tramped down again, covering the surface with some light material from four to six inches, say tan bark or leaves if they can be had; the sash should be lifted during the day, so that the steam may escape.

I generally take flat boxes one and a half feet wide by two and a half long, and from three to four inches in depth; I fill them with sand, well pounding it down and wetting it thoroughly. Everything being prepared, I commence with hybrid perpetuals, as it takes them a little longer to root than either Teas or Bourbons. I take the last ripe shoots of the season, and cut them up with a very sharp knife into lengths of from two to three eyes—but not more—leaving part of the leaves on the cuttings, which will prevent them from pushing out too soon. Particular attention should be given to keeping the knife very sharp, or the bark will be bruised in the cutting, and consequently a great many will not grow.

The cuttings so prepared should be firmly planted about one inch deep in the sand in the above mentioned boxes, but not too thickly, say about half an inch in the rows, which should be about an inch apart: if the bed is sufficiently cooled down, the boxes so filled with cuttings should be placed in it as near to the glass as possible, keeping them well shaded; you may either apply whitewash on the glass, or use light canvass—I prefer the whitewash.

The frame should be kept very close, unless steam should gather, when the sash may be lifted a very little during the middle of the day for about an hour or so. The rose cuttings should be sufficiently watered before putting them in the frame, so that they keep moist enough for thirty or forty days; this is a great point and must be strictly attended to, for I have found by my own experience, that if I had to use water during the first forty days I lost a great many, sometimes whole boxes of them.

In forty days the rose cuttings so treated will have all calloused, and mostly rooted. After this time a little more air may be given by degrees, and in the course of ten weeks or so they may be planted in two inch pots, or left in the boxes until planted in the ground—I prefer putting them in small pots, as fewer will be lost by this plan. After planting them in the small pots, they should be well watered and kept in a close frame well protected from the hot rays of the sun, for about three weeks, after which time they may get a little air every day until hardened off enough to take off the glass; they will then be fit to be planted in the open ground.

Roses so raised will make better plants than those cuttings planted in January or February in the open ground; they will have a fine lot of fibrous roots, instead of one long root running deep into the soil. They will all be fine plants, Hybrids as well as Tea, Bourbon and other kinds, in one season, and will be fit for the market. E. L. REIMER.

DECIDUOUS AND EAERGREEN TREES AND SHRUBS should be planted out during November and December.

NOTES ON SOME FRUITS WORTHY OF CULTIVATION IN CALIFORNIA.

Black Tartarian Cherry.—This fruit is a favorite with cultivators and consumers in every locality where the cherry flourishes. But in very wet seasons, and when the tree is overloaded, the fruit is more liable to rot than most other sorts. However, it is admirably adapted for the generally dry climate of this State, and has no superior among black cherries. It is of Russian origin, and was brought to England in the latter part of the last century. It has a remarkably rapid growth, though that is not so important in this wonderful climate and soil for rapid growth of all vegetation. Its leaves are large, and the habit of its head very erect. The fruit ripens here in May; its skin is glossy, and of a bright purplish-black; flesh purplish, thick, (the stone being quite small) half tender and juicy; flavor very rich and delicious.

Skinner's Seedling Apple.—I have neither seen nor eaten this now much praised fruit. But from the descriptions of it, from reliable authority, it must be greatly deserving of the attention of orchardists; it is a native of San José; it is said to be the very best, and most desirable early cooking and early eating apple in the country. The seed was planted in 1854; the fruit began to attract attention in 1857. There is hardly any other part of the world where the tree would have fruited so early from the seed. Since then, it has become a favorite with many cultivators. A writer in an agricultural periodical, says: "The size and shape of the fruit resembles the Spitzenburg, (I presume the writer means *Æsopus S.*) but the color of the fruit is much the same as the Bellflower, but not so yellow. The flavor, also, resembles the Yellow Bellflower, while the flesh is finer, and the pulp quite as juicy as the Rhode Island Greening. We regard the crispness and richness of the fruit, as even superior to the Gravenstein, which has always been our leading favorite among early apples. One of the most important qualities of Skin-

ner's Seedling, is its persistence in hanging upon the tree. It will rot and dry up before it will drop."

Early Rivers Cherry.—This has originated from the seed of the Early Purple Guigne; but the latter being liable to canker and gum, and being, also, of too delicate habit, the former most desirably takes its place. The fruit of the Rivers is as large as that of its parent, a very little later, but very rich and good, and the tree more luxuriant and much more healthy. The fruit is produced in large clusters of ten or twelve, two to four on a very short, common peduncle. Fruit nine tenths of an inch in diameter, at the East—here it would be larger. Skin black, flesh very tender, sweet, and agreeably flavored; stone extremely small, perhaps, the smallest in any cherry. I think it would be well for our orchardists to obtain this fine fruit and test it in California.

Knevett's Giant Raspberry.—This is another fine fruit I should like to see introduced here. It must be recollected that none of the most tender raspberries are too delicate for California. They, of course, need no protection here, at any rate, on most lands not too elevated. Manning, the business editor of *Tilton's Journal*, and a fruit expert, remarks: that if he could plant but a single variety of the raspberry, for his own use, it would be this kind. It will bear carriage, probably as well as the Red Antwerp. It was first introduced into the United States by Hon. M. P. Wilder. It came from England, origin unknown. Its fruit is of a deep red, large, roundish conical, sometimes double, approaching cockscomb shape; grains large, adhering slightly to the core, but still may be easily gathered, and does not crumble; flesh pretty firm; flavor sweet and rich.

The Lawrence Pear.—This fruit is so good and valuable that some of the best fruitists, in speaking of the most profitable kinds, often rank it as equal to the Bartlett; some even preferring the Lawrence. The Bartlett, owing to its great plenty, and to its appearance, in the height of the peach season, is beginning almost to surfeit the public taste.

It is, therefore, probable that good later varieties may prove as profitable, and even more so, to fruit raisers. The Lawrence, with many, is beginning to head this list. The tree of the Lawrence is not a too rampant grower, needs but little pruning, comparatively, and holds its foliage extremely well. As to the quality of the fruit, it can, perhaps, hardly be improved; if anything, for some palates it may be too sweet. The Seckel, in flavor, can only surpass it; it keeps well, and is not liable to rot at the core; it possesses a fine complexion, and is handsome in form, although medium in size—compared with the largest California pears—and it does not attain the size of the Bartlett nor the Flemish Beauty. It blooms early, but that is no detriment here, the spring frosts being of no importance. It is very prolific, and requires thinning. E. J. HOOPER.

PETUNIA.

Petunias are cultivated as bedding plants, and produce much better effect in masses than if planted out singly. With us they flower the whole year round.

The flowers of the Petunia are either double or single, and, although the double ones are rarer and generally higher-priced, the single ones are far richer in color, and for planting in masses are far more effective.

Double Petunias are propagated from slips or cuttings, but to strike readily should be placed under glass, and even then it is sometimes difficult to prevent their damping off just at the time when the roots should begin to form. In our practice, we give them plenty of air and shade, and water sparingly. As soon as they are rooted we pot them in the smallest-sized pots, keep them in the shade for a few days, and then place them in the open air, where they are protected from the heavy winds. Petunias should be treated here altogether as outdoor plants, except in their propagation. Under glass the plants soon grow tall and spindling, while out of doors they will branch out and soon become

very bushy. The principal varieties, which are readily obtained in our market, are: Pure White (*Queen of Whites*), rather fragrant, flowers very double, a free bloomer; Double Purple (*Albert Victor*), very fine bloomer; Crimson Scarlet (*Atella*), much lighter in color than the former, flowers large and full; Purple, marbled with white, (*Baltimore Belle*), very fine, and as yet rare with us, free bloomer, and very desirable; Rose, with pink and white bars (*Rosaline*), one of the best bloomers, with perfect flowers. All these will thrive well in the open ground with very little care, and are valuable for planting as single specimens, as well as in small masses.

The single Petunias, which are almost exclusively used as bedding plants, are richer, and much more varied in color. They are raised from seed, but much, of course, depends upon the quality, and we therefore advise care in purchasing only from responsible parties. The varieties are so numerous that we refrain from giving names. The finest are those displaying various colors, and which are striped, mottled, blotched, edged, veined or spotted. In order to retain or propagate a desirable variety, cuttings must be made from it, or the seed must be obtained from that particular flower, but even then we cannot rely upon the seedlings being true, if other colors have been permitted to grow in close proximity.

The seed of the Petunia is very fine, but germinates quickly and easily; it should be sown in sandy soil, either in boxes or in the open ground, care being taken not to cover it too deeply: in fact, it is better to sprinkle the seed on the surface. A light rain or sprinkling will carry most of it deeply enough into the ground to ensure its germination. Under glass the seed may be sown at any time, while for open-ground sowing the most favorable time is in the earlier part of spring, as we have no frosts of sufficient severity to harm them.

We recommend the cultivation of single and double Petunias extensively, and particularly where effect is desired. The flowers

of the Petunias soon wilt after they are cut, and are, therefore, not well adapted for bouquets or cut-flowers, but, like Scarlet Geraniums, they do much to brighten up the flower garden or the lawn.

TIMBER TREES OF AUSTRALIA.

By Baron Ferd. von Mueller, M. D.

[Continued from page 359 of last number.]

Fraxinus excelsior.

Ordinary Ash of Europe and West Asia. Height eighty feet; of comparatively quick growth; known to attain an age of nearly two hundred years. Rich soil on forest rivulets or river banks suit it best; wood remarkably tough and elastic; used for agricultural and other implements, for oars, axletrees, and many other purposes. Six peculiar kinds of Ash trees occur in Japan, some also in the Indian Highlands. All might be tried here.

Without irrigation, we have not much confidence in the successful growth of the Ash as a timber tree, although some very fine specimens are growing in Oakland and a very few about San Francisco. With a little attention and care, the young trees may be established so as to withstand the dry seasons, but river banks and moist places are more congenial to them.—Ed.

The best varieties of the Ash for California, are, probably:

Fraxinus quadrangulata.

The blue Ash of North America, growing seventy feet high; it yields excellent timber.

Fraxinus viridis.

The green Ash of North America; height seventy feet; wood excellent.

Gleditschia triacanthos.

The deciduous Honey Locust tree of North America; height up to eighty feet; wood hard, coarse-grained, fissile. Sown closely, this plant forms impenetrable, thorny, not readily combustible hedges.

The Honey Locust thrives well in California, and in a very few years a plantation of

Locust trees would be remunerative ; very little care is required in their cultivation.

—Ed.

Grevillea Robusta.

Our beautiful Lawn tree. Indigenous to the sub-tropical part of East Australia, one hundred feet high ; of rather rapid growth, and resisting drought in a remarkable degree ; hence one of the most eligible trees for desert culture. Our cultivated trees yield now already an ample supply of seeds. The wood is valued particularly for staves of casks.

This is a remarkable tree both for ornament and profit, and we have every reason to believe that it will do fully as well as the *Eucalyptus* family. For lawns and for public avenues and parks, no handsomer tree exists. Besides the extremely ornamental foliage and its rapid growth, the seeds germinate rapidly, and the young plants are easily transplanted. But at the present time the trees can only be purchased at a high price, on account of their scarcity here. We hope that our Australian friends will help us with a good supply of seed.—Ed.

Gymnocladus Conadensis.

The Chiroc. A North American timber and avenue tree, attaining a height of eighty feet ; allied to *Gleditschia*, but, as the name implies, thornless. The wood is strong, tough, compact, fine-grained, and assumes a rosy color.

Juglans cinerea.

The Butternut tree of North America. About fifty feet high ; stem-diameter four feet. Likes rocky places in rich forests. Wood lighter than that of the Black Walnut, durable and free from attacks of insects.

Juglans nigra.

Black Walnut tree. Attains a height of seventy feet ; trunk four feet in diameter ; found in rich forest land in North America. Wood purplish brown, turning dark with age, strong, tough, not liable to warp or to split ; not attacked by insects. Seed more oily than the European Walnut.

Juglans regia.

The ordinary Walnut tree, of Europe, but of Central Asiatic origin : it attains a height

of fully eighty feet, and lives many centuries. Wood light and tough, much sought for gunstocks, furniture and other things. The shells of the nut yield black pigment, trees of choice quality of wood have been sold for £600, the wood being the most valuable of middle Europe. Can be grown in cold localities, as it lives at two thousand feet elevation in middle Europe. The Californian Walnut tree (*Juglans rupestris*, Engelmann) and the Chinese Walnut tree (*Juglans mandchurica*, Maxim.) ought to be introduced here.

Leucadendron argenteum.

The Silver tree of South Africa is included on this occasion among forest trees, because it would add to the splendor of our woods, and thrive far better there than in our gardens. Moreover, with this tree many others equally glorious might be established in our mild forest glens as a source of horticultural wealth, were it only to obtain in future years a copious supply of seeds. Mention may be made of the tall *Magnolia* trees of North America (*Magnolia grandiflora*, L., one hundred feet high ; *M. umbrella* Lam., forty feet ; *M. acuminata*, L., eighty feet : *M. cordata*, Michx. fifty feet ; *M. Fraseri*, Walt., forty feet ; *M. macrophylla*, Michx., forty feet), *M. Yulan*, Desf. of China, fifty feet ; *Magnolia Campbelli*, Hook., of the Himalayas, one hundred and fifty feet high and flowers nearly a foot across ; *M. sphaerocarpa*, Roxb., also of the Indian Highlands, forty feet ; the North American Tulip tree (*Liriodendron tulipifera*, L.) one hundred and forty feet high, stem nine feet in diameter ; the Mediterranean *Styrax* tree (*Styrax officinalis*, L.) ; *Stenocarpus sinuosus*, Endl., of East Australia (the most brilliant of the *Proteaceae*) ; the crimson and scarlet Ratas of New Zealand (*Metrosideros florida*, Sm.) the *M. lucida*, Menz. ; *M. robusta*, Cunn., eighty feet high ; *M. tomentosa*, Cunn. ; forty feet) ; *Fuchsia excorticata*, L., also from New Zealand, stem two feet in diameter ; the crimson flowered *Eucalyptus ficifolia* of West Australia ; *Rhododendron Falconeri*, Hooker, from Upper India, fifty feet high, leaves eighteen inches long. In the Sassafras gullies, here alluded to, also

may be planted the great *Melaleuca Leucadendron*, L., the true Asiatic Cajuput tree which grows to a height of one hundred feet; even the North European Holly (*Ilex aquifolium*), which occasionally rises to sixty feet, though both from regions so distant.

Liquidambar Altingia.

At the Red Sea and in the mountains of India and New Guinea, at three thousand feet, and probably hardy in the warmer parts of our colony. The tree attains a height of two hundred feet. It yields the fragrant balsam known as liquid Storax.

Morus rubra.

The Red Mulberry tree of North America is the largest of the genus, attaining a height of seventy feet, it produces a strong and compact timber. The White Mulberry tree *morus alba*, with others, which afford food to silk worms, should be planted extensively everywhere, for hedges and copses.

All our our readers know how well the Mulberry thrives in California. On the coast range, in the valleys and in the higher mountain regions, it thrives with equal success. No tree has been cultivated more generally and with better results.—ED.

Maclura aurantiaca.

The Osage Orange of North America. Greatest height sixty feet; wood bright yellow, very elastic, fine grained. For deciduous thorn hedges the plant is important; its value for silk worms needs further to be tested.

Platanus occidentalis.

The true Plane tree of the East part of North America. More eligible as an avenue tree, than as a timber tree; diameter of stem at times fourteen feet; wood dull red.

Platanus orientalis.

The Plane tree of South Europe and Middle Asia. One of the grandest trees for lining roads and for street planting; deciduous like the other Planes; rather quick of growth, and not requiring much water; attains a height of ninety feet. The wood is well adapted for furniture and other kinds of cabinet work.

Platanus racemosa.

The Californian Plane tree. Wood harder and thus more durable than that of *P. occidentalis*, also less liable to warp.

Populus alba.

The Abele or White Poplar of Europe and Middle Asia. Height ninety feet. It proved here an excellent avenue tree, even in comparatively waterless situations, and gives by the partial whiteness of its foliage a pleasing effect in any plantation. *Populus canescens*, Sm., the grey poplar, is either a variety of the Abele or its hybrid with the Aspen, and yields a better timber for carpenters and millwrights.

Populus tremuloides.

The North American Aspen. Height fifty feet. It extends west to California, where a particular species *P. trichocarpa*, Torrey, occurs. All Poplars might be planted like all Willows, in our gullies, to intercept forest-fires, also generally on river banks.

M. Mueller next enumerates the different varieties of Oaks, all of which are useful as timber trees, and some of them highly ornamental. We mention a few of them, which might be readily introduced here.—ED.

Quercus falcata.

North America. Foliage deciduous. Lives in dry, sandy ground. A good sized tree with excellent tanner's bark.

Quercus Ilex.

The Holly Oak of South Europe. Height of tree fifty feet. Wood in use for ship building, bark for tanning. From varieties of this tree are obtained the sweet and nourishing Ballota and Chestnut acorns.

Quercus Robur.

The British Oak, extending through a great part of Europe and Western Asia, attaining a great age and an enormous size. Extreme height one hundred and twenty feet. Two varieties are distinguished: 1. *Quercus sessiliflora*, Salisbury. The Durmast Oak, with a darker, heavier timber, more elastic, less fissile. This tree is also the quicker of the two in growth, and lives on poorer soil. Its bark is also richer in medicinal, dyeing

and tanning principles. 2. *Quercus pedunculata*, Willd. This variety supplies most of the oak timber in Britain for ship-building, and is the best for bending under steam. It is also preferred for joiners' work.

Quercus serrata, Thunberg.

One of the twenty three known Japan Oaks. It yields the best food for the oak silk worm (*Bombyx Yamamai*.)

Quercus Sideroxyylon, Humboldt.

Mountains of Mexico, at eight thousand feet elevation. An Oak of great size, of compact timber, almost imperishable in water. *Q. lanceolata*, *Q. chrysophylla*, *Q. reticulata*, *Q. laurina*, *Q. obtusata*, *Q. glaucescens*, *Q. Xalapensis*, (Humb.) and *Q. acutifolia* (Nee), are among the many other highly important timber Oaks of the cooler regions of Mexico.

Quercus Suber.

The Cork Oak of South Europe and North Africa; evergreen. It attains an age of fully two hundred years. After about twenty years it can be stripped of its bark every six or seven years; but the best cork is obtained from trees over forty years old. Height of tree about forty feet. Acorns of a sweetish taste.

Quercus virens.

The Live Oak of North America, evergreen, fifty feet high. Supplies a most valuable timber for ship building; it is heavy, compact, fine-grained; it is moreover the strongest and most durable of all American Oaks. Like *Q. obtusiloba*, Michaux., it lives also on sea shores, helping to bind the sand, but it is then not of tall stature. Of many of the three hundred Oaks of both the Western and East portion of the Northern hemisphere, the properties remained unrecorded and perhaps unexamined; but it would be important to introduce as many kinds as possible for local test growth. The acorns, when packed in dry moss, retain their vitality for some months. The species with deciduous foliage are not desirable for massive ornamental planting, because in this clime they shed their dead leaves tardily during the very time of our greatest verdure.

Tilia Americana.

The Basswood tree or North American Linden tree, growing to fifty two degrees of north latitude. Height of tree eighty feet, diameter of stem four feet; wood pale and soft. *Tilia heterophylla*, Vent., the Silver Lime of North America, and *Tilia Manchurica*, Ruyr., of South Siberia might be tested.

Tilia Europæa.

The common Lime of Europe, extending naturally to Japan, the large leaved variety of South European origin. Height up to one hundred and twenty feet, exceptionally fifty feet in girth. The wood pale, soft and and close-grained, sought for turnery and carving; the bast excellent for mats.

Ulmus alata, Michx.

The Whahoo Elm of North America. Height of tree thirty feet; wood fine-grained.

Ulmus Americana.

The White Elm tree of North America, a tree fond of moist river banks, one hundred feet high; trunk sixty feet, five feet in diameter.

Ulmus campestris.

The ordinary Elm, indigenous to South Europe and temperate Asia, as far East as Japan, several marked varieties, such as the Cork Elm and Wych Elm, exist. The Elm in attaining an age of several centuries becomes finally of enormous size. The wood is tough, hard, fine-grained and remarkably durable if constantly under water; next to the Yew, it is the best of European woods, where great elasticity is required, as for archery bows. It is also used for keels, blocks and wheels. Bast tough.

Ulmus Floridana. Chapman.

The West Florida Elm, forty feet high.

Ulmus fulva, Michx.

The Slippery or Red Elm of North America, sixty feet high: wood red, tenacious.

Ulmus racemosa, Thomas.

The Cork Elm of North America,

ORNAMENTAL AND LANDSCAPE GARDENING.

When we first entered upon the publication of this Magazine, it was our intention to devote a certain space in each number to the much-abused art of Ornamental and Landscape Gardening, and that the articles should appear as a series of connected papers. To give our readers, by this method, all we have to say on this most important and interesting subject, would occupy a number of years, and we would be compelled, by this systematic treatment, to ignore at present many subjects which require our immediate attention. We, in consequence, came to the conclusion that our readers would be better pleased and the public interest much better subserved by making this section of our Magazine more varied, and subject to continuously-recurring contingencies.

In the future, therefore, under this department we shall treat upon small and large grounds, public squares and parks, and all private and public improvements which may come within this field.

WALKS.

The laying out of walks is one of the most important operations in making a garden. Where ground is limited, no more walks should be formed than the occupants have use for every day; they should most conveniently connect with the street, the house, and the outhouses and backgrounds; and, as convenience must be the paramount consideration, there can be but little uncertainty about their direction and width. The main walks from the entrance-gate to the door should be direct and not intersected or obstructed by flower beds, groups of shrubbery or fountains, as is so often the case. The width of the walks must also be in accordance with the extent of the house and the grounds.

The laying out of walks over extensive grounds requires much more judgment, and we refer to what we have said in our last number on this subject.

Parties desirous of laying out grounds usually call upon a gardener to draw a plan,

and he generally succeeds in presenting one with a number of walks so nicely curved and so pleasing to the eye that his taste and knowledge are no longer questioned, and his ideas, whether original or copied, are at once adopted. But few have any idea how different these lines and walks will appear on the ground from the design on paper, and how absurd the arrangement will appear after being carried out according to plan. A gardener who endeavors to please the eye of his employer in this manner does not understand his business; and we caution those who are desirous of laying out grounds not to employ men who will exert themselves to gain their confidence by drawing showy little pictures, which, if developed into reality, will present a most ridiculous and intolerable appearance. A professional gardener will consult the ideas and wishes of his employer, adapt them to the already-existing features, and on the basis of these he will, with the aid of his professional experience, present a plan or design of what he proposes to do. His ideas, when exhibited on paper, may not be pleasing to the eye, but the execution of the work will be in conformity with all that may be reasonably expected.

PORTSMOUTH SQUARE.

Of late this much-frequented public square, of San Francisco, has afforded us considerable cause of complaint. For the last three months the gardener who is in charge has exercised his skill in giving to the trees their present unsightly appearance; and he still continues using his shears and his pruning-knife on any and everything that comes in his way. Now, we should like to ask our Supervisors whether this man in charge has an unlimited power of action, and whether he is merely kept there for the purpose of occupying his time that he may be retained on the pay-roll. Are our Supervisors aware of the fact, that if this mode of treating trees is continued a few years longer, they will be an eyesore to every one who has occasion to pass through the square? It is useless for us to attempt to prove here that this unmer-

ciful clipping and cutting of evergreens is both injudicious and injurious; every professional gardener knows it. Proper pruning is beneficial and necessary to protect trees against our strong winds and to give a pleasing appearance, but we most earnestly object to the disfigurement of a place which is intended as an ornament to that portion of the city.

It is absolutely necessary that some competent man should be entrusted with the full charge of all our public grounds; and our Supervisors should no longer neglect to give this matter their particular attention.

SAN FRANCISCO'S PARK.

We understand that it will be one of the objects of our next Legislature to create a Board of Public Works for this city, and we are induced to believe that such a measure will be beneficial to the people and tax-payers. The City Hall, the parks, the alterations of streets, and other public improvements may be very satisfactorily managed by one Board, provided that competent men are selected to constitute that Board.

In regard to our Park, little doubt exists that much more could have been accomplished, if the Commissioners appointed had been well qualified for the position. We doubt if any of them made themselves very familiar with the Park ground and its requirements, or measures would ere this have been inaugurated which would have resulted in greatly improving the condition of the ground. It is well known that two thirds of the Park Reservation consists of drifting sand hills, and it would be unwise to attempt any improvements on the Park grounds before the drift sand is arrested. We are convinced that a small outlay would have covered the larger portion of these sand hills with vegetation sufficient to have arrested the drifting of sand; and if the Commissioners had accomplished that much, many other large property owners would have availed themselves of the experience thus gained to have covered other tracts in a similar condition with vegetation.

It must be admitted that nothing can be done in the way of grading or planting until the drift sands are arrested; and whether our great Park is to be established on the present Reservation or at the Presidio, the covering of the sand hills with vegetation would have proved of immense value.

Whatever our Legislature contemplates doing in regard to a Park, we hope it will be done effectually, by having a general Superintendent appointed who is well posted in regard to the nature of our soil and climate, and in the proper method of securing a quick growth of trees and shrubs.

The most effectual manner of creating a Park in a bare country like San Francisco and its surroundings, is to cover the ground with vegetation of some kind or other. This action must be followed by planting the ground with the seeds of such trees and shrubs as are likely to germinate and grow under reasonable protection; and when these young trees have been established, there will be time enough to think of avenues and other improvements. Very little grading should be done. In this way a wonderful change could be effected in five or six years at a very small expense.

We require a Park, and we should also open a field for the laboring classes, but the matter must be entrusted to competent men who are able to avail themselves of all the resources at our command. If the work is taken hold of in this manner, we shall soon accomplish the desired end.

A GOOD CEMENT.—Gutta percha, dissolved in chloroform, so as to make a fluid of the consistence of honey, produces a good Cement. When spread, it will dry in a few moments, but it can be softened by heating. Small patches of leather can be cemented on boots by its use, in such a manner as to almost defy detection, and some shoemakers employ it with great success for this purpose. It is waterproof, resisting all the elements but heat.

THE SCUPPERNONG GRAPE.

I have strong reasons for believing that the above grape has not been grown in California. One of the reasons that it has not been, is, that it will not succeed from cuttings. On this account it has been condemned by northern writers and cultivators. There are several varieties of the Scuppernong. It is one of the most valued grapes in all the South and in part of Texas. It is used to a very great extent for wine and also for the table. The two chief kinds are, the Black and the White S. The Black is the most common. Like other fruits, they vary much from the seed. Most of the seeds run into the Black species. They also differ much in excellence. The White variety is said to make the best wine. Instead of being pruned closely, this vine is allowed to climb trees, and is, comparatively, but little pruned. There is a Black Scuppernong in Georgia, thirty-five years of age, which is reported to yield annually seventy-five to one hundred gallons of wine. Both the Black and the White are equally hardy, but this, of course, is immaterial in this region. A friend, Mr. Frank Hills, sent me, from Arcola, La., three rooted plants of this vine, but as I had to plant them on a ranch some distance from San Francisco, I was not able to attend to the irrigation of them myself, and in the late dry season they all died. To show how much this grape is valued in the South, vineyard-men there make, annually, from one to two thousand gallons of wine to the acre, and sell the same for from two to four thousand dollars. This grape is indigenous on Roanoke Island, or rather that is the locality where it was first noticed. The colony of Sir Walter Raleigh discovered it growing wild on that island, about 297 years ago, and strange to say, though not the less true, the same vine was seen in 1852-3 by Sydney Weller, of North Carolina, as reported in the United States Patent Office Report, in 1853. Judge Heath, of Memphis, saw the vine in 1856, and had no reason to doubt it was then flourishing; thus this vine

must be at least 300 years old. A vine that *never* fails to bear immense crops, certainly seems worthy of some attention. This may be going, probably, too far, but Dr. Jackson, of Berton, N. C., who analyzed thirty-eight kinds of grapes, wrote to a friend, stating that finer wine could be made from the Scuppernong than from any other vine in America. So long ago as 1853, it is reported that Mr. Weller, of North Carolina, made six different kinds of wine from this grape, which sold at from one to six dollars per gallon in gold.

Although the Scuppernong may not flourish in the north, it would, of course, do well here, although it might not turn out of much, or indeed of any superior value comparatively, where all kinds, both hardy and tender, do so well. Yet, as a matter of curiosity, I should like to see it tried, on account of its wonderfully prolific nature and its freedom from blight or mildew, insects or the effects of light frosts. Good Sparkling Champagne is made in the South from this grape, as well as still-wine—at least such is the information sent me. In the South this vine flourishes best in rich, low, moist, open, sandy and porous bottoms, near water-courses, where the Southern Muscatine is found growing in wild luxuriance. The Scuppernong belongs to the Muscatine family,

At the exhibition of fruits, at the meeting of the American Pomological Society, at Richmond, Va., this grape was shown in quantities, and surprised some of the delegates, who were not previously acquainted with it, by its good quality.

If any of our vine growers wish to experiment on this grape next year, on writing to G. F. Hills, Arcola, La., I believe he will cheerfully send them a few plants of this grape for trial here, or, probably, he might send them a few seeds. E. J. HOOPER.

SAN FRANCISCO, November, 1871.

SMOKE OF DRIED PUMPKIN-VINE LEAVES.—It is said that the smoke of the dried leaves of pumpkin-vines, burned in a bright fire, will either kill or instantly drive out all the flies from an apartment.

FOREST TREE CULTURE.

The cultivation of forest trees has evidently attracted the attention of the whole civilized world; and we are highly gratified that the matter is so earnestly discussed in our own State, which will be benefited by the cultivation of timber trees more than many other countries. Australia is making strenuous efforts in this direction, and as our climate so closely resembles that of Australia, we may learn much from their experience.

With pleasure we refer to a lecture delivered by Baron Fred. von Mueller, of Melbourne, on this subject, and make such extracts from it as may apply with equal force to our own State. He says:

“How forests beneficially affect a climate, how they supply equable humidity, how they afford extensive shelter, create springs and control the flow of rivers: all this the teachings of science, the records of history, and more forcibly still, the sufferings and even ruin of numerous and vast communities, have demonstrated in sad experiences, not only in times long past, but even in very recent periods.”

Mr. Mueller further shows how the forests, as slow conductors of heat, lessen the temperature of warm climes, how they influence and attract the current of vapors, how they condense the moisture of the clouds by lowering the temperature of the atmosphere; how whole mountain districts of Southern Europe became, with the fall of the forests, utterly depopulated. It should be borne in mind, that the productiveness of cereal fields is often increased at the rate of fully fifty per cent., merely by establishing plantations of shelter trees; that the progress of drift-sand is checked by tree plantations, and that a belt of timber not only affords protection against storms, but also converts sandy wastes into arable meadows. Why not imitate the example set by an Egyptian sovereign, who alone caused, during the early part of this century, twenty millions of trees to be planted in formerly rainless parts of his dominion.

Dr. H. Rogers of Mauritius, issued this year a report on the effects of cutting down of forests, “on the climate and health of Mauritius.” Still, in 1854, the island was resorted to by invalids from India, as the “pearl” of the Indian Ocean, it being then one mass of verdure. When the forests were cleared to give space for sugar cultivation, the rain-fall diminished even there; the rivers dwindled down to muddy streams.

We may add here that but a few years ago, when the Oakland hills were covered with Redwoods, lively springs of water were found everywhere, while now, after the hills have been stripped of almost every tree, the surface shows no indication of moisture, the former springs being entirely dried up.—Ed.

But what is to be done to encourage the planting of forest trees? Mr. Mueller recommends the creating of Forest Boards in the different districts, which should be held as honorary positions, so as to involve no direct expense. Each locality, he says, shows peculiar adaptabilities for special trees to be selected. Each Forest Board can best frame its own by-laws, or local regulations, subject to higher authority. Each Board should have its cultivator, who could also perform the duties of forest ranger.

Now, we are of opinion that a law should be passed by our Legislature for the protection of forest trees, and that honorary Forest Boards might be appointed for every county, who would enforce the observance of such law. Seeds, with proper instructions for their planting and management, might be distributed by the State to these local Boards, who, again, could distribute them to such settlers as were willing to cultivate forest trees.

The State could not be under any very great expense, in obtaining the necessary seeds, and we have no doubt that a fair beginning of forest tree cultivation would soon be inaugurated.—Ed.

In connection with this subject, we clip from the *Bulletin*, of November 7th, the following, in relation to Southern California:

“So far as general agriculture is concerned,

the light rainfall and heavy droughts render it probable that this locality will never succeed to any great extent. There is little land that will warrant the culture of cereals. There are a few small fertile valleys along the water-courses, which are unsurpassed for any kind of crop; but the greater part of the land is *mesa* or table land, which cannot be irrigated successfully. The most of this *mesa* land is exceedingly fertile, so far as fertility is supplied by the composition of the soil. It is mainly composed of rich adobe, sometimes black, and sometimes mixed with sand or clay.

“There is one purpose to which this *mesa* land will eventually be put, and with good success—that is

TREE CULTURE.

“The fact that the northern country is barren of trees, is no argument against the practicability of raising them. There is indisputable evidence that forests of considerable extent once existed there. Old Spanish voyagers have left ample record to that effect. In 1602 the Bay of San Diego was entered by Spanish explorers, who sent on shore Ensign Alacon, Captain Pequero, and eight soldiers to explore. Following is an extract from their memoranda:

“They first direct their steps to a heavy forest which lies on the north side of the bay. This is ascertained to be about three leagues in length, and about one and a half in breadth. The trees are chiefly oaks, with an undergrowth of fragrant shrubs.”

“A latter portion of their memoranda says:

“All desirable preparations being made, they sail from this beautiful Bay of San Diego. While they have tarried in it, many of the crew who have been sick of the scurvy, have recovered. It is a sorrowful occasion for those who still live, to part from the graves of their companions. They are interred on the borders of the magnificent forest northeast of the bay, and the well-known trees which spread their branches over them are discernible as they leave the land.”

“No traces are now discernible of the ‘magnificent forest’ which existed two cen-

turies and a half ago. It was doubtless swept away by fire, as some have been within the memory of those now alive.

“Within the last four years a space of country thirty miles in length and fifteen in breadth, just back of the town of San Diego, was burned bare in three days. Even now, occasional stunted trees may be seen in the gulches of the *mesa* lands, having sprung from the roots of the burned parent trees.

“It is the opinion of many intelligent men in that section, that no part of the world is better adapted to tree culture than the Counties of Santa Barbara, Kern, San Bernardino, Los Angeles and San Diego. They believe trees have grown there, and will grow again if once rooted and kept from fire. There are many kinds of trees, bearing semi-tropical fruits and nuts, which root as deeply and as persistently as the indigenous shrubbery with which that vast section abounds. And once rooted, there is nothing in the climate which would not favor their most bounteous production.”

THE FUTURE VALUE OF TIMBER.—It is impossible to predict the extreme prices to which timber may advance before the present generation passes away. We have before us a statement from an English paper of the prices realized from thirty oak trees sold at auction in Burghley Park, as follows:—One tree brought \$360, another \$310, and a third \$324; the whole thirty brought \$4,500; averaging \$150 each. These must have been large trees, but smaller trees are proportionately valuable. There is but little doubt that within a century or less timber will be as scarce in America as it is now in Europe, and it is not probable that a sufficient substitute will ever be found to occupy its place in the industries of mankind. Therefore, plant trees, and plant the right sort, especially those most required in building.

TOBACCO ANTIDOTE.—Coarsely ground gentian root, chewed instead of tobacco, the chewer swallowing the saliva, will, it is said, destroy all desire for “plug” or “fine-cut.”

Editorial Portfolio.

The present number commences the Second Volume of THE CALIFORNIA HORTICULTURIST AND FLORAL MAGAZINE, and we feel it incumbent on us to offer a few remarks to our subscribers and the public in general, in reference to our past experience and our future prospects.

During the past year we had to struggle with many adverse circumstances; we have met with many disappointments, but we have sought through all difficulties to make the Magazine what we promised in our first number, "a medium through which all might set forth their experiences, observations, and ideas on the Horticulture and Agriculture of the Pacific Coast. How far we have succeeded, and whether we have met the expectations of our readers, we cannot ourselves determine; but it is a source of regret to us that more interest has not been manifested by the many able horticulturists in this State who have been earnestly invited, to whom our columns are always open, and whose contributions would have been most cordially welcomed. We can only attribute the want of co-operation with us to culpable negligence; there are some praiseworthy exceptions, however, and we have to return our thanks to a few of our friends for many excellent articles.

We now trust that this period of indifference has passed, as we have received assurances of aid from numerous talented and experienced men whose practical contributions will materially assist us in fulfilling a promise, which we are fully justified in making—that the Second Volume of the Magazine shall far surpass our First in intrinsic value as a record and manual of the Horticulture of the Pacific Coast, and a work of special interest to our friends abroad who seek information respecting our botanical treasures.

Pecuniarily we have suffered severely, but we have faith that during the coming year, the Magazine will become self-sustaining,

and probably reimburse us some of our losses. For the purpose of bringing the Magazine within the reach of all, we have reduced the price of subscription from four to two and a half dollars per annum, thus placing it in the hands of even the smallest cultivators. For this we hope to be compensated by a largely increased subscription list, and a fuller record of advertisers; and we hope by thus widening its circulation and by its advocacy of the important interests of California, to contribute our fair quota to the general need.

We omitted publishing a number for the month of November, for the following among other reasons:—It was suggested to us by many of our friends that the first of the month would be a more suitable day for publication, and for a similar reason we are desirous to issue the first number of the Third Volume on the 1st of January, 1873, by either omitting the publication of the December number for 1872, or if successful with our subscription list, by giving our readers thirteen numbers in this our Second Volume. This arrangement of publication is the one adopted by every other Horticultural Magazine, and we do not desire to be singular in this respect.

And now for all our sins of omission and commission during the past year, we most humbly crave the indulgence of our friends and the public, hoping that for the welfare of all, ourselves included, an increased interest will be felt in the development of our Agricultural and Horticultural resources, on which the future prosperity of California so seriously depends.

As our Legislature will shortly meet in Sacramento for the purpose of deliberating upon the public interests, we gladly avail ourselves of this opportunity to suggest some enactments, whereby our Horticultural and Agricultural interests may be advanced and better protected. When we take into consideration how much California depends on the cultivation of the soil, it may reasonably be expected that our representatives should give their most careful consideration to en-

actments, by which the cultivator is encouraged and by which the productions are increased.

We, therefore, respectfully call the attention of our Legislature, in the first place, to the importance of forest tree cultivation, which is now being so strongly advocated all over the civilized world, and which urges itself so imperatively upon the people of California.

Next in order, but equal in importance, comes the subject of irrigation, which demands good and judicious legislation. We do not desire grand schemes on paper, which, however plausible, may lack the possibility of being carried out. The entire State is interested in the inauguration of a practical system of irrigation, and the subject should be taken up heartily and with unanimity.

We consider it would be a wise step on the part of our Legislature, to grant small appropriations from the State Treasury to our Agricultural and Horticultural Societies, which have proved to be so highly advantageous in stimulating and instructing the cultivators of the field and garden. These societies could do much more good if they received a little aid from the State. Their exhibitions and fairs have proved to be of practical value, except where horse-racing has been the sole attraction to all the visitors. And we would certainly like to see State aid withheld from every society which makes this the principle feature of its fairs. But societies which endeavor to disseminate knowledge, to instruct the cultivator, and to give information to emigrants and new settlers, should receive State aid. A law could be passed by which such societies might be required to render certain services, such as the giving information to settlers and emigrants, and by encouraging the introduction of new productions. We have already taken steps towards bringing emigrants to California, and we consider it necessary that the new comers should be familiarized with the peculiarities of our soil and climate, and our modes of cultivation,

etc. All this might be very properly done by such societies.

Our State Agricultural Society receives a large amount every year from the State, and we consider it only fair and judicious that an association, such as the Bay District Horticultural Society of California, should receive some aid. We are certain that this young society, consisting as it does of many practical horticulturists, would in return do all that might reasonably be expected of it to benefit the State at large.

Finally, we strongly advocate, on behalf of the people of San Francisco, some better and more satisfactory means for the establishment of a park, which has now become a necessity. Where nature affords so little shelter for those who desire to avail themselves of the open air, a park, with proper plantations of trees and shrubs, is an improvement which the people of San Francisco can no longer dispense with. The matter should receive the earliest attention from our Legislature, and practical men should be selected to carry out the enterprise.

A great deal of money has been expended during the past two years without any practical result, while a small amount properly invested would have resulted in much good. In another article on this subject we have suggested a proper *modus operandi* for laying the foundation of a park, and we hope that our ideas will be endorsed by the intelligent public and by their representatives at Sacramento. Even setting aside the necessity of a park, it should be the established maxim, in every large community, to provide labor for the unemployed, at the same time inaugurating such improvements as are indispensable with the progress of a large city.

We refer our readers to the advertisement of John Rock, who is known to us as a reliable nurseryman. He is located in the thriving City of San José, where he undoubtedly finds a remunerative field for his labors.

BAY DISTRICT HORTICULTURAL SOCIETY.

A regular meeting of the Society was held on Saturday, October 28th, at their new rooms, No. 622 Clay Street, where the reading room of the Society is also now established.

Dr. Kellogg presented a branch and flower of the so-called *Desert Rose*, a native of Australia; and also a branch with fruit similar to the Hazelnut, pronounced by Prof. Bolander to be a *Simmondsia*, a native of California, and found near Shasta.

The Constitution and By-Laws, as revised by the committee, were read, and with very few alterations adopted.

Officers for the coming year were nominated, the election to take place on Saturday, November 25th.

A number of valuable publications were recommended for the library of the Society, and orders were given to purchase them.

The regular meeting for November, took place on Saturday, November 25th.

President H. N. Bolander in the chair.

After the reading of minutes, the following gentlemen were proposed as candidates for election as members:

R. B. Betge and L. H. D. Lange, as regular subscribing members; and E. J. Hooper, as a life member. On a suspension of the rules, they were unanimously elected.

The Report on the Constitution and By-Laws was again taken up, and finally adopted. The Secretary was authorized to order one thousand copies printed.

The annual election of officers, for the ensuing year, was then declared in order, and the following members were unanimously elected:

President, H. N. Bolander; Vice-President, E. J. Hooper; Secretary, F. A. Miller; Treasurer, William Meyer; Trustees, E. L. Reimer, F. Luedemann and Cha. Stephens.

Mr. Woodward kindly tendered his valuable assistance in making the necessary arrangements for the next Horticultural Exhibition.

Mr. Bolander was authorized to procure those books which were recommended at the previous meeting, and which are published in England.

Mr. E. J. Hooper donated twenty-four volumes of valuable Horticultural and Agricultural books to the Society, and received a hearty and unanimous vote of thanks from all the members present.

The Trustees of the Society will meet for the present on the last Saturday of every month, at 7 o'clock p. m., at the rooms of the Society.

On account of the approaching holidays, the next regular meeting will be held on the first Saturday of January prox., when the annual reports of officers will be received, and the newly elected officers will assume their duties.

Professor Bolander will also deliver a lecture on the Indigenous Shrubs of California. Adjourned.

HORTICULTURAL READING ROOM

And Library of the Bay District Horticultural Society.

As will be seen by the proceedings of the above Society, in another column, a Horticultural Reading Room and Library has been inaugurated for the benefit of its members. This is a step in the right direction. We regret to say, however, that the Society being young, is unable to do much in the way of purchasing books at present, but it was well to make a beginning. We hope that contributions of books will be made by friends of the Society and advocates of horticultural and agricultural progress. With such aid, and with judicious management, we anticipate the shelves of the library will soon be replete with many of the best and most valuable publications, and that the library will soon be recognized as a source of reference on this speciality. In these times of progress, we must avail ourselves of every opportunity of acquiring knowledge, as well by reading and verbal interchange of thought, and by the experience of others, as by practi-

cal experiments, which cost money and consume much time.

We are authorized to state that the Secretary will be most happy to receive any contributions and donations, which the friends of the Society may feel disposed to present. The office hours are from 2 to 4 P. M., during week days; when he will furnish any information which may be desired.

THE OREGON STATE FAIR.

The late Oregon State Fair has not gratified the expectations of the managers, although very creditable exhibits have been made in many departments. It seems that many of the most prominent cultivators did not participate. In our opinion, those men are staying at home because horse-racing seems to form the principal feature of these Fairs. This horse-racing, we have no doubt, is productive of some good; but under the present management of our State Fairs, gambling and betting are entirely too much encouraged, and our more quiet and industrious people, who would make the exhibition a success, as far as quality and quantity are concerned, are averse to being brought into contact with gamblers and sharps, who seem to be in the majority.

An exchange says: "The Oregon farmer prides himself on his horses, and certainly many not without good cause. The improvement of the stock is made the excuse for the race track for "the trial of speed," as it is termed. It is certainly a misnomer to call these races a trial of speed. They would be more properly known as a trial of skill in horse jockeying, of attempts to deceive the bystanders, in a word, a perfect gambling shop. While telling the truth in this matter, let me exonerate at least a large majority of the gentlemen managers of the Society and Fair. Their aim has been, and is, higher than merely to draw a crowd and give them an opportunity of betting. In the matter of this race track they have an elephant on their hands, that is yearly degenerating the char-

acter of the Fair, which in part will account for the meagre display in many departments, and which will eventually cause many of the more thoughtful people to withdraw their support altogether.

REPORT ON THE FRUIT MARKET.

Owing to the lateness of the season, the glory and the brilliancy of complexion and coloring of the various fruits on the stands, are sadly fading away. Fruits will not bear comparison in brightness and variety, with the splendid painting of nature in the autumnal tints of foliage, but owing to their maturity and ripeness, may be said rather to have fallen into their "sear and yellow leaf." Apples preserve their different beautiful colors better than pears and grapes, but among the last, the magnificent Tokay still retains much of its rich, lovely and "flaming" red.

There are not enough of strawberries, by their crimson hue, to contribute much to enliven the soberness and somberness of the general effect. There are still a few of these berries in market, being about the tenth crop of this very favorite fruit. They retail now at 35 cents for about two thirds of a quart. They are chiefly Longworth's Prolific.

About ten days since, California Oranges, from Los Angeles, made their *debut* for this season with us, on Pomona's boards. A small consignment of Hawaiian Oranges, has also reached the market. But how much superior are the home specimens of this refreshing fruit, compared with those from the Islands! Excepting now and then, a few individuals, the latter are insipid and watery, compared with their more florid-hued congeners.

Grapes have been received lately, of course, in much less abundance than in the hey-day of the vintage, a month since; and their quality has not improved by age, as their rich juice, after fermentation, does in the shape of wine.

Pears are much diminished in variety, but the supply is better kept up than that of

grapes, although the few good sorts are chiefly confined to Winter Nelis, Beurré Clairegeau, Glout Morceau, (rather scarce) Easter Buerré, and the large and fine baking and cooking Vicar of Winkfield.

Apples are in plenty and quite good this year, compared with the last. There is a large variety; that fine, rich and tender apple, the Bellflower, is running a good race with the renowned Newton Pippin, and the choice, fine, rich and deliciously flavored *Æsopus Spitzenburgh*. Cranberries are plentiful, ready to serve as piquant sauce with the turkeys.

The different nuts are becoming plentiful. English Walnuts, Native common Walnuts, from the East, Softshelled Native Almonds, and large Hickorynuts, Eastern Chestnuts and Brazilnuts.

Dried German Prunes are abundant, fresh and luscious. They make a delicious and most wholesome dish stewed. Their price is five to eight cents per pound with pits, and twenty-five cents without them. Dried Apricots and Nectarines are fifteen cents per pound.

Green Peppers and Sugar Peas are no longer to be seen, but there is a sufficiency of fine Egg Plants, Brussels Sprouts, Jerusalem Artichokes, Rhubarb, Spinach, Oyster Plants, Artichokes and Cauliflowers, with other good vegetables, to cause our citizens to be in good humor with our wonderful growth-prolonging climate.

In the East, at this time, they have to endure frost, snow, cold rains, sleet, hail storms with biting cold gales, while we are revelling in a balmy spring atmosphere and enjoying many of the fruits and vegetables of Spring, Summer and Autumn, to say nothing of the feast to the eye of the numerous still blooming shrubs, plants and flowers. Have we not abundant reason to be satisfied with, and to glory in our California, notwithstanding she has some defects, and at the present time some drawbacks, inseparable from the pressure of the times in relation to business, and cannot claim absolute perfection of climate,

from lack in some years of reasonable rains and moisture? The late liberal showers have cheered all hearts and wonderfully raised the spirits of our agriculturists. E. J. H.

SAN FRANCISCO, November 28th, 1871.

WORK FOR DECEMBER.

Since the issue of our last number, we have had some fine showers of rain, which were highly acceptable, particularly so, where summer-fallowing has been adopted. Nearly every newspaper in the State has advocated summer-fallowing, deep plowing and early planting; but very few agriculturists indeed have availed themselves of the good advice, the very great majority still adhere to the good old-fashioned ways of our fathers and grandfathers. It is true, that summer-fallowing is not applicable to all kinds of soil, and much of the valley land is not fit to be plowed in late-summer. But nearly all of the up-lands will yield larger and surer crops by this process. The same reason will apply to the first rains in the fall; one or two such showers as we had during the earlier part of November, are sufficient to permit the planting of most lands, and of all sandy and light soils; but it requires a much larger quantity of rain to moisten Sacramento or San Joaquin valley lands, sufficiently for active operations. It is, therefore, of the greatest importance that we should soon have more rain and plenty of it. Our usual supply of moisture will give many of our discouraged farmers a new impetus to make up for the losses of last year, and it will stimulate business in every direction.

Meanwhile, let us hope for the best, and let no one neglect to be fully prepared for active work as soon as the necessary rains shall have blessed the country.

In those districts where aid is needed to plant the fields, we have no doubt that proper measures will be taken to supply their wants, if appeals are made to our more wealthy business men.

At the same time, let us consider well if it is within the power of human efforts to increase the rain-fall, and if so, what steps can be taken, and let us also enlarge and utilize our resources for irrigation.

While we are waiting for rain, let us prune our fruit trees and vines, and give the orchards and vineyards a thorough overhauling. We refer again to what we have said in respect to pruning in our last number.

In the Kitchen Garden some work may be done to good advantage. The late rains have had a very good effect upon garden soil; we take it for granted that light soils have been selected for garden spots, and that the more thorough cultivation to which we subject our gardens, necessitates much less moisture for sowing and planting. While cauliflower, cabbage and tomatoes, may be sown in frames for early transplanting, we may plant seeds of turnips, radishes, lettuce, carrots, early peas, etc., in the open ground. We have frequently remarked, this rule will apply more particularly to the localities where no heavy frosts are experienced; light frosts, such as we have in San Francisco, Sacramento and other similar localities, will not affect any of the above vegetables, except tomatoes, and these must be protected, if early fruit is desired.

To our Flower Gardens, the late rain has been a great help. While it gave the foliage of trees and shrubs a thorough cleansing and brightened up the general appearance of plants, it has rendered the removal and shifting of plants far more easy and less hazardous.

If seeds are found to be ripe, they should be gathered at once, and hung up or shelved in a dry room, where rats and mice cannot reach them.

Bulbs, such as Dahlias, Galidolus, Hyacinths and Tuberoses should be taken up at once, if it has not already been done; they should be exposed to the sun for a few days to evaporate the superabundant moisture, and should then be stored away in the same manner as seeds, in a dry and airy room,

after the varieties and colors have been properly marked. During a rainy day the seed may be cleaned and the offsets of Gladiolus, Hyacinths and Tuberoses separated from the old bulbs. These offsets may be planted again as soon as the ground can be properly prepared, while the old bulbs should be kept upon the shelves until the early part of spring, when they may be planted for flowering. Old Tuberoses are not apt to flower the second time, but they may be replanted to form offsets, which in another year will make good flowering bulbs.

Roses and deciduous flowering shrubs, which are intended for sale during winter or spring, may be taken up and heeled in. During November, flowers are not so plentiful after the plants have just made their full growth; but if we resort to the pruning knife at once and cut back Roses, they will soon force out their young shoots and produce, under favorable weather, new buds and flowers within a short period.

Greenhouse plants will have to be content with less water, unless there are good facilities for heating. Young and tender plants, such as Coleus, Cinerarias and other soft-wooded stock, will suffer much if more water is given than is necessary.

Plants which have outgrown the two and three inch pots must be shifted, in order to advance their growth for the spring trade. Greenhouses should be aired and ventilated during the early part of pleasant days, and closed early in the afternoon.

Cinerarias should have plenty of room, good sized pots and a sunny exposure.

Camellias will soon come into flower, and form the chief attraction in the bouquet stores. To keep them moderately warm and well supplied with water, will ensure a more speedy development of the flowers, and very few buds will be lost.

Narcissus, Hyacinths and Crocus, should be planted for forcing and window culture.

GOOD BRANDY.—The Grass Valley *Republican* reports that the best quality of Brandy can be manufactured from Manzanita Grapes.

WOODWARD'S GARDENS.

As usual, with the spirited proprietor of these gardens, still further changes, which are also great improvements, are in progress. We esteem this establishment, not so much a private speculation, as a public benefit, tending not only to the improvement of taste, but to the advancement of knowledge, especially in the absence of any State institution for the purpose.

Although not a very brilliant period of the year for visiting gardens and conservatories, yet we found much to gratify our taste for flowers and choice plants. Our favorite *Espiritu Santo* is still in bloom, as also fine specimens of *Cypripedium insignis*, and *Hibiscus Cooperii* in flower. We were much pleased with a new *Begonia*—*Baron de Caizney*—and a numerous collection of Marantas, among which we noticed *M. tuberspatha*, *M. sanguinea*, *M. discolor*, *M. Varzewiigi*, *M. nutans* and *M. rosea linearis*; and we counted about twenty varieties of Ferns, of which *Pteris tremula*, *Asplenium Veitchianum*, *Evansiana* and *Alsophilla excelsa* (tree fern) met our eye.

Among numerous other plants and shrubs that attracted our attention we may name a fine *Yucca*—*Bonafartia tuncea*, *Cypripedium venusta*, *Cycas revoluta*, (sago palm) *Coffea Arabica* (coffee tree) in full berry, *Aloe zebrina*, *Graptophillum pictum* and *Carcolobia patyclada*, with many others which space will not permit us to enumerate.

NEW AND RARE PLANTS.

Cyrtodeira is a new tribe from the gold regions of South America. They require a moist atmosphere, when in a growing state, with a rough, sandy, vegetable soil, to keep them beautiful and fresh; they can be propagated every spring from the tips of the shoots. They are capital basket plants for shaded situations.

Cyrtodeira metallica has bright scarlet flowers, with thick oval-shaped leaves of an olive green, with a central pink band on the

midrib, and the laterals diverging through their hairy surface.

Cyrtodeira chantulensis.—The flowers are an inch in diameter, white, shaded with lilac, and they appear in profusion for several months. The foliage is purple on the under side, and on the upper side it is a shaded green, sparkling with a golden metallic luster—a very charming plant.—*Tilton's Journal of Horticulture*.

Dendrobium Crassinoda.—One of the most remarkable Dendrobes hitherto discovered, whether we take the singularly formed stems, or the distinct and beautiful flowers.

The stems are produced from nine to eighteen inches in length, and formed throughout of swollen internodes, closely set together, giving them the appearance of rows of large beads.

The flowers are from two to two and one half inches in diameter, abundantly developed from the upper nodes; they are white, with broad rosy tips to the sepals, petals and lip, with a large bright yellow disc to the latter.

This is another of the many beautiful plants sent to Veitch by Col. Benson, who discovered it on the Arrakan Mountains, at an elevation of two thousand five hundred feet.—*Gardner's Monthly*.

ANSWER TO "S. C."

In answer to our worthy correspondent, "S. C.," in our last number, we would state that his observation of the growth and habit of fig trees cannot have been very close. Fig trees, like all other fruit-bearing trees, must put forth blossoms, as without them no figs can be produced. However, the blossoms are not showy, on account of the entire absence of the corolla (blossom leaves). The blossoms of the fig tree are *monœcious*, male and female; the female blossom has one pistil, and the male has three stamens. The fig tree is classified under *Polygamia*, *Diœcia*, (*Monœcia Androgynia Spr.*) and belongs to *Urticeæ*.

EVERGREENS FROM CUTTINGS.

A contributor to *Moore's Rural New Yorker*, communicates the following on the propagation of *Junipers*, *Arborvitæ*, *Thuioopsis*, etc., he says:

"I have boxes made eighteen inches by two feet, and four inches deep; these are filled with fine, sharp sand, into which the cuttings are set about two inches deep, and as thickly together as convenient to place them. The cuttings are made at this season, (October) and from the ends of small branches. They are cut about four inches long, the leaves on the portion to be covered, are cut away smoothly with a sharp knife, and the lower end of the cutting, also, *cut off*—not crushed off with dull shears or knives. When a box is filled, it is placed under the stage, in the green-house, as far away from the hot water pipes as possible; for it is not well to try forcing ripe-wood cuttings too rapidly, until the callous on them is formed. If the cuttings are properly cared for, they will be ready to place in a warm position in about two months, and by spring they will be well rooted. Plants of some of the more rare sorts are potted, and as soon as the new growth is produced it should be taken for cuttings; these usually strike root in a few weeks."

This method works well with us here in California. We may propagate in this way others besides the above named sorts, such as our *Thuya Libocedrus*, *Tsuga*, and perhaps our California Nutmeg. The cuttings may be made here at any time, from October to December, and the boxes containing them should be set in the open air, where they are well shaded and somewhat protected. It has been said that plants raised from cuttings, will not make as good trees as seedlings. This, however, applies more to trees of a regular or symmetrical habit of growth.—Ed.

COTTON IN CALIFORNIA.

J. M. Strong, of Snelling, Merced County, has picked, from thirty-seven acres of land, forty-four thousand pounds of cotton; this

will give about fifteen thousand pounds of lint, which, calculated at twenty cents per pound, will bring three thousand dollars for the entire crop, or eighty dollars per acre. We do not know what the expenses have been, or what they are likely to be in the future, per acre, but should judge from the present good yield and the unusually dry season, that the raising of cotton will be remunerative. The material now being placed in our market, capitalists should take immediate steps to establish a factory on this coast, and thus to utilize, at least, the home production.

TOBACCO RAISING.

According to a correspondent of the *Pacific Rural Press*, M. J. D. Culp, of Santa Clara County, cultivates twenty acres in Tobacco. The varieties cultivated, are the "Havana" and "Connecticut Seed Leaf." Mr. Culp is manufacturing Smoking Tobacco on his rancho, and Cigars at Gilroy.

CATALOGUES RECEIVED.

We have just received the advance sheets of *Vick's Floral Guide*, which is the most elaborate Seed Catalogue, which has come to hand this year. The illustrations are beautiful, and true to nature. The catalogue contains much valuable information for the treatment of seeds and plants. We refer to *Vick's* advertisement in another column. While he sends it free to customers, it may be obtained by others at a price which will hardly pay for the paper on which it is printed.

GOOD GARDENERS WANTED.

Inquiries are frequently made of us for good gardeners, and we find that it is difficult to obtain *good men*. Men who thoroughly understand their business, and can show a creditable record, would do well to call at our Office, Room 9, second floor, No. 622 Clay Street, between the hours of 2 and 4 p. m., we shall be happy to be of service to employers requiring men, and to men seeking situations. P. O. Box, 128.

Correspondence.

SAN LEANDRO, NOV. 23d, 1871.

Editor California Horticulturist:

DEAR SIR: In compliance with your invitation I send you a few remarks on Planting Deciduous and Evergreen Trees and Shrubs.

In the Eastern States and in Europe it is not desirable to make a general planting of these, at this period of the year. But in a climate and soil such as we have in California, and particularly in San Francisco, and the adjoining bay counties, my experience has proved, and I believe that nurserymen and gardeners will agree with me in saying, that during the months of November and December, is the best and surest time for planting out Deciduous and Evergreen Trees and Shrubs. But it is not advisable to make a general planting of hardy green-house plants at this season of the year, especially of the more delicate roses, geraniums, fuchsias, etc., the roots of which are apt to rot off; and nothing can be more injurious to a plant than to bed its roots in very wet, or adobe soil, as the tender rootlets either perish or are cramped forever afterwards.

The soil, at the time of planting, should be so friable as not to adhere to the spade, which is a good rule in planting, in any soil, at any season.

P. J. FORD.

SAN FRANCISCO, NOV. 28th, 1871.

Editor Horticulturist:

DEAR SIR: I offer for your acceptance and insertion in your Magazine, if you deem them suitable, the following Hints on the Propagation of Evergreens.

The propagation of all kinds of evergreens should have begun with the last month. I will not now attempt to teach practical men, but will offer these few hints to amateurs, and those less experienced in the art of propagating.

I will first treat of CONIFERS, which are the most popular varieties in our State, such as

Cupressus funebris, C. Lucitanica, C. Lawsoniana, C. glauca, C. occidentalis, etc., etc.

The following is my method with the above, and others of similar character: I take shallow boxes of not more than four inches in depth, and not too large; I fill these with sand, watering well and compressing it firmly in the boxes. Then I select my cuttings from off such plants as have stopped growing, taking care at the same time not to disfigure them. I never take cuttings longer than about three inches at the most, and clean about one inch of the lower portion of them from the leaves, with a sharp knife, and plant them about an inch apart, and about the same depth in the boxes, which I place in a cold frame covered with glass and well shaded; I keep them close for about fifteen days, after which on bright and warm days I give a little air, say for about three hours, but keep them well shaded from the hot rays of the sun.

After a month or six weeks, I place the boxes in a bed of tan-bark previously prepared, say of about three feet in depth, keeping them as near to the glass as possible; I keep them close and shaded for two weeks more, after which, if the weather is fine, I give daily a little air during the middle of the day.

I prefer tan-bark for cutting-beds, if it can be had, especially in our mild climate, as the heat of the bark will keep longer, and never be so intense as manure.

The following are other popular varieties of Conifers which can be readily raised from cuttings under the same treatment as above: *Libocedrus decurrens, Cedrus Libano, C. deodora*; all kinds of *Taxus, Thuja, Juniperus, Thuyopsis, Cryptomerias, etc., etc.*

In the course of four months cuttings of the above-named evergreens will be well rooted; they may be either put into small pots or kept in the boxes until the ground is prepared for planting, but they should be well exposed for some time to the air previously to planting them in the ground. For my part, I have grown all the above-named

Conifers year after year very successfully, as it has been very difficult to obtain seeds of a greater portion of them, and with a little extra attention those raised from cuttings will make as fine trees as those raised from seeds.

AUSTRALIAN EVERGREENS may also be successfully propagated at the present time, but my experience has been that the months of October and November are the most suitable months in our California climate for raising these beautiful trees and shrubs from cuttings.

I have found that almost every kind of plants indigenous to Australia, thrive better by putting down cuttings, in the above-named months, than at any other time.

It must be understood that they should, by all means, have a gentle bottom-heat and should be kept in a close frame or propagating house, until new leaves begin to develop; this is a sure sign that the greater portion of them have rooted.

It will take about three months before they are well-rooted, when they should not any longer be kept in boxes, but should be potted into two inch pots, and placed in a well-shaded frame or low greenhouse; they will still need a slight bottom-heat, for if they do not have it, a great many will be lost after potting.

I will now name a few varieties which can be easily grown from cuttings, viz: *Acacia linariis*, *A. Saligna*, *A. armata*, *A. conspicua*, *A. Latrobe*, *A. pulchella*, *A. rubra*, *A. imbricata*, *A. gummifera*, and a great many others; *Pittosporum nigra*, *P. tobira*, *Melaleucas*, *Metrosideros*, *Chorizemas*, *Leptospermum*, *Erica*, *Diosma* and a great many other varieties, too numerous to mention here. All these may be treated as cuttings in the propagating house, more or less alike, but they will hereafter require different treatment, of which I will speak at some future time.

C. L. REIMER.

THE LOS ANGELES ORANGE CROP promises to be considerably above the general average.

Editorial Cleanings.

HOW TO MAKE A FERN CASE.—“The use of glass cases for growing ferns and ornamental foliage plants is yearly becoming more general. We shall attempt in this article to give a few directions by which they may be made at less expense than has heretofore been thought possible, in the hope to induce those who have never yet enjoyed the beauties of a fern case, to undertake the pleasant labor of making and stocking one.

“For the case itself, all that is necessary is five panes of glass, of such shape and size as to form a case of agreeable proportions. Three panes, twelve by eighteen inches each, one for the top and the other two for the sides, with two panes, each twelve inches square, for the ends, will make an excellent shape and size, though we think a little deeper, say thirteen or fourteen inches, is still better. Of course it can be made as large as wished, retaining the same proportions. A perfect cube would not look badly, but the oblong is better. Then as to the base, if you are not handy with carpenters' tools yourself, the cabinet-maker will furnish you one at small expense. The first thing is a piece of inch board for the bottom, which should be two or three inches larger all around than the case is wanted. The base should be about three inches high, and may be plain or moulded, as is most convenient, and nothing is more agreeable to the eye than an ogee moulding, like an inverted cornice, with a bead above. There should be a groove or a rabbet in the inside of the upper part of the base to receive the glass. The base looks well made of black walnut, but may be made of any other wood. Sometimes the case is made with the glass reaching to the bottom, but then the panes must be larger and no rabbet will be needed.

“The glass is to be fastened together by pasting over the angles silk galloon, about half an inch wide. The lower edges, which go into the base, should be set in putty. Then bind the edges of the top and the sides

and ends with the same galloon, and the case is done. The paste used must be powdered gum tragacanth, dissolved in water; the apothecary from whom you purchase it will tell you how much water to put in it. The cover is simply laid on top of the case; of course it will not be air tight, but it will be tight enough to answer every purpose.

“But we cannot grow our plants directly in the bottom of the case, and therefore must have a pan, which is best made of zinc, say three inches deep, so as to have the top about even with the top of the base, and just wide and long enough to go into the case. Have a hole made in the middle of each end near the upper edge, so as to hook in a bent wire to lift the pan out of the case, else you may find it difficult to get it out when you want to.”—*Tilton's Journal of Horticulture.*

THE ACCLIMATIZATION SOCIETY'S GROUNDS NEAR MELBOURNE, AUSTRALIA.—Considerable improvements have lately been carried out by the Society, under the superintendence of the energetic Honorable Secretary, which have already added greatly to the numerous attractions of the grounds. A substantial fence has been erected three quarters of a mile in length outside the Society's boundary fence, and at every half-chain there has been planted the *Pinus insignis*, which are also well fenced round. The inside of this new fencing forms a handsome broad grass drive, which in summer will be cool and refreshing, and when it once becomes thoroughly known, being so near to the city, it will, we predict, become a second “Rotten Row.” On entering the garden we found that the large oval bed fronting the gates had been altered, a quantity of the worst trees, etc., being removed; the best varieties and the specimens have been well thinned and pruned. A nice collection of bedding plants have been put in, such as geraniums, petunias, fuchsias, verbenas, etc., which will give a lively and refreshing appearance to the entrance. The fine circular basin of ornamental water near to the collec-

tion of birds, etc., has been deepened to a depth of seven feet at the centre, and planted with aquatic plants. A tree fern occupies the middle, and over this the fountain plays. This large basin contains English “Perch,” which are thriving excellently. The shrubberies have been well and judiciously thinned of many of the worst plants, which had become injuriously thick. Young ornamental plants are now dotted at intervals over the lawns and open spaces. Large quantities of native-tree seeds have been sown in places requiring shelter, to act as break-winds. The whole of the beds and borders are in good trim, having been well cleaned and re-arranged. Among the most important inhabitants of the grounds are the deer, of which there are some five or six varieties. Twenty fine animals have been sent away this year, and the stock in the grounds at the present time consists of thirty splendid fellows. The flock of ostriches has, it appears, done well; the Society commenced with only four, they now number seventeen, the whole of which are up on the Wimmera thriving capitally. The Society intends to turn out a number of Guinea fowl this season in the forests removed from settlement. These will soon become very valuable to the country. The pheasants are looking we'll, being evidently in the best of health; their quarters are suitable in every respect. The different varieties of ducks bred are numerous and fine, the ornamental water for them being large and suitably arranged; the young ducks each season are allowed to fly away with the native wild ducks. It appears that the variety known as the Indian Black Duck is one of the very best eating kinds, the New Zealand Paradise Duck being also excellent in this respect; the whole of the varieties seem contented and happy. A splendid lot of trout ova arrived at the gardens on the 25th August from Tasmania, numbering two thousand two hundred and fifty in all. These were at once placed in the house prepared for them, with all the appliances of a running stream, etc., etc., required for hatching purposes. They were received in fine order, and the young trout

will be distributed into the various Victorian rivers in the months of October and November next. The value of these will be very great to the colony, and we trust they will be as successful as it is possible to be. The valuable flock of Angora goats is away in the country, with the exception of a few kept in the grounds for the inspection of the public, and they are doing exceedingly well. The other collections of animals and birds in the gardens are all looking well, including parrots, cockatoos, monkeys, native animals, etc., etc.

RAISING BEGONIAS FROM LEAVES. — Variegated Begonias are usually propagated from leaves. To treat them in this way, select of this season's leaves, such as are grown nearly or quite to their full size, and consequently are firm and not likely to damp off. Take the leaves off with about one or two inches of leaf-stock, and if you require as many plants from a leaf as you can obtain, take an ordinary shallow seed-pan, and after preparing it in the usual way, insert the stalk portion of the leaf near the side of the pan, and peg the leaf flat down upon the surface. Before doing this, it is as well to cut through the principal ribs or veins with a sharp knife. Plenty of roots will soon be emitted from the cuts, and finally young buds will start, and tiny plants will be the result. Plants will also be produced where the pegs are punched through the leaf. It is impossible to say how many leaves a pan will hold, for this part of the question depends entirely upon its size and that of the leaves. We cover the entire surface of our pans, keeping the stalks by the side of the pans. If we have plenty of leaves to deal with, we adopt a slightly different method of procedure. Instead of using the leaf in its entirety, we take the leaf with a couple of inches of stalk, as before, and then trim the blade of the leaf away, leaving a small portion, about two or three inches in diameter, adhering to the stalk. These we insert around the edges of the cutting-pots, in exactly the same way as an ordinary cutting. It is not advisable to

keep these cuttings too close, or give them too much water, for both conditions, either together or separately, are sufficient to cause them to rot. When they are nicely rooted, and the young plants are formed, pot off into sixties, and grow them liberally until the end of September, when they must have less water and be kept rather quiet. It is a very bad plan to keep this section of Begonias growing all the winter, for the constitution of the plant becomes so thoroughly weakened, that they are unable to make a free, vigorous growth in the spring, when it is required of them.—*Floral World*.

LIME AS A FERTILIZER. — In order that a plant may feed on the organic matter in the soil, or indeed, on any matter, it must be brought into a soluble state. Plants feed only on liquids and gases; they have no power of assimilating solid food. If, however, we add caustic lime to a soil, it renders these insoluble substances soluble, and prepares them for the use of the plant.—*Boston Journal of Chemistry*.

FIGUS ELASTICA PROPAGATION. — *Ficus elastica* is by no means difficult to propagate, and the present moment is very suitable for the work. Cut the well-matured portion of the stem into lengths of two inches each, with a pair of leaves to each, then split the stem down the centre, and lay the pieces on the greenhouse shelf for a few hours. Insert them singly in pots filled with light, sandy soil; bury a portion of the stem about an inch below the surface, and secure the leaf to a short stake to prevent its becoming loose. The cutting-pots should be placed in a warm corner of the greenhouse, unless you have the convenience of a cucumber or melon frame; the frame is preferable, but they will strike in an ordinary greenhouse at this season of the year. Although *Ficus elastica* is valuable for the decoration of in-door apartments and conservatories during the summer season, it requires a temperature rather higher than that of the ordinary greenhouse during the winter to keep it in good health. In winter-

ing it in the green-house, it is essential to keep the plants rather dry at the roots.—*Floral World.*

ENGLISH HORTICULTURAL EXHIBITIONS.—Mr. James Vick writes to the *American Rural Home* from Liverpool, that he attended a horticultural exhibition at St. George's Hall the day after he arrived there, and that it was remarkable only for splendid specimens of hot-house plants and pine-apples; and these he found to be the leading features in all the horticultural exhibitions which he attended in England.

THE DAILY SALES OF FRUIT in Denver, Colorado, amount to two thousand dollars; the fruit markets are almost exclusively supplied from California. The *New York Horticulturist* thinks that the successful culture of standard fruits in Colorado, is very doubtful and risky, unless the climate there can be ameliorated by the judicious planting of trees for shelter.

ACORNS seem to be more plentiful hereabouts this year than for two years previous, and the Indians are busily engaged, with their big baskets, laying in a store for future use. Live pork, too, is walking around snouting up and devouring all it can get hold of, and the little woodpecker is also gathering the nut and putting it away after its own peculiar fashion. We are told the plentifulness or scarcity of the acorn makes a great difference in the hog yield in some parts of our county.—*Exchange.*

PUMPKINS.—Mr. John Higgins, whose big corn and pumpkin crop was noticed last week, brought a specimen pumpkin to the Post Office for exhibition, which measured six and one half feet in circumference one way, and eight feet the other, and weighed one hundred and fifty pounds. He had several other pumpkins nearly as large.—*Russian River Flag.*

IMPORTANT FACTS FOR POMOLOGISTS.—We make the following extracts from the address of the Hon. M. P. Wilder before the American Pomological Society at Richmond, on Mulching, Thinning-out of Fruit, and on Shelter, subjects to which we have frequently alluded. He says, in regard to MULCHING:

“While on this subject we will add, as another of the lessons of experience, which may be said to be fixed, the advantage of mulching for dry seasons and soils, whereby the temperature and the moisture of the soils are kept uniform, and the fertilizing elements in a soluble state, an essential condition for the production of perfect fruit.”

On the THINNING-OUT OF FRUIT, he says:

“This is another lesson which we have learned, and the necessity of which we have often endeavored to impress upon cultivators, and which every successive season teaches with stronger emphasis. It is absolutely necessary for all who send fruit to market, to send large fruit, and the markets are constantly and progressively requiring large and fine fruit. Even the Seckel Pear, which once commanded in Boston market the highest price, will not now, unless of extra size, sell for any more than, if as much as, common varieties of large size. A medium-sized fruit, or even one of smaller size, may be more economical for use, but until some decided change in the preferences of the majority of purchasers shall take place, large fruit will sell better than small. To produce this, the fruit must not only have good cultivation, but must be thinned, and we agree with Mr. Meehan that ‘one half the trees which bear fruit every year would be benefited by having one half the fruit taken off as soon as it is well set, and the overbearing of a tree will within a few years destroy it.’ We lay it down as a certain rule, that excessive production is always at the expense of both quantity and quality, if not in the same season then in succeeding ones; for when branch is contending with branch, leaf with leaf, and fruit with fruit, for its supply of light and food, it would be indeed an anomaly in nature if

this should not result in permanent injury to the tree as well as to the annual crop."

OLIVE PRODUCTION.—The Old Mission in San Diego, one of the oldest in the State, has been rented to a party who is busily engaged in picking the fruit and making oil for table use. With improved methods of manufacture, the oil is of superior flavor and the same amount of olives yields more largely, thus doubly profiting the lessee. From San Diego to Santa Barbara the olive flourishes. The tree attains a great longevity, is a prolific bearer, and in proper hands may be made to yield large profits to the owners.—*Los Angeles News.*

THE FRUIT MARKET OF LONDON.—The *Pall Mall Gazette* says: "Perhaps one of the chief reasons why there is so much intemperance in this country, is to be found in the difficulty of obtaining any good fruit at a reasonable price. How small a percentage of the inhabitants of London have ever tasted a peach, for instance! Grapes are a luxury only within the reach of the wealthy, and except sour apples and oranges, the poorer classes have no fruit which they may call their own. For some reason or other, fruit appears to become more scarce each year in this country. Nectarines and apricots, once common, are now rarely seen, and in a few years will probably disappear entirely."

MAMMOTH FIG TREES.—It is said that there are two fig trees standing in a garden on the banks of the Tuolumne River, near the Town of La Grange, which measure seven and one half feet in circumference, and are about forty feet high. These trees stand only eight feet apart, and mingle their redundant branches as in one tree. These twins are thirteen years old, and are of remarkable thrift and beauty.

ALVARADO BEET SUGAR.—The last lot of sugar made by the Alvarado Sugar Refining Company, is said to be superior to any hitherto produced. It is of a white granulated order,

and sweeter than any imported article. The prospect is fair that in a few years we will be able to supply our home demand, and perhaps export sugars to the outside world, thus keeping in the State an amount not less than three million dollars per annum.

ACACIA MELANOXYLON.—Baron von Mueller, of the Botanical Gardens, at Melbourne, in a recent letter to the Secretary of the Bay District Horticultural Society, recommends very highly the extensive cultivation of the *Acacia melanoxyton*, as affording the best of timber for furniture and manufacturing purposes.

Dr. J. R. CRANDALL; of Auburn, has grown a pear twig, thirteen inches in length, bearing ten Easter Buerré pears, weighing twelve pounds, from seven months growth of a graft inserted on the 20th of March last. The same gentleman sent a twig to Ohio, bearing six pears of the same variety, which weighed nine and a half pounds.—*Exchange.*

M. CUSHING, of Dalles, Oregon, recently exhibited a lot of apples raised about fourteen miles below the Dalles, which measured twenty four to the bushel. The same gentleman has some large squashes, the largest of which weighs seventy-eight pounds.—*Exchange.*

A BEET SUGAR FACTORY has been started in Sacramento, and has just begun active operations, with what success we have not learned.

TO PRESERVE MOSS.—Dissolve one grain of nitric acid and about fifteen grains of indigo in two quarts of water; tie the moss up in small parcels; throw these into the solution while boiling, and leave them in for a minute; afterwards dry them in the open air, and the moss will last for an almost indefinite time without alteration.—*Florist and Pomologist.*

THE WINE PRODUCT OF Los Angeles County, is estimated this year at one million two hundred and fifty thousand gallons.

ACCLIMATION OF FOREIGN PLANTS.—Many of the experiments which have been made with foreign trees, shrubs and plants in this State have been successful. There are in all probably twenty varieties of the Australian Gum Tree, which are not only growing rapidly, but as an ornamental and timber tree, will add largely to the resources of the State.

Now, the University has a large tract of land at Berkley, some portion of which is to be set apart as an experimental farm. Such a farm might include all that is desirable in a botanical garden. The discovery of one valuable timber tree, or of one new kind of grass adapted to this climate, would more than balance all the cost of establishing such a garden. We may assume that any tree or shrub which would flourish in the open air at Berkley, would thrive in any part of the State. The grounds are ample, the soil and climate are favorable, and the agricultural department of the University ought to make these experiments with very little cost to the State.

SHELTER.—The necessity of shelter was not as soon perceived as some of the other lessons which I have named; yet, with perhaps the exception of a few favored spots, its importance year by year is becoming more generally appreciated, especially on our open prairies and in the northern and northwestern portions of our country. The fact is established, that the removal of forests diminishes the quantity of rain, increases the evaporation of moisture, reduces the temperature, and subjects our fruit to greater vicissitudes, so that the peach and many of our finest pears can be no longer cultivated at the North except in gardens or sheltered places. The importance of shelter was well understood as long ago as the time of Quintinye, who, in his work on gardening, gives full directions for planting trees for shelter. This was in a country long settled and denuded of its forests; and though our ancestors, planting fruit trees in a virgin soil, thickly covered with wood, failed to perceive its

necessity, we in our older States, who have come to much the same conditions as existed in the time of Quintinye, experience the same want.

There may be exceptions to this rule, as in the South, where the fruit season is warm and dry, producing similar conditions to those afforded by shelter under glass. We may find varieties, and probably shall, adapted to exposed situations; but at present the larger majority of our finer fruits will be benefited by the shelter of belts of forest trees. We are glad, therefore, to see the recognition of the advantages of the forest trees on the part of the managers of our Pacific railways, not only as affording shelter, but as collecting moisture from the atmosphere, and so rendering available vast regions previously uninhabitable from drought. This good work has already been commenced on the line of the Kansas Pacific Railroad.

CURRENT CUTTINGS.—We notice that some very careful directions are given about currant cuttings in the fall. But why in the fall? We should say that the spring was much to be preferred. If set out in the fall, they are liable to become loose in the freezings and thawings of winter; but if in the spring, say early in April for this section, there is no difficulty about it at all. If the new wood is only taken, set firmly in the ground six to eight inches, and well pressed with the foot, watered when necessary, and mulched when hot suns come, ninety-nine out of a hundred will grow. But, remember, if you want to raise trees, cut out every eye going into the ground; but if bushes, which are the most lasting, as well as the most productive, set the cuttings as you take them, and from every eye a branch will come forth. This is the way we do in our garden. Properly set out, cuttings will bear fruit the succeeding year.—*Germantown Telegraph*.

THE GRAPE HARVEST in France will be less than an average, but the quality of the wine will be superior.

DELPHINIUM NUDICAULE AGAIN.—The *Delphinium nudicaule*, recently introduced by Mr. Thompson, of Ipswich, proves to be a much finer garden plant than was at first supposed. It is a tuberous-rooted and hardy species, with the usual finger-lobed leaves; but what are more remarkable about it, are the brilliant scarlet flowers which contrast so strongly with the usual blue tint which pervades the genus. We have, indeed, already had a scarlet larkspur in the *D. cardinale*, but in that the flowers were of a dull red only, and the plant itself seemed unmanageable. Here, on the contrary, the color is bright and effective, and the plant appears to grow freely enough, planted out in moderately light soil. The flowers with these rosy spurs are very suggestive of some brilliant *Tropæolum*, such as *T. tricolorum*, only that the mouth of the calyx is more widely spreading than in the flowers of that plant, approaching in size and form very nearly to those of *D. sinense*. Every one should try whether this fine novelty will thrive under the conditions which his garden affords; and those who find that it will do so, will discover that they have added a gem to their collection. There is an opinion abroad, formed possibly from the exhibition of indifferent examples, that the plant is less meritorious than it really is seen to be when growing in the garden, and Mr. Thompson informs us that he has himself been surprised at the different effect produced by bringing the plant into an ordinary sitting-room. In the open ground, whether in strong or weak light, the color is glowing, and in a mass very striking, but in a room it is dull. Our own opinion, formed from watching the development of the plant in the open ground, is, that it is a really good plant.—*Gardeuer's Chronicle*.

BIG CROP.—Mr. J. Luce, a farmer on the east side of Russian River, beyond Fitch Mountain, had eleven and a half acres of corn from which he gathered nine hundred and thirty-one bushels, or eighty-one bushels to the acre. Who can show a better crop?

We clip the following item from the October *Report of the Department of Agriculture*:

“LA PLATA OR CARNO GUANO.—The residuum of the flesh used in the establishments of Buenos Ayres for the purpose of preparing Liebig's Extract of Meat, is now to be met with in commerce under the name of La Plata, or Carno Guano, and is recommended very highly as a manure. Analysis shows that this contains nine parts in one hundred of water, forty-one of organic matter, nineteen of lime, magnesia, oxide of iron, etc., ten of phosphoric acid, from one-half to one part of potash, and the rest of insoluble matter, such as sand, clay, etc. The nitrogen amounts to nearly six per cent.”

DISTRIBUTION OF BEDDING PLANTS.—The surplus bedding plants in the parks of London are to be distributed among the poor inhabitants of that city.

THE CRANBERRY CROP of New Jersey is unusually large this year, and the fruit is of excellent quality.

CONIFERS IN POTS.—At the late exhibition of the Pennsylvania Horticultural Society, Messrs. Hooper Bros. and Thomas, exhibited one hundred and sixty species of Conifers in pots.

CRANBERRIES grown in Wisconsin, under cultivation, are selling in our market at twenty dollars per barrel, which price should be an inducement to cranberry culture in this State.

GALLS ON HORSES.—Sponge daily with strong soap suds. Then bathe immediately with a solution of a quarter of a pound of saltpetre and a pint of spirits of turpentine. Apply it with a feather several times a day. As soon as the wounds begin to heal the application may cease.



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GLOXINIA.

This exquisite greenhouse plant derived its name from Gloxin, a French botanist of the latter part of the eighteenth century. In 1874 the first Gloxinias were also introduced by a French botanist, under the name of *Gloxinia maculata*. It may seem strange, that a plant, producing such rich and exquisite flowers, as the Gloxinia, was not brought to more extensive notice during the earlier part of the present century, but it is nevertheless a positive fact. It is true that the first varieties known did not approach in beauty and elegance those which are now cultivated, yet the merits of the plant have long been appreciated by the majority of the prominent florists of Europe. In 1817 the *Gloxinia speciosa* created quite a sensation with its beautiful blue flowers, and the English florists have ever since been successful in producing new and constantly improving varieties.

While we are here cultivating a very large number of plants in the open air with perfect success, which are greenhouse plants in the East and in Europe, we cannot introduce the Gloxinias into our gardens, but must continue to treat them strictly as greenhouse plants.

We have no doubt that the plants themselves would grow out of doors, but we cannot expect flowers from them, and if they did produce them, they would certainly present a very meagre appearance. They are indigen-

ous to South America and principally from Brazil, and therefore require glass cover and careful treatment.

Plants of the Gloxinia are partly produced by seeds, while old or desirable varieties are propagated from leaves.

The planting of seeds is a delicate operation, and must therefore be done with much care. The seed is very fine and soon loses its vitality; early planting is, therefore, imperative. The seed should be sown in shallow boxes with good drainage of broken pieces of pots. The soil should be rather coarse, in fact some prefer to sow the seed upon very coarse pieces or lumps of earth; we prefer the soil partly in a coarsely pulverized condition. The seed should be pressed without covering it, but should be planted gently with some smooth piece of wood, so as to bring it into close contact with the soil; after giving a slight sprinkling of water, we cover the box with a pane of glass, giving it a warm place in the greenhouse or other glass frame, with a little bottom heat, if convenient, and an occasional sprinkling of water, so as to keep up moisture.

In about three or four weeks the young plants will usually make their appearance, and then a little less water and occasional airing will preserve them from damping off. As soon as they may be safely handled, they should be transplanted, either into boxes again or into small pots—frequent transplant-

ing seems to be favorable to them; the second year they may be expected to produce flowers.

The propagation of old and favorite varieties from the leaves, is an operation similar to the propagation of the *Begonia rex*, only instead of placing the leaves as with the *Begonia rex* on the surface of the soil, the leaves of the *Gloxinia* may be cut up into a number of pieces and planted like seeds with a very slight covering of earth. If placed in a warm situation, little bulbs will soon be formed and plants developed very rapidly. The best time for the propagation of Gloxinias by this method, is undoubtedly after their flowering season, which cannot be exactly given here, as we have seen Gloxinias in bloom at all seasons: but we recommend the latter part of Spring as a very judicious time for California.

Whether it is best to let the roots of the Gloxinias remain in the pots in which they are expected to flower or have already flowered, we are not fully prepared to state—both ways are practiced with success; but it is evidently reasonable that, in order to give them a good rest, they should be taken up annually and buried in dry sand or light soil until the proper time comes for replanting and forcing them. If the roots are left in the pots after they have flowered, the leaves must be allowed to decay by giving water sparingly; and after they have so decayed, no more water should be given until the season for forcing is at hand. Water should then be again given sparingly, and only after the leaves have made their appearance will increased moisture be beneficial.

A light soil is best for Gloxinias—one half leafmould and sand, and one half of light loam, will answer very well; in all cases good drainage is indispensable.

The Gloxinias may be divided into two classes, one comprising all the varieties with erect flowers, and the other those with drooping ones. Both classes are equally beautiful, the former are known botanically, as *Gloxinia hybrida erecta*. There are other distinctions made by florists, such as *Gloxinia hybrida*

da robusta, which are of a robust habit of growth and produce very large flowers; another class are called *Gloxinia speciosa hybrida*, the flowers of which are beautifully marked, but the above distinction is sufficient for us.

The colors of the Gloxinias are of the most delicate shades of blue, lilac, crimson, rose, red and purple.

We will name a few of the best and most popular varieties:

Candida, of a pure white, flowers drooping.

Purpurea, dark purple, flowers drooping.

Victor Lemoine, rosy violet, erect flowers.

Rubra, color crimson, flowers drooping.

Apollo, beautiful violet color, flowers drooping.

Rose Castilione, dark rose, flowers erect.

P. S. While writing this article, our memory was refreshed as to an old method of propagating Gloxinias, viz: by taking off the leaf with a portion at least of the eye at the base of the leaf also attached to the stem. This was inserted into a small bottle filled with water, which was placed in a warm situation, (with bottom heat if possible,) and the roots would form in from two to four weeks. We do not know if any one practices this method; we apprehend florists wish to make more than one plant out of a leaf.

CENTURY TREES.—Three fine specimens of this world renowned tree can be seen in a lot on Los Angeles Street, between Third and Fourth Streets. To persons who have never seen a century tree in bloom, it would be worth their while to make these a visit. The trees are almost twenty-five feet high, and partly in bloom.—*Los Angeles Star*.

THE FORESTS are dying out in certain parts of Virginia. The chestnut trees have already submitted to some deleterious agency, and their growth is nearly exhausted; and this year the oak, and in fact all the trees of the forest in certain sections are dying. No explanation of this disastrous visitation has yet been given.

THE "MAJETIN," vs. APPLE BLIGHT.

[Continued from page 5 of last number.]

In England and other comparatively cold climates, the ravages of the American *Aphis* are restricted to a certain extent by the severe frosts which annually occur and which keep them within bounds; but in such a climate as that of Australia, the mildness of the temperature is exceedingly favorable to the development of insect life; and accordingly, in Australia, the Cabbage blight, (*Aphis brassicæ*) has so overrun the country that the turnip as a field crop had to be abandoned, and the cultivation of the cabbage and cauliflower is a matter of considerable difficulty, crops being sometimes destroyed all over the country by this petty depredator. The American blight, too, runs rampant, and the apple trees, soon after it makes its appearance in an orchard, become clothed with blight, and soon decay and perish. Its effect upon the fruit is also most injurious, and this was particularly discernible during this season (1870-71), by the premature ripening of the fruit upon trees much affected, many kinds also exhibiting a hollowness quite unnatural to the variety, whereby their keeping properties became deteriorated, and, as a consequence, their value proportionately less.

The ravages committed upon apple orchards by this pestiferous and unconquerable insect being so great, it is no wonder that cultivators have tried so many schemes as remedies, and have thought much of the desirability of escaping somehow or other from its power. Accordingly, the fruit growers of these colonies have unsuccessfully attempted to use as stocks, the pear stock, the whitethorn, and others still more unsuitable than these. The most recent and undoubtedly the most successful attempt is that which has been made by Messrs Lang and Co., of Melbourne and Ballarat. Their experiments have been conducted during the last eight years at their Nursery, at Warrenheip, and by their courtesy I am enabled to give pretty full informa-

tion of their experiments. I visited the Nursery at Warrenheip, in 1870, and was much impressed with the importance of the attempts there made to cultivate the Majetin apple on a large scale as a blight-proof stock, whereon to graft the apple, and with the success of their attempts.

Messrs Lang and Co. informed me, that their attention was directed to this apple in 1862, and to the descriptions thereof given by Geo. Lindley in his "Guide to the Orchard." Lindley says, that at the time of the publication of his book, forty years ago, it was noticed that an old apple tree growing at Norwich, in England, which had been grafted three feet high in the stem, had been for many years attacked by the "*Aphis lanigera*," or American blight, below the grafted part, but never above it; the limbs and branches continuing perfectly free, although all the other trees in the same garden were infested more or less with this blight. The variety was a Norfolk apple named the "Winter Majetin."

Messrs Lang and Co. concluded, that if this variety was so very free from blight as described it should form a valuable stock for the apple, and they accordingly procured some trees from England, and have been engaged experimenting and increasing their stock during the past seven years.

I found the "Majetin" Stool Grounds, at Mount Warrenheip, containing seven hundred Majetin roots or stools, all perfectly clean and very healthy, side by side with the Crab, Paradise, and other stocks, which, although looking extremely well, were all more or less infected, and even when the roots of the Majetin were growing so closely that they entwined round each other; in each case the Majetins were clean and healthy, and the Crabs were more or less covered with *Aphis lanigera*, and the soil of Mount Warrenheip, is one of the most liable of all to encourage the American blight, so liable indeed, that many varieties declared to be free from blight in other parts of this colony are not so there, including some sorts that have been supposed to resist blight altogether in other situations.

The "*Winter Majetin*" is therefore the only one that has stood the test, and proved itself to be indeed *proof* in the rich chocolate-colored volcanic loam of Mount Warrenheip.

Such being the case, after the lengthy experiments by Messrs Lang and Co., of Ballarat, it has been found necessary to give every attention to the propagation in great quantities of the "*Winter Majetin*," as a stock on which to work all other good varieties of the apple.

Although the *Majetin* has thus proved to be very valuable as a stock, Messrs. Lang and Co. took care in a recent circular of theirs to notice, that it cannot prevent other varieties grafted upon it from being attacked by the blight. Here are their own words:—"To prevent misapprehension as to what is to be expected from this stock, we must remark that all we claim for it is, that the roots of apple trees properly grafted on the *Majetin* stock will always be entirely free from blight, in fact all below the graft will be clean. It is not to be expected, it is not pretended, that apples naturally subject to the blight, such as the *Ribston Pippin*, will be made clean by being grafted on the *Majetin* stock. But it is a matter of the highest importance to have secured a stock for apples which will defy the blight below ground, for those conversant with the abominable insects know too well, that it is in roots below ground that they multiply during autumn, and harbor during winter, and, if they can be kept from harboring in the ground, it will not be such a difficult matter to keep the stems and branches clean."

THE SAN JOSE *Mercury* says: For the first time in the history of this valley the strawberry business has been overdone. Last season prices touched bottom at three cents a pound—a figure that barely covered the cost of picking and shipping the berries, leaving no margin of profit or of interest upon the investment. The result is that many fields have been neglected and the vines suffered to die out for want of proper irrigation. We should judge that not less than one-third, perhaps one-half, of the vines of this section are thus past recovery.

NOTES ON SOME FRUITS WORTHY OF CULTIVATION IN CALIFORNIA.

The planting season being now just at hand, and many cultivators of fruits wishing to know what, in all respects, will be the most desirable and profitable to choose, and those which will suit our climate and soil and the tastes of the consumers best, I will continue to select and describe those kinds which past experience has proved to be good and remunerating, and also some varieties which are chiefly new to the fruit raisers in general, but which have lately deservedly attracted the attention of skillful and successful fruitists.

The first sort which I will name, is the *Galway Peach*.—The late Isaac Pullen, of New Jersey, whom I well knew to be one of the most prominent and intelligent as well as one of the largest peach orchardists of that State, so renowned for peach culture, imported this valuable addition to his grounds in 1864. Mr. Pullen had raised many fine seedlings himself, *Honest John* being one of them. It seems that the *Galway* was, according to the report of the committee at the late State Fair at Sacramento, introduced into California by E. F. Aiken, of the above city, in 1868. It has fruited for the first time there this year. James Alexander Fulton, in his new work on "*Peach Culture*," describes it as follows: "It is a large peach of great beauty and good quality, nearly round, with suture well defined towards the apex; terminal point distinct. Its distinct virtue, however, is its late ripening—several days after the one which has heretofore been considered our latest free-stone peach. Your committee believe that the description as quoted above is fully sustained in the samples exhibited, and that the time of ripening in this locality is from the 20th of September to the 20th of October. The character of the wood and foliage indicates hardness and comparative exemption from the curl-leaf. We think it a valuable acquisition to our lists of fruits and worthy the attention of fruit growers."

Upon this reliable decision of a competent committee, and viewing also Mr. Pullen's im-

portant judgment, I recommend cultivators to secure this promising peach, which for its lateness also is no doubt a choice variety.

Bloodgood Pear, or *Early Beurre*.—This has proved itself highly worthy of cultivation in our climate. Its earliness is, of course, one of its great recommendations. Its origin is Flushing, Long Island. It requires a rich, deep, warm soil to produce good-flavored fruit. Most of the California lands are well suited to it, as the results have proved. It is generally admitted to be the highest-flavored of all early pears. The fruit is best ripened in the house. It is of medium size. The tree is a moderate grower and rather short-jointed. Flesh yellowish-white, buttery and melting, with a rich, sugary, highly-aromatic flavor; skin thin.

German Prune, or *Zwetsche*.—There are many varieties cultivated under this name, owing to the prune coming nearly the same from the seed. It is a valuable class of plums, of fair quality for the table; but it is particularly valuable to California, owing to the facility with which it can be dried, so that such of the crop as cannot be marketed fresh can be secured from loss in a dried state. All the sorts are abundant bearers and hang long on the tree. This fruit can be made into a preserve, and used in winter as a substitute for butter in the country by laboring farmers. How fortunate we are in this State not to be subject to the ravages of the Eastern curculio, and thus are able to utilize the whole of our crops of plums!

I need not describe the *Columbia* and *Washington* Plums, as they are well known here as profitable kinds.

Either very early or very late fruits, of nearly all sorts, are the most profitable to cultivate. The reasons are evident. The early fruits command ready sale on account of their novelty and freshness after the non-producing months; and the late ones, because they can be kept longer and have a long season for their disposal.

But we have but few apples here which can be called late winter, or spring fruit.

Most of what we call Winter apples in the East, are Fall fruit in this clime.

The *Bartlett* is about the best-paying of all pears, and if picked early it will stand carriage well for a long time and distance. It is an enormous bearer, and its size is first-rate. It does not rot for some time, and is always full of juice; it is not always so delicate or sweet as the *Belle de Flandres*, but the latter quickly perishes, and must not be permitted to ripen on the tree. Most pears are best house-ripened. When the stem parts easily from the branch, by raising the fruit upwards, it is not too green or unripe to be gathered for the house-ripening.

The *Vicar of Winkfield* is a pear well adapted for baking. It is an enormous bearer, but not choice for the desert, as its tissues are both somewhat coarse and crisp. Its flavor is not rich, although it is a tolerably good keeper.

The *Winter Nelis* is a very rich, full-flavored and sweet pear, and one which comes into use latest, with the exception of the *Easter Beurre*, another delicious, most juicy, tender and thin-skinned fruit. We can retain it in some years as late as April, when put down in sawdust.

Cherries are a good-paying crop, and seem almost to have been the last fruit attended to among the cultivators, consequently they are not so plentiful as most of the other fruits. This dry climate is well adapted for them, as, when they are ripening, much wet will make them rot on the trees—an evil they are greatly subject to in the East. There is also no insect to disfigure them, and make them wormy.

Strawberry-raising has lately been rather overdone in this vicinity, prices having been, in the fall season, this year, low for the produce.

Cranberries would prove always a profitable crop, but they require peculiarly wet, swampy lands.

Almonds would be always a safe production, as there is a world-wide market for them.

E. J. HOOPER.

SAN FRANCISCO, Dec. 13th, 1871.

HIMALAYAN RHODODENDRONS IN IRELAND.

I fear I am rather late in suggesting to your readers to look at a few of the Himalayan Rhododendrons which bloomed last spring with especial beauty at our Botanic gardens, and elsewhere in the neighborhood of Dublin. I may also notice another species from a warmer climate than those, and which has been greatly admired within a few days of the time I write, at our Trinity College Botanical Gardens. In a greenhouse at Mr. Gray's, at Temple Hill, near Blackrock, a bush, which may almost be called a tree, of *R. Nuttali*, produced several fine trusses of its lovely white bloom after spending the autumn and winter plunged in the open ground and unprotected, till it was brought in, when about to flower. Another and a still finer specimen, from the conservatory of Captain Coote, at Farnley, Knockmaroon, near the Phoenix Park, attracted universal attention at the recent exhibition of our Royal Horticultural Society.

In Glasnevin and Trinity College Gardens, *R. Edgeworthii* has this spring formed a prominent feature. In its nature parasitical, its many long branches bear to be twisted and intertwined into a roundish or other form, in which way the flowers show to much advantage; and they have a quality with which I believe few of the family are endowed, that of emitting a delicious perfume. In Dr. Hooker's celebrated work on the Sikkim-Himalaya Rhododendrons, he gives a fine coloring of this tree, and describes it as delighting to grow on the limbs of pine trees.

There is now in bloom at both these gardens, of somewhat different habit, and to my eye still more handsome than the others, if not the most so of the numerous family, *R. Dalhousie*. This also is loose or straggling in its habit of growth, but its branches are not so pliant as those of *Edgeworthii*. The flowers, which are large and waxy and white, or creamy white, are strongly perfumed, somewhat with the odor of the lemon. In size, color, and general appearance, they re-

semble, as Dr. Hooker describes them, the Bourbon lily, *Lilium Candidum*. *Rhododendron ciliatum* is also another Sikkim-Himalayan species, which has for several years luxuriantly bloomed in the open air and very early in spring, or rather at the close of winter, at the northerly side of the Fern-house at Glasnevin. Whilst those I first named command admiration from every lover of beautiful plants, this latter has to me a peculiar charm. In the autumn of, I believe, the year 1854, which was followed by a very severe winter and spring, two seedlings of this shrub, then new in Scotland, were there given to me by one anxious to test their power of bearing the climate of Malahide, where I then had a garden. He bound me to leave them for a year without protection; and naturally I watched their progress with interest, which was rewarded by very early blossom, almost before the snow had melted from protecting the stems. Again, last autumn, two young plants of this now well known species were sent to me, with two seedlings of *Edgeworthii*, to try how they would live in a frame at the rear of my dwelling here. All so far look well, and one or two have flowered; and though the texture of the foliage be such as does not suit the smoky air of Dublin uncovered, I hope and expect to see them enjoy many a month, and year, in their new abode. Why shall not each of the kinds I name suit for culture under glass in this or another city?

The last species to which I now refer, is that called *R. Javanicum*, from a warmer climate than any of the others, though I know not the particular locality in Java which is its especial home. For weeks one of the finest, if not the finest, specimen in Ireland, has been in flower in the College Gardens here. Orange-red is the color given, and it seems correctly, to the fine trusses of its bloom. Though the conservatory in which this shrub has for years lived be partially heated in severe weather, frost to some degrees often makes its way within it. As is my wont, I merely offer some results of personal observation, inviting others to enjoy what gives

refined pleasure to myself. I try not to ape scientific learning where I have it not, and which perhaps, consistently with my capacity and main pursuits, I ought not to cultivate or possess: I still remember my school-day lesson of Horace—"Let not the cobbler venture beyond his last"—

"Ne sutor ultra crepidam."

But even half-learned ignorance knows that the *Rhododendron* family are generally easy of culture. By grafting and layering and seed, and sometimes, under a skillful hand, by cuttings, an infinite number, if there be such a thing, can be obtained of these most ornamental evergreens.—*Gardener's Record*.

HYACINTH CULTURE IN GLASSES, ETC.

On reading in the last *Gardener's Chronicle* an article on the growth of Hyacinths and other bulbs in glasses, I thought a few words upon another, and I venture to think, an improved mode of growing these spring favorites, would be acceptable. I refer to planting in glass dishes and other vessels (in fact, any bowl, pan, or stand, whether of glass, terra cotta, or China, will answer the purpose) in cocoa-nut refuse. Before the advent of the latter material, I used to grow almost all sorts of spring bulbs very successfully in Sphagnum Moss and water, simply laying a few lumps of charcoal at the bottom of the dish, then filling up with the moss, planting the Hyacinth in it, and watering as required. This plan answered very well, but as the moss was difficult to get, when cocoa-nut refuse made its appearance it was at once substituted and found to answer better in every respect. When planting now I use a composition of two-thirds cocoa-nut refuse, the other third being silver sand and a little charcoal broken rather finely but not powdered. The bulbs are planted so as to leave the crown a little exposed, and the whole is covered with the beautiful flat green moss, which may be obtained at any hedge bank; it then forms a pretty and attractive object at the outset, which is an advantage, whilst the moss cov-

ering prevents it drying too rapidly, and also excludes the light. There should not be any hole for drainage in the vessel used, and if a fern-stand is employed, the drainage hole should be tightly corked up. The cocoa-nut refuse will not easily turn sour, but if by chance too much water is given, the surplus may be run off by simply laying the hand flat over the top of the dish, whilst elevating the dish with the other, so as to pour the water out at one side. My experience goes to show that Hyacinths grown in water in glasses cannot compare with those grown in the way described; the bulbs root strongly and quickly, showing a corresponding increased vigor in leaf and flower, nor are they so liable to checks from sudden changes of temperature.

Three Hyacinths were grown last season, in one vessel, with great success. They were planted exactly as I have recommended, and all through their growth occupied the window of a sitting-room. Every fine day they were allowed to stand out on the window sill, during the middle of the day, and when beginning to show their flower buds, were treated with weak guano-water. I regret that the names of the varieties were not preserved when planted. The colors were as follows:—No. 1, pure white; No. 2, fine deep pink; No. 3, dark blue. This will enable you to form an idea of the beauty of the pan last spring. I commend this method to the notice of all your readers who like to grow bulbs in the parlor or sitting-room, as it combines the cleanliness and prettiness of the Hyacinth glass with a more natural medium for the bulbs to root and grow in; and if any one doubts whether the flowers will be as fine, let him try, and I am sure he will not again resort to Hyacinth glasses.

[Very successful.—Ed.]

JAMES TYNAN.

NAPA WINE PRODUCT.—The *Vallejo Chronicle* says it has the best of authority for stating that the wine production of Napa County will this year reach 600,000 gallons.

ORNAMENTAL AND LANDSCAPE GARDENING.

LAWNS.

One of the most expensive items in gardening, is a lawn; difficult to establish, and after it is established, difficult and laborious to keep in good order. We have seen some most beautiful lawns in this city, in Oakland, at Menlo Park, and even in the hot and dry climate of Sacramento, but they are kept up at a tremendous expense, of which the water bill is not the least. It is evident that wealthy people only can have lawns in this country, and only in such localities where water is plentiful.

It is somewhat strange that no experiments have yet been made, in California, to discover grasses which are better adapted to our dry summers, so as to enable those who occupy country residences and have extensive grounds surrounding them, to give to the surface a green and refreshing appearance. As far as the growth of ornamental trees and shrubs is concerned, they will take care of themselves after a few years; but lawns of such grasses as we now have under cultivation, cannot be established without enormous expense.

The impression seems to be rather general, that nothing will do for a lawn but Kentucky Blue Grass, and Red Top or Italian Rye Grass. We are well aware that the Kentucky Blue makes the finest lawn, provided it is sown thickly, kept clear of weeds, cut every ten days at least, manured every year, and receives a plentiful supply of water. But it is evident that the expense necessitates much restriction as to the size of lawns. Next to Kentucky Blue comes the Italian Rye Grass, which is not quite so expensive and presents a very neat appearance. Although a little coarser than the former it requires less seed, less cutting and less water, and is therefore less expensive; nevertheless, it cannot withstand our dry and hot summers for more than thirty days.

It seems to us, that the best grass for extensive grounds, surrounding country resi-

dences, where the supply of water is limited, would be the Bermuda Grass. We do not consider it equal to either of the above named grasses, but we claim for it the following good qualities: It will grow in ordinary soil; it will keep green nine months in the year; it does not require cutting more than once or twice during the season (it will also do well without cutting); and it will grow without irrigation. We give the following directions for planting it: Plough deeply and thoroughly after the first rains in the autumn; procure the roots of the Bermuda Grass (or rather the sods); cut them up into small pieces and plant them out, or sow broadcast, and roll the ground well after planting. During the first year the sod may not be established thickly enough to give a uniform appearance, but the grass itself will spread rapidly and will soon completely cover the ground.

While we must continue to recommend the other named grasses for lawns of smaller grounds, and particularly city residences, where water is plentiful, we hold that the Bermuda Grass is the only one adapted for extensive country grounds, where water and labor are scarce.

SOME TROPICAL FRUITS WHICH ARE PROBABLY WORTHY OF CULTIVATION IN CALIFORNIA.

THE DATE.

Knowing that the Date Palm has succeeded as far north in this State as Santa Clara, and has sustained no injury from the rather sharp frosts in that latitude, I consider it may not be altogether uninteresting to some of the readers of the HORTICULTURIST to have a short description of that much valued tree in the eastern part of Europe, Asia and Africa. And if it should succeed near Santa Clara, how much more likely is it to prove profitable farther south, as at Santa Barbara and Los Angeles? The botanical name of the Date is *Phoenix dactylifera*. It is of the class *Diacia*, order *Triandria* of Linnæus. In tropical, or semi-tropical regions, the Date

is ranked in value next to the Cocoa Nut. Its trunk rises to the height of sixty or seventy feet, although these trees are slow in their growth. The stocks are generally full of rugged knots, which are the remains of the fallen leaves; as the trees grow old, so this bark hardens and becomes gradually ligneous or woody. When this Palm has grown to a size for bearing fruit, the leaves are from six to eight feet in length, having narrow, long leaflets (or *pinnae*) set alternately their whole length.

The Date tree, like other dioecious plants, has male flowers on different trees from those that produce the fruit, and, of course, there is a necessity for some of the male trees growing near the female, to render them fruitful. The branches of fruit are sometimes very large. There are several varieties of the Date. The seeds, when fresh, very easily germinate. They require, when young, a constant supply of water. In transplanting them, care should be used not to injure the roots. One important thing has to be attended to in their cultivation, namely, their fructification. Wild Dates impregnate themselves, but the cultivated ones do not, without the assistance of art. The plan adopted consists in collecting the flowers of the male and climbing to the top of the female with them, and dispersing the pollen on the germs of the Dates. In some few countries, as in parts of Egypt, many families subsist almost entirely on Dates.

As is well known, (we having them in the fruiterers' stores), a conserve is made of the fresh Dates, mixing them with sugar. This, although intensely sweet, has to most persons loving much saccharine matter, an agreeable flavor. Baskets for domestic use are made of the leaves, and a kind of traveling bags; also ropes are made from the fibres. The trunk is sometimes used for the same purposes as wood. In those parts of the world where the Palm flourishes, the large orchards afford considerable revenue to the owners.

These trees may be planted within eight feet of one another, but I question if the

Date for eating, either fresh or conserved, will ever be liked by us in comparison with our best apples, and the other fruits of the temperate region. Still a plantation of them might probably be made somewhat profitable even here—if for nothing else than for their novelty.

When intended to be preserved, they are gathered a little before they are ripe; but when to be eaten fresh, they are allowed to ripen perfectly, in which state they are a refreshing and pleasant fruit. They, however, will not keep long without fermenting, or becoming acid. They may be made into jellies or jams, or, by being pressed, into a nice syrup. They may also be distilled into an ardent spirit.

It has been said that the location of the Date tree is so peculiar, that it cannot, strictly speaking, be classed either with the fruits of the temperate climates, or with those of the tropical. The only test concerning this, is, to try experiments with its growth in all our apparently suitable latitudes.

Although the young plants require moisture, the Date is capable of standing great drouths, its common site being in, or on, the edge of great sandy deserts.

This tree is planted as an ornamental one in Corsica, Sardinia, and in the north of Italy, but it does not ripen in those countries, or only imperfectly. It remains to be seen what it will do in any part of California; at present it may be considered but a doubtful matter, and although this plant is unquestionably growing well in or near Santa Clara, we have as yet no account of its having perfected its fruit. It would be more likely to do this in the more southern counties of the State, and we hope to see a thorough trial both at Santa Clara, Santa Barbara and Los Angeles.

E. J. HOOPER.

SAN FRANCISCO, Dec. 30th, 1871.

In 1866 the products of the California lumber trade were one hundred and ninety millions cubic feet, and in 1867 two hundred millions.

LAWNS.

One of the most pleasing features in those of our modern gardens which are of some extent, is a well kept, thriftily growing lawn. It adds a tranquil beauty to a residence more than the most brilliant flowers. A garden without a lawn, is like a parlor without a carpet. How uncomfortable we should feel in such a room! the most costly ornaments would lose their value,—everything would appear needy and poor. So in a garden wanting such an ornament. The lawn is like the background to a picture: the buildings, trees, flowers, etc., are presented in a more favorable light if surrounded by a grass plot. But to produce a good effect, the grass must always be kept short, close and thrifty, so that in glancing over it, it may appear as even and as smooth as a billiard-table. How to establish such a lawn and to keep it always in good condition, shall be the subject of the following lines.

Soil in the proper condition and water in sufficient quantity, are necessary to insure success. When there is naturally a loose soil, which will not become hard after rain, it is only necessary to give it some well rotted horse manure; if it is too heavy, add sand and dig it about twelve inches deep, and take particular care to pick out all perennial weeds and roots which may be found. If the ground consists of nothing but sand, as is mostly the case around San Francisco, a very good soil can be made of one-third sand, one-third loam, and one-third horse manure. This compost should be one foot deep, deep enough not to bring any sand to the surface in spading it, and will give the best soil for our purpose; in fact, any plants in our gardens will grow luxuriantly in it except some few exotics, as the Camellia, Azalea, Rhododendron, Erica, etc., which require a different soil. The ground should be prepared and dug up at least a few weeks previously to the sowing, that it may settle. If sown immediately after filling up, it will settle unevenly and present a very rugged

surface, which cannot be mowed well, and is very difficult to be kept evenly moist.

A very good grass plot may be formed of the Kentucky Blue Grass, (*Poa pratensis*). This is sometimes mixed with other foreign imported sorts, *Alyotis holium*, etc., or White Clover; but the former alone will give a very good, firm sod, and will be more agreeable to the eye than if mixed with some of the coarser grass or clover, and it will present a finer appearance. In wet, heavy soil, it may be advisable to take a mixture of some of the following sorts: *Festuca pinata*, *Alopecurus pratensis*, *Poa angustifolia* or *Phleum pratense*. Care should be taken not to sow it too thin, as it will look miserable to have bare spots in the green surface. About one pound of seed to sixteen feet square will be necessary. The best time for sowing is in spring—February and March. In naturally wet localities, it should not be sown too early. In moist ground the snails are likely to destroy the young shoots as soon as they come up. The most effectual remedy against these pests is, to keep the ground moderately dry, as then they will not venture to go on it; however, this cannot always be done. Anybody who knows a practical way of keeping them out of the garden, and will inform us through these columns, will receive our most heartfelt thanks, and will also certainly confer a great obligation on the many readers of this Journal.

On a calm, sunny day, we may finally prepare the ground to receive the seed. It will be necessary to spade or hoe it slightly, and to rake off the stones and coarse lumps of soil, at the same time smoothing the whole surface; then sow the seed evenly, cover it in with the rake, rake it over again, and after this roll it with a light roller. If this is not at hand, or not convenient to use on a small grass plot, the seed may be stepped on foot by foot, raked after this, and the whole may be beaten even with a flat shovel. In about two to four weeks the grass will show itself. Should the ground in the mean time become too dry, it must be moistened, but not too heavily, or the snails will be trouble-

some. When it is four to five inches high, it should be mowed with a sythe on a cloudy day, and if possible, rolled and watered immediately afterwards. It will now sprout and gain more strength, a great many of the annual weeds will be weakened by the first mowing, and soon die out. The perennial and broad-leaved weeds must be pulled out in the course of the next month, and in about eight weeks the ground will present a beautiful, smooth, green surface. During the summer it will have to be watered twice or thrice a week, according to locality. For larger gardens, a hand-mowing machine will be indispensable; it cuts and rolls the grass at the same time, saving a great deal of labor.

In the fall the land should receive a top-dressing of horse manure, evenly distributed over the whole place, raked through several times during the winter, and raked or swept off in the spring, when the grass begins to grow again.

R. MICHELSON.

OSAGE ORANGE—*MACLURA AURANTIACA*.

The Osage Orange, we believe, is a native of the Southern States, and is considered hardy in some parts of New York and Pennsylvania. It has been strongly recommended as a hedge plant, and is well adapted for that purpose. It is said that the fruit, which resembles the Orange, (only rougher in appearance), is edible when ripe, but we have never met with any one who could satisfy us on that point. The foliage is rich in appearance and the fruit very handsome; therefore the Osage Orange may be considered very ornamental.

We are also under the impression that the Osage Orange would develop into a very desirable ornamental tree, if permitted to attain its full growth. It is said to grow, in some parts of Arkansas and Louisiana, to the height of sixty feet, with wide spreading branches, and exhibits much vigor.

We ourselves cannot conceive anything in the ornamental tree line more striking in effect than a well developed Osage Orange

tree—its bright orange-like fruits intermingled and contrasting with its rich foliage; and we feel certain that this shrub or tree will yet become very popular with us both for ornament and also for the feeding of silk worms, for which latter purpose experiments have been made with considerable success by our Agricultural Department at Washington.

Plants are easily raised from seed or from root-cuttings, and are also easily transplanted. They require a deep soil, and the garden should be well trenched for the reception of the seeds, cuttings, and young plants.

HARDY VINES.

Although the above term may not be a popular one, yet we have used it as suiting our purpose of calling attention to the various ornamental vines; which, being frequently purchased for certain purposes, for which they are not well adapted, occasion disappointment from mistaking the nature and habits of the plants. It is our desire to make our readers acquainted with the various habits of vines, so that, knowing what to inquire for, they may more readily obtain their wish. Vines are distinguished by their habits of growth, and may be classed as—

1st. *Climbers*, which ascend and support themselves by tendrils which take hold on trellises, branches and other similar objects; the Grape Vine is an example of this class. But there are also other vines coming under this division, which by their force of growth ascend, and overlie arbors, trees, etc.

2d. *Creepers*.—These throw out roots from their stems which take hold on trees, walls, etc.; these may be represented by the well known Ivy.

3d. *Twiners*, which wind around the objects near which they grow, as the Clematis and Honeysuckle.

4th. *Trailing Vines*, which keep close to the surface of the ground, and which are also called creepers; we instance the periwinkle. So much for the different classes of Vines—the exceptions are numerous.

In enumerating the different species and their varieties, we shall not be entirely governed by this classification, fearing to create confusion. We shall begin with the old and favorite

Clematis (Virgin's bower), a native of Europe, America, and other parts of the globe. It is found growing wild in California. The estimable qualities of this vine are many; the foliage is graceful and delicate; the flowers are fragrant and they are followed by a mass of feathery tufts of a pure white color, which contain the seeds; the vine, on this account, is sometimes called, "Old Man's Beard." The varieties of the small flowering *Clematis* are: *Clematis flammula*, *Cl. virginica*, and *Cl. vitalba*. They are all exceedingly well adapted to overhang verandas, bowers and arbors.

Within the last few years some beautiful large-flowered varieties have been imported from China and Japan, and from these, new Hybrids have been raised which equal the very finest floral productions of our days.

Clematis florida is a native of China; the flowers are three inches in diameter, and are of white, purple and blue colors; perfectly hardy with us in California.

Clematis azurea, a native of China; large flowers of a beautiful blue color; also hardy.

But the finest of all the *Clematis* are the newly produced Hybrids, the flowers of which are from three to four inches in diameter and of very rich colors. We mention a few of them:

Princess of Wales; flowers violet purple, with red bars in the center of each petal.

C. atro-purpurea; flowers crimson blue.

C. rubella; flowers rich velvety claret, semi-double.

C. languinosa nivea; large white flowers.

C. fortunii; flowers large and double white; this, however, is a native of Japan and of late importation.

The large flowering *Clematis* are scarce with us in California, and the price is rather high as yet. A few plants have been planted

in the open air and have not done well: this we attribute almost entirely to the fact, that the plants were of recent importation and not strong enough. We are convinced that all the above-named *Clematis* are perfectly hardy, and we hope soon to see them in their full glory.

We shall next speak of the old-fashioned Honeysuckle, which is yet one of the most popular climbing plants. The fragrance of its flowers cannot be well superseded by any other hardy vine. The varieties now under cultivation are numerous, but we shall only enumerate the best:

English Woodbine (*Lonicera periclymenum*); a native of Europe, showy flowers, very fragrant, deciduous.

Coral Honeysuckle (*Lonicera sempervirens*); evergreen, producing its scarlet flowers in greater or less abundance throughout the year in California; not fragrant.

Yellow Flowering Honeysuckle (*Lonicera flava*); very scarce in California; this is a native of the Eastern States; not fragrant.

Golden-leaved Honeysuckle (*Lonicera aurea reticulata*); a native of Japan; this is one of the most beautiful climbers under cultivation; the foliage is veined with gold and very ornamental.

Japan Monthly Honeysuckle (*Lonicera brachypoda*); a splendid evergreen climber, bearing most fragrant flowers all the year round; a robust grower.

Chinese Evergreen Honeysuckle (*Lonicera flexuosa*); foliage dark green above and mostly of a purple tint below; very much inclined to twine; of graceful habit, flowers fragrant, and a very desirable variety.

All these Honeysuckles are perfectly hardy with us; they are particularly well adapted to cover verandas and trellis-work. They should be kept under control with the pruning shear, or else they will lapse into general confusion.

We next call the attention of our readers to the

Virginia Creeper (*Ampelopsis Virginiana*), of which, strange as it may be, we have seen

very little on the Pacific Coast. Like the Ivy, it is well adapted for covering with wonderful rapidity walls, woodwork, and the trunks of trees. Its foliage is luxuriant, and assuming a beautiful crimson color in the autumn, is, therefore, extremely picturesque; its flowers are insignificant. The Virginia Creeper is a very desirable vine, where quick and luxuriant growth of foliage is desired, and is easily propagated by layers.

Bignonia (Tecoma), called also Trumpet-creeper, is an evergreen climber of great beauty, but scarcely cultivated here. The best varieties are—

Bignonia Radicans, (scarlet Trumpet-creeper); delicate foliage, flowers of a fine orange color; it does not flower well with us, but is hardy.

Bignonia grandiflora, (large flowering Trumpet-creeper), native of China; larger flowers than the former, of about the same color.

Bignonia venusta, is probably the best, but we consider it better adapted for the greenhouse than for the open air. Its large clusters of orange-colored blossoms produce a truly magnificent effect.

Bignonia (Tecoma) jasminoides, is probably out of place here, inasmuch as botanists are yet somewhat in the dark about the classification of Bignonias and Tecomas, the flowers differ in shape and form from the former, the color being white with purple center, and the shape of the flower resembling that of the Morning Glory. It is a strong grower, but flowering rarely out of doors, unless well protected from the winds.

The *Bignhoias* and *Tecomas* are rapid growers, and soon lose the lower branches and foliage, presenting a bare appearance near to the surface of the ground, and for that reason are objectionable for any other purpose than to overhang verandas and other structures.

Passion Vine (*Passiflora*), is quite extensively cultivated in our gardens, and gives general satisfaction. Of the different varieties, the blue (*P. Cœrulea*) is the most popular. It is too well known to require any further description from us.

Other conspicuous varieties, but rarely met with, are the—

Red Passion Vine, (*Kermosine*); Scarlet passion Vine, (*princeps*) *edulis*; a remarkable fruit bearing variety, and a very robust grower. The fruit is said to be palatable. The Passion Vines are evergreen, well adapted to cover verandas, walls of all descriptions, and trellises.

Solanum jasminoides, is probably one of the very best climbing plants adapted to the climate of San Francisco. It grows rapidly and develops continually its delicate clusters of white flowers with a small yellow center; the foliage is of a dark shining green; it is one of the most desirable climbers for all purposes.

Wistaria (Glycine). There is hardly a class of plants which has made more sensation than that of the Wistarias, notwithstanding that they are not evergreens. But we cannot imagine anything more beautiful and effective than the large racemes of lilac or blue flowers, hanging down in the shape of bunches of grapes from the branches of the *Wistaria sinensis*; a hardy and deciduous vine, best adapted for the sunny side of a house, where any amount of space can be appropriated by it. The Wistarias are best propagated from layers. There are but few large flowering plants here, but they are the subject of general admiration during the period of flowering, which takes place during May.

The *Wistaria sinensis alba* is similar to the former, producing white flowers, but in much less quantity.

Wistaria magnifica is a Hybrid, and produces fine flowers of a lilac color.

The want of space compels us to break off here, but we shall continue the enumeration in our next,

—◆—

CLEARING FOREST LANDS.—One million acres of forest land must be cleared annually in the Eastern States of the Union, to supply the wood for one year's local requirements.

—◆—

FINE ENGLISH CHESTNUTS have been grown by John Pereira of Tuolumne County.

THE BOTANICAL GARDENS OF MELBOURNE.

Botanic Gardens are institutions to which the people of the United States have no particular fancy, and appropriations of the public money for such purposes meet with much opposition from men who are not qualified themselves to be judges in the matter. No civilized nation upon the earth does less for Botanic Gardens and kindred institutions than the United States of America, and the only reasons we can assign for the general indifference to such matters, are, the all-absorbing mania for political intrigues and the *furor* for money-making schemes of all sorts.

The English Government is well aware of the immense benefits accruing from such Gardens, and with a most liberal spirit it maintains them at home and throughout its colonies, not sordidly looking for immediate returns, but rather the development and future prosperity of its wide-spread dominions.

From the Botanical Gardens of Melbourne, during a period of eight years,—from 1859 to 1867,—not less than 355,000 plants were distributed to public parks, cemeteries, school and church grounds, public roads, etc. In 1868, over 49,000 plants were distributed in the same way. There are continually about 40,000 pot plants under cultivation, of which many are rare and new plants under process of acclimatization.

A laboratory is connected with the Gardens, where experiments are made in regard to the commercial value of plants and trees. The amount of oils, paper material, dyestuffs, tar, acids, etc., contained in plants, is thus obtained.

“A variety of Bamboos and different Sugar-canes were secured, including the hardy Chinese-cane; forty-eight kinds of vines were added on behalf of the Acclimatization Society to the already large collection, which includes the white and black American Scuppernong, the Sultana Raisin Grape, the French Cognac Grape, Follet Blanche, and many other famed kinds, new or rare in Aus-

tralia. The true Oriental Dye Saffron, Colchicum, the oil-yielding Sesamum, the Tus-sac-grass of the Falkland Islands, the Caper, (quite an ornamental plant), the wide-spreading avenue Acacia of West Australia, (*Acacia saligna*), Ficus Sycamorus (the best of all avenue trees of the Orient), the Clove, Rhamnus utilis (yielding the green satin dye of China) the Sapodilla, the Avocado Pear, the Indian Teak, Cassava, Squill, Turmeric, the medicinal Bhel fruit, the tree Cotton, Mangosteen, edible Vanguiera, Aya-pana, Gelsemium, and many other important plants, are more recent acquisitions to the garden. Although it may as yet be impossible to cultivate remuneratively the Saffron and many other of the plants indicated, it remains evidently the aim of a public institution to establish such plants in the country.

“Turning to the Nursery Department, I can report favorable progress, notwithstanding the precarious supply of water during the great heat. For the first time in Australia masses were raised of plants of Assam Tea (the seed kindly supplied, on the Director's wish, by W. H. Birchall, Esq.); so also large numbers of the White-heart hickory or Mocker-nut (*Carya tomentosa*), of the delicious pecan-nut (*Carya oliviformis*), the Butter-nut (*Juglans cinerea*), the Black Walnut (*Juglans nigra*), the Himalayan oak (*Quercus incana*), the Chestnut Oak (*Q. Castanea*), the American Swamp Oak (*Q. Prinos*), the Bur Oak (*Q. macrocarpa*), the White Oak (*Q. alba*), a most valuable timber tree), the Jersey Pine (*Pinus inops*), the American Pitch Fir (*P. rigida*), the Douglas Pine, the noble Himalayan *Pinus Longifolia*, the Chinese Fir, the Balm of Gilead Fir (*P. balsamea*), the double Canada Balsam Fir (*P. Fraseri*), the West India Pencil Cedar (*Juniperus Bermudiana*), and the American Cherry Birch (*Betula lenta*).”

The Gardener's Chronicle, in referring to this subject, says:

“As decennia roll on, many of the trees, which under great effort are now introduced, will undoubtedly bear prominence in our forest culture, a great subject which more and more presses on legislative attention, since

already so much of the native timber in all the low lands has been consigned to destruction. If, in densely-populated countries like Belgium, one-fifth of the whole of its territory is scrupulously kept under forest culture, it ought to be a final aim, in a far hotter clime, to maintain a still greater proportion of its area covered by woods, if the comforts and multifarious wants of a dense population are to be timely provided for. It is especially in the western and northern parts of Victoria where exertions in this direction have to be made; it is there where extensive shelter and retention of humidity is needed, and there also where artesian borings, on spots indicative as eligible, would vastly promote the raising of forests.

“If a proper Museum were established in the garden, the timbers, resins, gums, dyes, paper-materials, drugs, oils, alkalies, and many chemical educts from plants of Australia could be contrasted with similar products of other countries; the processes of manufacture and their technological and commercial value be demonstrated; while subjects relating to culture of any kind could be elucidated, diseases of plants by objects and drawings illustrated, and many other kindred inquiries drawn into the vitality of practical application. Thus I may instance, that it seems not generally known how our common Eucalyptus leaves under Ramel's process can be converted into cigars, or how the same leaves serve as a remedy in intermittent fever.

“The Library has lately been further enlarged, but mainly from the Director's private means. Personal traveling expenses since 1852, and all outlay for scientific and local journals, British and foreign agencies, means of conveyance for attending at the city, office, light, and many other official expenses, as well as the courtesies which are demanded from a public department frequented by very numerous visitors, have also ever solely and readily been defrayed from the administrator's own resources, who, not for any selfish purposes whatever, ventures to place these facts, after the lapse of many years, on record, but simply in justice to himself, be-

cause the obligations devolving on him in maintaining the efficiency and dignity of the department seem not at all understood.

“When now long past the zenith of ordinary life, he can with fairness assert, that thirty of his best years have been absorbed almost entirely in phytologic and cognate pursuits; that almost seventeen years have been devoted cheerfully and exclusively to the main foundation and on struggling services of his department; and this, he may add, with the sole aim of endeavoring to effect some lasting good to the great country which, twenty-two years since, he adopted as his permanent home.”

COTTON CULTURE IN CALIFORNIA.

We copy the following interesting letter from the daily *Morning Call* of this city:

NEAR ANAHEIM, November 16th, 1871.

Robert Muldron, Esq., Paducah, Kentucky—

Dear Sir: I have the pleasure to acknowledge your favor of the 31st ult. In view of the fact that I am daily receiving similar inquiries from all parts of the South, I have concluded to forward this letter to THE MORNING CALL, of San Francisco, and to the *Courier-Journal*, of Louisville, for publication. Its publication in the above named journals will give a wider publicity to the advantages presented by California as a cotton-producing State, than the time at my disposal will admit of my doing through personal correspondence.

I premise my allusion to these advantages with the statement, that cotton culture here is in its infancy. The plantings of the present year are the tests of localities merely. Those of the coming year will have a wider range, and consequently a more important bearing upon the future of the industry destined, in my judgment, to become the leading industry of the State. I have not seen the publication in the *Memphis Appeal*, to which you refer, hence I cannot say whether the statements of the writer are as full as you should desire.

THE BEST LOCALITIES.

I proceed to answer your interrogatories. First as to the localities adapted to cotton production. I should pronounce any of the valleys east of the coast range of mountains, situated between the isothermal lines of sixty and seventy degrees, adapted to the culture of cotton for profit. Their special advantages are to be developed by practical tests hereafter. They depend mainly upon the facilities they possess for cheap and thorough irrigation, and their accessibility to the only market on this coast, San Francisco. It is true that an average yield of three hundred and seventy five pounds of lint cotton has been produced on the Merced River, in what is known here as a dry year, without irrigation. But with facilities for irrigation the yield would have been doubled. The additional cost of irrigation, compared with the increase of the money value of the crop derived from it, is insignificant. Hence its importance at all times, and especially in exceptional years like the present.

COST OF PRODUCTION.

It costs to produce a pound of cotton here, of the same classification and valuation in the Liverpool market as Orleans middlings, six cents. But there is a marked difference in the classification of a *crop* produced here and in the cotton States. The absence of rain-fall or killing frosts during the harvesting season, gives to the California planter a crop of uniform grade, and that grade the highest. In the cotton States, as you are aware, a very small proportion of the planter's crop reaches the higher grades.

MARKETS FOR THE COTTON.

At present there is demand for all the cotton produced here, at home. The price of Middling Orleans in New York is paid for the crop of this year, the cotton delivered at the mills, but ginned free of expense to the planter. I hope the demand for home consumption will keep pace with production, and I believe it will. The profit derived from the manufacture of cotton here promises to be

greater than in any cotton producing country in the world. Should the planter gin his own cotton, the mills prefer its delivery in wool sacks, they being enabled thus to operate upon an open and unbroken staple, while the planter is saved the expense of baling.

Should production exceed consumption here at any time, the surplus can easily be exported to Liverpool. I have not yet found the same facilities offered by merchants here engaged in the export trade as we can command at our Southern seaports. But cotton is a new crop, as yet unhandled and not understood. When it shall be offered in any quantity, the merchants will be glad to offer abundant facilities for its exportation to Liverpool. If we could do such an injustice to the enterprise of San Francisco merchants as to suppose them indifferent to an industry which promises results of such magnitude to their city and State, the cotton planter will attract hither the cotton commission merchant from the South. I have before me a letter from an old established house of Liverpool and New Orleans, who tell me they are anxious to open for business in San Francisco, whenever the harvest promises to be sufficiently large for a start.

THE COST OF FREIGHT.

Inland freights are relatively cheaper than in the South, and as the railway enterprises now in process of construction approach completion, rates will decrease. Freights to Liverpool are about the same as from New Orleans, the difference always favoring San Francisco.

LABOR.

Labor is abundant. White men can be hired for one dollar per day, with board: Chinamen in any quantity at twenty five dollars per month, they boarding themselves. I regard the latter, after testing it thoroughly, more efficient, notwithstanding the want of experience, than the negro labor of the South. It is only employed when actually needed, and is therefore less expensive. It is controlled with less difficulty, and is universally conceded to be industrious and painstaking.

QUANTITY YIELDED.

With the rain-fall of ordinary seasons, three hundred and seventy five pounds of cotton, lint or ginned, may be regarded as a certain yield from lands of average fertility. That yield is the result of the present year's planting, one of the most unfavorable in consequence of light rain-fall for two successive Winters, ever known in the State. With facilities for irrigation, the planter is independent of rains, and such as have made the true and scientific culture of the land a study, will achieve the grandest results within the cotton planter's experience. With the capital you propose to employ, you can here handle a crop of six hundred acres. By exercising due care in the selection of your locality for planting, you can double your money the first year at fifteen cents per pound for "Orleans Middling Cotton."

OTHER ADVANTAGES OFFERED BY CALIFORNIA.

As you are no doubt aware, California is a large State, and is sparsely populated. To the planter from the Cotton States, accustomed to the social advantages that are enjoyed in densely populated localities, the prospect in this regard is not inviting. But should you and many others who are seeking information of me, conclude to come to California, I invite you to meet me at my home at Dickson, on the Memphis and Charleston Railroads, in January next, and I will cheerfully furnish you with all the facts within my knowledge as to localities, as well as such other general and special information as will be of value to you in connection with this matter. Together we will select a locality for settlement, and thus form, from the date of our residence, a pleasant neighborhood. I shall be provided with maps and descriptions which will have the confirmation of personal inspection, as also the terms of the land owners. In the midst of such a "neighborhood" the church and school house may be erected. The State provides munificently for the education of all children, without cost to the parent, and it is no exaggeration to say, there is as much talent employed in the pub-

lic schools of California as any State in the Union in proportion to population; and whatever the zeal of the press, in the heat of political discussion, may have asserted to the contrary, I am convinced that no partisanship characterizes the administration of the system.

Taxation is not burdensome, being eighty six and a half cents on every \$100 of valuation.

Good cotton and grain lands can be purchased at from \$5 to \$20 per acre. Payments are generally one-third cash, balance one, two and three years, with interest on such as are deferred.

I desire to see good cotton planters and valuable citizens, such as yourself accumulating in California. If they come, I shall see at no distant day, rising in the midst of their cotton fields, factories for the consumption of their productions, in which the planter will be interested, reaping thus the greatest possible reward from his labors and alike contributing to the wealth, prosperity and power of the State.

I am, dear sir, yours very truly,

[Morning Call.]

JNO. W. STRONG.

HOW TO CULTIVATE A VINEYARD.

In my last article I dwelt entirely on "the Manner of Planting a Vineyard." The *Cultivation* of a vineyard is, however, a matter of much moment. It is often said, "Cultivate grapes as you would corn;" but this affords a very imperfect and indefinite idea of what is necessary to be known in order to become a successful vine-grower.

During the first three years the vines should be cultivated entirely with the view of making wood. Hence, as soon as the spring opens and the weeds and grass begin to make their growth, plow your vineyard, but *never plow deep.* It is advisable to plow both ways, and also to harrow in the same manner. Then wait until the spring rains are over, when you should again cultivate or plow both ways, and then hoe and weed your vines. The object in

the first place being to keep the surface of the ground mellow, as when this is done the air penetrates the soil, and the pores of the ground being kept open, all the moisture is thus absorbed and retained; and, *secondly*, to kill the weeds. Still later in the season, if the surface becomes crusted over or hardened, it should be harrowed. But great care must be taken not to disturb the cuttings during the year they are planted, for if once disturbed while the roots are starting into growth, the vines are irretrievably destroyed.

The first year after the cuttings are planted, the ground cannot be cultivated too much, for it is then that the vine needs moisture; and cultivation, it is well known, retains the moisture in the ground—"the more cultivation, the less evaporation."

The second year the vines also need a great deal of cultivation, if you wish them to make wood fast, but they do not require as much as during the first year; still, they should be kept free from weeds, and the surface of the ground should be kept loose.

The third year the vines will do well with still less cultivation, but it accords with the experience of the writer, that young vines cannot well be cultivated too much.

During the fourth year the vines are supposed to bear, and now the character of the cultivation should be entirely changed.

First. If the vines are planted on lands that are at all subject to late frosts, then they should not be cultivated at all until *very late*, for this reason—that by not stirring the ground it remains *cold*, and the vines will be *slow* in budding, and thus be a week or ten days later than if cultivated earlier. This I have proved to my own satisfaction, and doubtless others who have given the subject attention have acquired the same experience.

Secondly. The vine is now cultivated for the growth of *grapes*, and not for a large growth of wood; hence, if the land is rich, it should be but little cultivated—especially if you are raising *wine grapes*. If you are cultivating table grapes exclusively, the size of the grape being a matter of importance, the more moisture and the more cultivation, the better; but

never at any time nor in any vineyard *plow deeply*. Indeed, I would never plow at all, unless the ground became too hard to mellow it by the use of the cultivator.

I am not unaware that this maxim will meet with objections from many vineyardists, but I ask them to take a bearing vineyard and cultivate it thoroughly, but not *plow it even once*, and, my word for it, if even the surface can be made mellow, they will never plow their vineyards again. They do not need it any more than an oak tree needs it. By plowing you cut off a large number of small roots near the surface, which, of course, weakens the vine; and where the plowing does give the vine greater vitality, it goes to *wood and not to grapes*. This is the experience of those who have given the subject due consideration.

To test this matter, plant a vine between two rocks, where the ground never can be stirred, or at the root of a tree; or indeed in any other situation where the surface of the ground is loose and weeds do not choke it, and the vine will grow and produce in wonderful abundance.

Third. But what I have said against plowing vineyards, must not be understood as an argument against *cultivating vineyards*; for the soil should be well and thoroughly cultivated until the young branches begin to spread out so that they are in the way of a horse, *then stop*.

Fourth. Never manure a vineyard, especially if you wish to make wine, or unless the land is too poor to raise vines. If there is any such land, I would advise an early abandonment of the place, for land too poor to raise vines, if it is dry and gravelly, is not worth keeping. M. M. E.

FAVORS RECEIVED

By the Bay District Horticultural Society.

The proprietors of the *Rural Press* have kindly presented, to the above Society, two volumes of the quarterly series of the *Pacific Rural Press*, for which the Secretary of the Society desires to return the thanks of the members.

Editorial Portfolio.

While topics of comparatively minor importance are permitted by our legislators to engross their almost exclusive attention, and at times receive even more than a healthy amount of legislation, it but rarely occurs that our representatives will consent to devote even a small portion of their time to AGRICULTURE and HORTICULTURE—two subjects which to our State are of the highest moment, and therefore worthy of the gravest consideration.

In the last number of the HORTICULTURIST, we sought to draw the attention of our legislators to sundry subjects comprised within the field to which we have devoted ourselves; one of these and of the gravest importance is *The Cultivation of Forest and Timber Trees throughout the State*, a law to encourage which, should be one of the first enactments of the present session,

The experience of past years has proved, that the development of our agricultural resources is entirely dependent on private enterprise, and many important industries have languished through lack of encouragement and capital. It is only within the last two years that men of wealth have realized how essential to the common weal is the prosperity of the farmer, and have in a few cases stepped forward to aid him in some of his adventures. Should these prove successful, others will doubtless be willing to invest their capital.

But there are enterprises wherein, from not being very generally understood, our capitalists will not so readily invest, and notwithstanding their importance, as no immediate return can be expected, (a matter of grave importance with our monied men,) they stand but little chance of material aid. Foremost of these, is the Cultivation of Forest and Timber Trees—a subject which has been so ably advocated by almost every newspaper in California, and which we have used our humble endeavors, from our first issue to the present time, to promote.

A bill has recently been introduced in the Senate of California, in advocacy of this im-

portant step, which from some cause appears to have excited some opposition. We propose to canvass the merits of this bill, and also to review some of the objections raised to it, as a duty devolving on us, and shall endeavor to be impartial, and to speak to the point.

It appears that Senator Betge, who is a member of the Bay District Horticultural Society, and who takes sufficient interest in its proceedings to visit the rooms from time to time, had his attention drawn to the important subjects of Artificial Irrigation, and Forest Tree Culture, as applicable to the needs of California; and having expressed a desire to devote his time and influence to the advocacy of such important measures, provided he was supplied with the necessary statistics, he was furnished with the required information by the Secretary of the Society, and from these data the Senator framed the bill which he has introduced in the Senate.

We view it as a matter of small importance, whether the Legislature passes this or any similar bill. What we desire to see, is, that vigorous measures are taken to bring about the desired object. We are earnestly in favor of Forest and Timber-tree culture in California, and we are confident that the intelligent portion of our farmers are prepared for and in favor of the enterprise.

We cannot say that we approve the title of the bill—that of “State Forester,”—although that is a matter of but minor importance, and the duties might be appended to some other State position, or one of our Agricultural or Horticultural Societies might be authorized to fill the commission; but in any case, it is certain that the duties would require the undivided attention of a competent man.

Again: It is provided that the salary of the individual in question shall be \$3,000 per annum. We believe that a thoroughly efficient man might be found to serve for less.

It is further provided, that, as this official will be required to visit every county in the State; at least once in each year, the sum of \$2,000 shall be allowed for traveling expenses. We do not profess to be competent

judges as to what those expenses should amount, but we think the provision more than ample.

Again: A provision is made for the expenditure of some \$5,000 per annum in the purchase, collection, etc., of seeds. It does not appear to us that such a distribution, deserving to be called general, and consisting of well assorted seeds in good condition, could be made for a less amount—five or six thousand pounds would be but a moderate quantity for such purpose, and we are assured on experienced and competent authority, that such collection could not be made of reliable seeds at a less expense than \$1 per pound; and further, that such collection could readily be sold in Europe and in the Eastern States for from ten to fifteen thousand dollars.

We see, also, that there is a clause in the bill appropriating \$4,000 for Experimental Grounds. This section of the Department, when once established in running order, it is presumed, would be able to supply 50,000 trees per annum gratuitously, for public grounds and roads. We have been informed by experienced men that trees raised in our nurseries cost not less than ten cents per annum each, and doubtless the amount above named was based on this calculation. It would be very desirable to have grounds of this description, but if the state of our finances will not permit it, we must endeavor to dispense with them.

Such a bill will doubtless be returned from the respective Committees much altered in form, and possibly entirely different in character, but it is interesting to observe what some of our leading papers have to say on the project of passing a bill of this kind.

The Sacramento *Union* opposes the bill, because it says that Professor Bolander has asserted that all which Senator Betge's Bill proposes to effect may be obtained at an expense of \$500 per annum (!) by establishing a Botanic Garden within the Grounds of the State University, and by constituting the Watchman of that Establishment the Gardener. But there must be some grave error or serious misunderstanding here. We are

very well acquainted with the Professor, and entertain a great respect for him, and we have a very high opinion of his attainments as a botanist; we also know him to be a sensible man, and further, that he is not, nor does he pretend to be, either a Nurseryman or a Gardener, and therefore would not pretend to impart to an untrained man, in a few months, that amount of knowledge which is necessary for the management of a Botanic Garden, and which, it is well known, it is the work of years of diligent and intelligent application to acquire, and which he does not himself possess. We are aware that the Professor would be pleased to render all the assistance in his power to establish a Botanic Garden within the precincts of the University, and we should rejoice in the success of the enterprise, which we claim to have suggested, in one of the earliest numbers of our Magazine, about a twelvemonth since, and which we consider a most essential adjunct to such establishment. If it should prove a success, there would of course be no necessity for Experimental Grounds elsewhere.

We will here state, for the information of the Sacramento *Union*, that tree seeds (particularly those of our Conifers and the Australian Evergreens) will not germinate with us in the open ground, and that more than \$500 worth of glass would be required for that purpose alone.

To return to the subject of Botanic Gardens, we know that among professional gardeners it is considered that it requires the most skillful, intelligent, and first-class gardener to take charge of such an establishment. We can, therefore, only imagine the surprise of our cultivators at the suggestion of a watchman as the Chief of our State Garden.

In a properly-constituted and conducted Botanic Garden, every plant which may come under observation is brought under culture and classified; and in all the leading establishments of this class, of the present day, throughout the world, it is the practice to introduce, cultivate and distribute, useful as

well as ornamental trees and plants; and such an establishment, to be of any service, must necessarily be very expensive, and must of course be conducted by men who are both scientific and practical. The indispensable qualities of the scientific botanist, and the skillful, practical cultivator, are very rarely combined in the same individual. The principal expenses of a Botanical Garden are—glass, pots, seeds and labor. Seeds are generally obtained by exchanges, but these exchanges involve a great expense, as the collection of many varieties of native seeds in the necessary quantities, frequently occasions an outlay more costly than would purchase those required. We will pass from this portion of our subject, by remarking, that we have no faith in that which is to cost us nothing.

And now for the strictures of the *Alta* on the bill. It dislikes very much the office of State Forester—as we do ourselves; but we do not perceive that the appointment of such an officer would necessarily involve a swindle; for as such we should understand the remark, “that the benefits which the State would be likely to receive in return, would not be visible to the naked eye.” But why should the State Forester be more likely to rob the public of the entire amount of the \$15,000 per annum placed at his disposal, than the scores of other appointees? Or, does the *Alta* mean to imply that all are equally unprincipled, and that honesty is a thing of the past? For ourselves, we have more faith in the discernment of Governor Booth in the selection of his appointees,—and in human nature.

The principal fault that we find with the bill, is, that the executive of this proposed department would have too much discretionary power in the expenditure of money and in the distribution of seeds; but certainly, a due control may easily be kept over his action, and his functions defined so that the State may be saved. The expense items may also be reduced, and doubtless many other suggestions will be offered in modification, so that the public may be satisfied, without sacrificing the proposed measure of Forest and Timber-tree Culture.

The good results of such a law will greatly depend upon a proper appointment by the Governor, who has doubtless ample facilities for obtaining the necessary information.

MANAGEMENT OF CAMELLIAS.

[We make the following extracts from the *Gardener's Chronicle*, believing that they contain valuable experience, although they may not exactly coincide on all points and may also differ from other accepted authorities.—
ED.]

The Camellia is undoubtedly one of the most noble and useful ornamental plants that we possess. Nothing can exceed the gorgeous display afforded by well-grown specimens during the winter months, and as a Christmas table flower it has no equal, for, independently of the great variety of form and color in the flowers of the Camellia, its noble growth and rich glossy foliage gives it a character which is excelled by no other plant.

Moreover, there are but few other cultivated plants which require less artificial assistance to grow them to perfection. How far this assertion is borne out may be questioned, for, unfortunately, it is the exception, and not the rule, to meet with collections in good order, and yet it is a plant which does not readily succumb to bad treatment. Nevertheless, I venture to say, that the veracity of the statement can be fully proved by the cultivators of the many highly creditable collections to be met with in British gardens.

In order to verify the above remarks, I will here describe the manner in which I have treated a collection I found at this place three years ago. They were growing in boxes and pots, and in general appearance, seemed for the most part to be in tolerable health, the plants measuring from ten to twelve feet in height, and as much through.

They were first carefully cleaned and well watered, liquid manure being freely used, but notwithstanding every precaution the buds dropped off to an alarming extent. I

was given to understand that this was a yearly occurrence, which led me to examine the soil, the result being that they were turned out, and divested of the peat into which they had been planted. This peat was of a poor, hungry nature, and wholly inadequate to afford the supply of nutriment required for the maturation of the buds. One half of the plants were then planted out into a border, and the other half into boxes, in a compost of fresh turfy loam of a good medium texture, cut one and one-half inches thick, and to which was added a dash of sand and charcoal. They were watered freely overhead twice a day, were kept in a growing temperature, and slightly shaded from the sun. They made a splendid growth, and perfected a good display of flowers without the loss of a single bud. In the spring of last year the plants were freely cut in, so as to regulate the growth, and at the present time they are covered with buds and bloom from base to summit, and are well furnished with wood and foliage of the deepest green color.

It may be asked to what is this rejuvenescence attributable? Mainly, to the substitution of the loam in the place of peat, which was not of a nature adequate to the requirements of the plants; to a perfect drainage being secured; and to their having been carefully yet freely supplied with water, and slightly shaded from bright sun, a free circulation of air being maintained to insure rigidity of growth. These are, in my opinion, the most essential conditions to insure success in their culture, and, if carefully attended to, would in a great measure lessen the chances of failure. The greatest amount of success seems to be obtained with specimens that are planted out, a system which lessens to a great extent the chances of sudden checks, and makes the plant less reliant on the fostering care of the cultivator. When space is admissible, planting out is to be strongly recommended, although I do not recognize in the Camellia a plant impatient of root restriction. Fine specimens may be grown in comparatively small pots. For instance, take the superb specimens to be met with in Belgian gardens,

and which, in point of general excellence, we cannot equal. These plants are grown in a rich black peat, which is peculiarly suited to the requirements of the Camellia. Such peat I have failed to discover in this country, or, indeed, any at all to be compared with loam for promoting the development of this much ill-treated plant.—*George Westland, Willey Court.*

Nothing is more annoying in the culture of the Camellia, and we may add, more frequent, than the tendency the plants have to drop their flower buds. This is generally due to mismanagement in some way or other, and we quite agree with Mr. Pearson, of Chilwell, that no source of disappointment is more common than that arising from injudicious watering. Mr. Pearson's remarks are so much to the point, that we believe we shall be doing a service by giving them *in extenso*, even if in some points they are not in accordance with the opinions of others:—

“Camellias will lose their buds, as fruit trees drop their fruit or vines shank their grapes, when anything renders them incapable of bringing them to perfection. Any cause inducing ill-health will produce this effect. It may be looked upon as an effort of Nature to get rid of work which the plant is unable to perform. In the case of Camellias, the most common cause is bad watering; I have proved to persons who were quite sure that this was not the cause, that their plants never had been properly watered for months. A little water applied frequently—that worst of all known forms of mismanagement—had rendered the soil moist, and in some cases even sour, for half way down the pot, whilst the lower part of the ball was as dry as dust. There is nothing more difficult than to get persons to observe the simple rule,—‘never water till a plant really requires it, and then soak it.’ If the cultivator would turn out one of his plants and examine the ball of soil, he would soon see if the roots had suffered much from this cause. Then, again the soil may be quite unfit for the Camellia. Many persons, knowing that Camellias cannot grow in a strong heavy soil, mix for them

peat and loam. In this case peat acts mechanically for a time in keeping the particles of loam apart, and for a time the *Camellia* will grow well in this mixture. But as loam contains potash and lime, and peat is full of humic and ulmic acid, they act on each other, and the result is a sour soil, in which *Camellias* become unhealthy. Sods cut as if for laying a grass plot (not thicker), taken from a sandy loam, particularly if it grows Foxglove, Heath, or Fern, chopped, or better still, pulled to pieces when quite fresh, is the best soil for *Camellias*, without any admixture. If not sandy enough, white sand may be added. If a suitable loam cannot be obtained, the next best soil is a good fibrous peat unmixed with anything else. I cannot think that peat soil ought ever to be mixed with anything except white sand, if sand be required. *Camellias* often do well in pure peat, particularly when assisted with a little weak guano-water or soot-water when growing. The former must be very weak; certainly not more than one ounce to a gallon of water, given once or twice a week. This brings us to another cause of *Camellia* buds dropping, viz: poor exhausted soil. Again, the loss of buds may arise from a weak condition of the plants, resulting from their having been subjected to too much heat. The *Camellia* is nearly hardy even in this country, and to force it in a strong heat is to make it produce thin, weak shoots, destitute of the vigor natural to a well-grown plant. If planted in a bed of soil, the protection of a glass roof is all it requires; if grown in pots, any heat more than will secure it from frost is unnecessary, and is often injurious. A common cause of *Camellia* buds falling is the change to which they are subjected by being grown under glass at one time and out-of-doors at another. A plant which has formed its buds under glass, is often turned out-of-doors, where it is liable to be soaked by heavy and continuous rains, and is night after night exposed to heavy dews. Under these circumstances it will often look as healthy as possible, but when brought into a glass-house, subject to a dry

heat perhaps, protected from rain and sun, possibly not getting enough water at its roots for days together, is it surprising the shock produced by so great a change should be injurious? Never turn a *Camellia* out-of-doors if you have room for it under cover. It will, perhaps, not have occurred to every one to think how great must be the change from a dewy night to the atmosphere of a house deprived of its moisture by condensation. Many a plant suffers from the extreme dryness of the air during frosty weather, and I have often been obliged to tell men to water the paths of my houses during frost, and sometimes have even had the evaporating troughs filled with water in winter."

WORK FOR JANUARY.

Much anxiety existed during the early part of December among all classes of business men as to the probability of abundant and timely rains. It is highly gratifying to notice, that our people are beginning to realize the fact, that the success of our fields is the true basis of future prosperity. As soon as this feeling becomes general, we may expect the coöperation of our more influential and wealthy men. Up to these present times, there were indications that our cultivators would not establish a proper system of husbandry, until many sad lessons had been learned.

The rains of November enabled many of our farmers and gardeners to put their lighter soil under cultivation, and it is said that more land of this description has been prepared this year than during the last; but for the heavy soil of most of our extensive valleys, and also for the adobe land, these early rains were not sufficient; it must be remembered that such soil cracks during the dry season, and that into these cracks much water is absorbed before the surface soil is penetrated with sufficient moisture to admit of plowing. However, at this writing another heavy rain has set in, and will doubtless enable farmers to plow their heavy lands at once. But we must bear in mind that Nature will not al-

ways treat us as kindly as we in our unreasoning are in the habit of expecting; we must do our share by assisting her agents with all the resources and knowledge at our command.

Thousands of acres may be irrigated from adjoining springs and brooks, and these expedients should receive our early attention; ditches for conveying water should now be dug, when they will absorb much less water than if constructed during the latter part of the rainy season. Various crops may be rendered much more profitable and superior in quality, if they are not left to depend entirely on our rainy seasons. For instance, far superior potatoes could be raised by planting them later in the season, and subjecting them to artificial irrigation, instead of our more convenient but careless way of planting them in the fall of the year and digging them in the early spring, before the rays of the sun, in this latitude, have the power of penetrating the soil sufficiently to mature the potatoe into a substantial and wholesome food; and the same may be said in regard to many other products which reach our markets in a crude and inferior condition. It is, therefore, of the utmost importance to prepare for irrigation.

Our orchards and vineyards should receive proper attention. This is the best time for pruning and for destroying insects. All that grown-up fruit trees require is the cutting away of water-shoots, and such limbs as are crowding each other. We have no faith in the mutilation of trees which are in bearing condition. If the trunks of trees present a very rough appearance, it is very important to smoothen the bark with a dull scraper, so as to destroy the hiding-places of the various and numerous insects. The scraping of the outside rough bark of trees and vines cannot be injurious, as it has no connection with the inner organs of the plant, otherwise than to serve as a kind of protection against cold and heat, which are of minor consideration in our climate. By scraping trees we also destroy the parasites (particularly mosses) which are formed in abundance on trees and shrubs of all

ages near the coast-range, and which are injurious to the vigor and health of plants.

Wherever it is contemplated to plant out orchards, no time should be now lost in doing it. The ground should be plowed thoroughly, and holes should be dug for the reception of the trees, at least three feet square and fully as deep; it will be better to expose the excavated soil for a week or two to the atmosphere, for various reasons. In the selection of fruit trees as to variety, more than usual care should be taken; for although it seems reasonable that our nurserymen would only cultivate the very best varieties, yet they do not always consult the best interests of their customers. It would be a very judicious step on the part of our Agricultural and Horticultural Societies to prepare and publish lists of the fruits best adapted for cultivation in the different localities. We are sorry to admit that our pomologists accomplished more in this direction ten years since, than they are willing to do now. Our long winter evenings could not be devoted to a better cause than to the discussion of horticultural and agricultural topics.

Throughout the warmer localities of California, the pruning and planting of vineyards can be performed as well now as at any time, while in the northern parts it should be delayed until February and March, particularly where irrigation is resorted to. The pruning of grape vines requires some practice and knowledge. For ourselves we still believe in the old method of pruning which is altogether practiced in Europe; which prescribes that not more than two or three sound eyes should be left to a shoot of last year's growth; that grape vines of last year's planting should be cut back to within one or two eyes of last year's growth, and that not more than one stock should be left to vines in the vineyard, while two shoots may remain, if cultivated for arbors or trellises; and that all other shoots should be broken off as soon as they make their appearance.

For the planting of Evergreens there is no better time than the present, in this country, particularly where they are expected to do

well without irrigation. The fact that they are Evergreens makes them more exposed to the force of winds, and it is therefore strongly recommended to give them proper support with stakes as soon as they are planted.

In the Gardens much may be done that will prove beneficial to trees, shrubs, and flowers. Lawns and flower beds should receive a good top-dressing of manure, which may remain on the lawn for two or three months, but may be better incorporated with the soil of the flower beds in the Kitchen Garden by thorough and deep spading. Before this is done, however, Roses and flowering shrubs should be properly pruned and staked. The rubbish should be carted away at once, or burned up, in order to destroy the insects which find too much shelter among the old and half-decayed leaves.

The success of planting Seeds at this time of the year depends greatly on the weather. Around the Bay of San Francisco we frequently enjoy the most pleasant weather during January and February, and garden seeds will then germinate freely. If cold weather succeeds the planting of seeds, nothing is gained by planting early; in fact, much of the seed will rot in the ground. It may, however, be considered safe to plant lettuce, radishes, onions, spinach, and peas in the open ground. In frames, under glass, we may continue to plant cabbage, tomatoes, cauliflower, and celery, which will have to be transplanted in the open air later in the season. We may also forward cucumbers in pots under glass, and turn them out, with the balls of earth around their roots, as soon as the frosts are over.

The Greenhouses and Conservatories require particular attention at this season of the year. We are, in this country, in the habit of growing plants of all descriptions in one and the same house. This arises more from economy than from choice, as we know that the requirements of one plant differ so widely from those of another. Some plants require very little moisture, while others need a great deal; some thrive well in a moist atmosphere; others must have a dry one; some delight in a cool and airy situa-

tion, while others do best in a close and confined air. In cultivating, therefore, these different plants in one house, some of them must necessarily suffer, but meanwhile we must subject them to a treatment under which they may all live and do as well as circumstances will permit.

The greatest fault we have met with in the treatment of Greenhouse plants at this time of the year, is *too much watering*. Water, as we have argued frequently, should be either absorbed by the plant itself, by proper drainage, or by evaporation; at this time of the year but little vegetation takes place in our greenhouses (which are mostly without artificial heat), on account of our cold and rainy days, and also but little evaporation, and consequently, the water, not being absorbed, becomes stagnant, makes the soil sour and renders it unfit to supply the roots with the necessary nourishment. Therefore we advise to *give no more water than is necessary to keep the plants alive, unless artificial heat is applied*.

While it is very beneficial to many Greenhouse plants to sprinkle the foliage with water during warm weather, this should not be done at this season, as it will cause the foliage to rot, and may prove very disastrous in case of light frosts.

A very erroneous practice also exists here in keeping Greenhouses and Conservatories too close. *Air should be given frequently, and particularly during the forenoon*, in order that plants may present a healthy appearance. Close confinement will make them so tender that the slightest frost may affect them seriously—four-fifths of the glass structures in this country being without fixtures to supply artificial heat.

As the cold north winds of December have caused a scarcity of flowers, the bouquets furnished by our florists have not the bright and rich appearance which we are accustomed to admire in them. The supply of *Roses* and *Pinks* is but moderate from the open ground; *Camellias* have made their appearance, and form the chief attraction. The bulk of them is supplied by our friend E. L. Reimer, who always succeeds well in producing perfect

flowers. *Violets* are coming in more plentifully, but the supply is not adequate to the demand. In the making of bouquets, the *Stevia* is used very extensively, and seems well adapted to our climate; it thrives well both out of doors and under glass, but, if raised under protection, the flowers are far superior—being of a more graceful appearance and the color being of a purer white; those grown in the open air being of a yellowish color, and give to the bouquets a dull appearance. There is a moderate supply of *Heliotrope*, *Fuschias* and *Pelargoniums* from the open ground, and with *Ageratumis*, *Pansies*, *Snap Dragons*, *Stocks*, *Candytuft*, *Iberis*, *Laurustinum*, *Polygala*, *Mignonette*, etc., furnish the bulk of hardy flowers, while *Begonias*, *Orange Blossoms*, *Chinese Primroses*, *Double Jasmynes*, *Cinerarias*, etc., with the *Camellia* as a center, supply the demand for choice bouquets.

NEW AND RARE PLANTS.

Pavia macrostachya (dwarf Horse Chestnut) is described in the *Gardeners' Monthly* as a picturesque shrub producing about midsummer, flowers of much beauty. It is a native of the Southern States, and seems to be very little known. Judging from a colored engraving of this plant in the above periodical, we should accord it all that is claimed for it. It belongs properly to the *Æsculus* family, and bears some resemblance to our California *Buckeye*. It is perfectly hardy and easily propagated by suckers, which the plant produces very readily, or from seed.

New Roses.—We are also indebted to the *Gardeners' Monthly* for a list of new Roses, produced, this year, by Eugene Verdier, of Paris. Of *Tea Roses* he recommends *Bella Maconnaise*, a large double pale rose; *Coquette de Lyon*, a canary yellow; *Freres Soupert et Notting*, a fine full flower, yellow, edged with carmine; *Hortensia*, rosy, with a shade of yellow; *Le Florifere*, well formed flower, white changing to salmon; *Madame Aelie Imbert*, salmon yellow; *Madame Berard*, bright rose, a fine double well formed flower; *Mad. Gail-*

lard, salmon yellow, a grand, full, well formed flower; *Mad. Emilie Dupuy*, yellow changing to salmon; *Victor Pulliot*, white, changing to yellow.

Among the *Hybrid Perpetuals*, *Virgile* is termed a rosy salmon, of a new shade.

Of the *Climbing Hybrid Perpetual Roses*, *Princess Louise Victoria* is spoken of as a good one.

Begonia Rosæflora.—This is one of the many beautiful *Begonias* discovered by the late Mr. Pearce in the Andes of Peru. Coming from an elevation of 12,000 feet, it is admirably suited for a cool greenhouse, and is very nearly, if not quite hardy, and may be safely planted in sheltered situations. It is a stemless species, supporting from three to five flowers, of a bright rose color, as large as those of *B. Veitchii*. We may also add that it is a deciduous variety, like *B. Veitchii*.—*Gardeners' Monthly*.

Begonia Sedeni—Garden Hybrid.—One of the finest hybrid flowering *Begonias* ever raised. It is a cross between an unnamed species and *B. Boliviansis*, but with larger leaves. The flowers are of the richest magenta color, and of a large size. The plant continues a long time in bloom.—*Gardeners' Monthly*.

Begonia Veitchii, of which Dr. Hooker says: Of all the species of *Begonia* known, this is, I think, the finest. With the habit of *Saxifraga ciliata*, immense flowers of a vivid vermilion cinnabar red, that no colorist can reproduce, it adds the novel feature of being hardy in some, if not in all parts of England. It was discovered by Mr. Pearce, near Cuzco, in Peru, at an elevation of 12,500 feet, and the plants grown in Mr. Veitch's establishments have already given proof sufficient of hardihood, by withstanding a temperature of twenty five degrees of Fahrenheit with absolute impunity.

Clematis John Gould Veitch—Double blue flowered.—We cannot too strongly recommend this magnificent double blue flowering *Clematis* as a most valuable addition to our hardy climbers. It is a profuse bloomer, producing very double flowers of a large size and

of a beautiful light blue color. It thrives well either when planted out of doors, or as a conservatory climber. It was imported direct from Japan. Veitch exhibited this plant at the International Exhibition at Paris, in 1867, and again at the International Exhibition held at Ghent, in March, 1858, as well as at the Royal Horticultural Society's show held April 21st, 1868, where it was universally admired and adjudged to be one of the best and most striking novelties of recent introduction; it also invariably received the highest possible awards.—*Gardeners' Monthly*.

Retinospora filifera, has a pyramidal and exceedingly graceful habit, its great peculiarity consisting in its numerous drooping shoots, which frequently attain a length of ten to twelve inches without branching, and then becoming tufted or crested, giving the plant an elegant tasseled appearance. It is a native of Japan.

Retinospora filicoides.—A most beautiful and hardy Conifer. The foliage is of a rich bright green, very dense and having an exquisite fern-like character. It is perfectly hardy and is a native of Japan.—*Geitch*.

NEW VEGETABLES.

The Early Shipping Tomato.—This is a new and valuable variety, raised by Mr. Turner, of Norwich, and is a hybrid between "Keye's Prolific" and "Crimson Cluster." It has qualities which will render it extremely valuable for Bermuda or our own southern latitudes, as it is as early as the earliest and enormously productive—having from twenty to thirty medium-sized fruits in a cluster. Above all, its solid, seedless character enables it to endure shipping much better than the larger sorts.—*American Agriculturist*.

We think this Tomato worthy of trial in California, for the good qualities above named.—Ed.

 The article in this issue on Hyacinth Culture in Glasses was omitted to be credited to the *Gardeners' Chronicle*.—Ed.

NEW FRENCH PEAR.

A contributor to the *London Journal of Horticulture* thus speaks of a new Pear, called *Beurre de l'Assomption*: "I have to-day (September 25th) eaten one of the finest pears of the month. It is large, and in color much like the *Brookworth Park*. The habit of the tree is robust, much like Williams' *Bon Chretien*, of which I should think it a seedling, and it is marvellously prolific. There is none of the Williams' musk in its flavor, but a rich, pleasant, vinous, sugary taste."

FLOWERING PLANTS IN OUR PUBLIC SQUARES.

We have no doubt that our Public Squares are considered by some to be models of perfection, and probably those who have charge of them also imagine them to be so; but we cannot share their opinion, and would much prefer a little more variety and more pleasing features. Here we boast of the finest climate in the world, but we see very little use made of the advantages afforded by Nature. The people of Siberia can have everything for the same purposes, only more hardy, of course, but similar in habit and quite as effective. We admire a few good specimens of Conifers as well as any of these experts who manage our public grounds, but we object to making Conifers and other Evergreens the only trees for embellishing our public grounds. As our climate permits the growing of Fuchsias, Geraniums, Verbenas and similar plants in the open air, at all seasons of the year, why should we not have them in our public gardens? They would not require any more, and probably less care than Grass, and would constitute most pleasing features. A bed of scarlet Geraniums, one of bright-colored Verbenas, another of mixed Petunias, one of the ever-favorite monthly Rose, still another of graceful and elegant Fuchsias, etc., would marvellously enliven the scene and render the grounds quite favorite resorts during pleasant days, and the effect certainly would be extremely pleasing to the eye.

No one can reasonably offer any objection to our suggestion, based as it is on reasonable grounds. The cost of the necessary plants would certainly amount but to a trifle, and we would not be surprised if the members of our Horticultural Society would readily volunteer to furnish, gratuitously, a number of plants to the city for the experiment. Let us, then, accept those delights which Nature so kindly offers us to enjoy, and let these additional attractions be utilized in the beautifying of our sombre-looking city squares.

REPORT ON THE FRUIT MARKET.

Fruits have been said to be "Gold in the morning, Silver at noon, and Lead at night." This, no doubt, is a good rule for the majority of mankind to adopt in their enjoyment of these delicious and bounteous gifts of Nature. With all their wholesomeness and beneficial effects, fruits, like all other good things, require the exercise of judgment and moderation in their use; and premising these conditions, they have now become a necessity to man, in all climes, whether in his civilized or savage state. They were evidently intended by a beneficent Providence for the physical welfare of man. They are not only nutritious, but they are also medicinal in their properties. They effect certain beneficial changes in the blood (which medical men term "alterative"), producing a modification in the system from an abnormal to a healthy condition; consequently, by the proper use of ripe fruits, many diseases lurking in the human frame are either neutralized or altogether removed. Many fruits have the peculiar medicinal property of "cooling" the blood, as it is termed, or, in other words, rendering it less liable to feverish or inflammatory excitement. One of the advantageous circumstances connected with California, its mild climate and its fertile soil, is its wonderful fruit-producing capabilities, in addition to its bountiful supply of nearly every other of earth's products. There can be no uncertainty concerning the fact, that the very

considerable consumption of fruit, cooperating with its superior climate, confers on the people of this State their healthy appearance and fine condition. Happily, fruits with us are sufficiently plentiful and reasonable in price (although in this latter particular there is still further room for improvement), to supply the wants of all; and to a large extent fruit may be obtained by the poorest of the population of our cities.

Notwithstanding that many of the fruits offered for sale are of first-class character, yet there is still a large opening for further improvement, which would command for the cultivator still higher prices, and would form an all-sufficient premium for his trouble and expense in procuring still choicer varieties of the different kinds.

The *Journal of Health*, among other good advice, thus sets forth the use of fruit: "Be it remembered, that the eating of ripe fruit does not involve the necessity of swallowing the skins and pits or seeds, as many are in the practice of doing. Certain it is—to say nothing of the labor to which the poor stomach is put on the occasion—Nature never intended those parts of the fruit to be eaten: the one is an external covering for the purpose of protecting the nutritious part proper, the other for perpetuating the plant."

The numerous varieties of fruits, cultivated and wild, foreign and domestic, which are received and sold in our markets, demonstrate the necessity, as well as the importance, of their being perfectly cultivated, and of the finest kinds, to withstand the pressure of competition.

But to come to the more matter-of-fact portion of our Report of our Fruit and Vegetable Markets. Although the appearance of Pomona's products becomes less beautiful and attractive as the season advances, yet Apples and Grapes retain somewhat of their handsome coloring. Oranges, as they gradually arrive, enliven the generally declining tone of color of the few fruits now upon the stalls. Watermelons and Canteloupes have almost entirely disappeared. Strawberries are "like Angels' visits—few and far be-

tween," and their price is correspondingly high—about thirty-five or forty cents for less than a quart. Nuts, in nearly all of their varieties, are making a very effective show, and those who are blessed with good and plentiful teeth, and do not mind risking them, may enjoy these to their stomach's content (distress?—Ed). Eastern Chestnuts have not arrived in their usual quantities at present this season, and their price is tending upwards. Now and then, a few late red Plums may be seen. The Winter Nelis Pear is in larger quantities than any of the other pears, but they look dark, spotted and dingy; they, however, retain their rich, fine and full flavor and pleasant juiciness. The time for the noble and delicious Easter Beurré has hardly yet arrived; these sometimes appear in boxes packed in sawdust until April. Tahiti Cocoanuts have arrived in good supply and at moderate prices. Bananas and Australian Lemons have reached us plentifully, in aid of the Christmas festivities. New Oranges from Los Angeles are now on the stands. Tahiti Oranges are nearly always to be found. California Figs of this year's growth and curing are in large quantities.

Of Vegetables.—New Potatoes, planted in August, have been more than a month in market. Salsify, or Oyster Plant, is in plenty. Mushrooms are in profusion, coming in, of course, after the rains, and departing with them. There are also still a few gleanings from the Tomato vines.

Green Peas are in moderate supply, and Cauliflowers, as usual, in very fair abundance. Some of these weigh from eight to ten pounds. Lima Beans are entirely out of market. Asparagus is again coming in. Spinach has appeared, and Brussels Sprouts also assist in well-filling the vacuum made by the retiring of a few of the other culinaries. I may sum up this Report by remarking, that with the exception of Gumbo and Chili Peppers, all the spring and summer vegetables may be had in our markets during all our winter months.

E. J. H.

SAN FRANCISCO, Dec. 28th, 1871.

C. C. PARRY ON FOREST CULTURE.

Dr. C. C. Parry, Botanist of the Agricultural Department of Washington, in his annual report, says:

"The protection of our native forests now constitutes one of the urgent problems in reference to the future of the mountain districts of the far West. The advent of the railroads, the progress of mining operations, as well as the general advance of settlement, call for large amounts of fuel, which will be taken from the most available sources without regard to the future; hence there is great danger that the entire country will be stripped of its protecting belts of timber, leaving the exposed soil a prey to those floods and droughts which in European countries have invariably followed the destruction of forests.

Therefore, not only proper means of protection should be devised and enforced by government authority, but also encouragement should be given to extend the growth of forests, by the introduction of new varieties adapted to the peculiar conditions of soil and climate."

The Department exchanges Seeds with the other Governments through their Botanical Gardens, and many rare and valuable seeds have been received.

647,321 packages have been sent out during the past year, the most of which were sent through the Senators and members of Congress.

The expenses of the Department have been about \$200,000—the amount appropriated by Congress.

DEMAND FOR FRUIT TREES IN UTAH.

According to a correspondent of the *Rural Press*, large quantities of Fruit Trees are in demand for Utah, and the parties desiring them do not know where to obtain them. It is our opinion that our nurserymen might greatly increase their business by making themselves more generally known. We feel confident that our Eastern friends will not be slow in availing themselves of the opportunity.

OUR WINE YIELD.

The report of the Surveyor-General gives the amount of Wine made this year as 3,795,729 gallons.

During the past ten months, about 170,000 gallons of wine have been exported by rail, and about 400,000 gallons by sea—making a total of about 570,000 gallons. These figures leave about 3,000,000 gallons for home consumption and the manufacture of Brandy and Vinegar; a large amount of the former being also exported, it is somewhat difficult to form a correct estimate of the amount of wine consumed in this State or of the amount exported in the condition of spirits. Enough, however, is shown by the above figures to prove that the wine interests of California have already grown to gigantic proportions, and that with the proper facilities for exportation and with our own efforts to produce a superior article, it must become one of the leading industries of the State.

ANNUAL REPORT OF THE COMMISSIONER OF AGRICULTURE.

We have received the above report, and much profit may be derived from its valuable suggestions.

Mr. Watts justly says, that our agricultural Colleges, which are provided for by Congress, should be distinctive in their character, and each should be made to require compulsory labor from every pupil, so as to inure him to the daily occupation of a farmer's life.

Our new Commissioner is not in favor of publishing an annual report for distribution, as heretofore, but thinks it should be superseded by the monthly reports. The expense of publishing these annual reports has been exorbitant, and the monthly reports answer for all practical purposes.—Ed.

The report makes favorable mention of the New Zealand flax, *Phormium tenax*.

The Statistical division of the Department is now engaged in collecting facts illustrating the agricultural status of the Pacific slope.

Experiments have been made in rearing Silk-worms on the leaves of the Osage Orange with good success.

The Library contains now 6,012 volumes.

STATE BOARD OF AGRICULTURE.

This Board met at Sacramento a short time since, and decided to hold the next Annual State Fair in September, 1872, to commence on the 12th of that month, and to close on the 21st.

The Secretary was instructed to confer with the officers of the different District Agricultural Societies in regard to the preparation of a bill to lay before the present Legislature, for an appropriation to each of those Societies as a fund for the purpose of awarding liberal premiums for the best productions.

We highly approve this movement, and are happy to see it coming from the right direction. We have always advocated such a measure as just and proper.

FARMERS' CLUB IN SACRAMENTO.

A recent meeting of farmers residing in the vicinity of Sacramento resulted in the formation of a Farmers' Club. The following officers were elected: For President, S. N. Baker; for Vice Presidents, W. S. Manlove and James Holland; for Secretary, J. N. Hoag; and for Treasurer, A. S. Greenlaw. These officers constitute a Board of Directors to manage the affairs of the Society. The initiation fee for members is one dollar, and the monthly contribution fifty cents. It is proposed to discuss Agricultural as well as Horticultural subjects.

We wish this Society every success; such gatherings must result in good. If all ordinary business transactions are excluded from the regular meetings of this and kindred Societies, the very desirable result will be, a closer attention to matters belonging to Agriculture and Horticulture.

Los Angeles County has 40,000 orange trees.

THE ACCLIMATIZING SOCIETY.

A meeting of the Directors of the Acclimatizing Society was held on Saturday evening. A committee, consisting of M. M. Estee, A. Badlam and Charles Kaeding, was appointed to prepare a new Game Law for the consideration of the Legislature. This law looks to the protection of native and imported game from wholesale destruction by reckless pothunters.

The Society has had complete success in its acclimatizing experiments with Trout, and will this winter introduce the Black Bass and several varieties of game birds into the State. Several thousand dollars have been expended in arranging the ponds and hatching-houses at the San Pablo ranch, fifteen miles from this city, and the enterprise never had a more promising outlook than at present. The stock of the Association can be subscribed for, by applicants, upon payment of \$10 per share.

VICK'S FLORAL GUIDE FOR 1872.

JAMES VICK, Rochester, New York.

We have just received a copy of the above book. It is elegantly printed on fine tinted paper, in two colors, and illustrated with Three Hundred Engravings of Flowers and Vegetables, and Two Colored Plates, and is an exceedingly beautiful and instructive Catalogue and Floral Guide—112 pages—giving thorough directions for the Culture of Flowers and Vegetables, Ornamenting Grounds, making Walks, etc. Forwarded by mail to any who apply, enclosing 10 cents.

FLOWERING BULBS.

F. A. Miller has just received a large and splendid assortment of Flowering Bulbs, viz: Hyacinths, Tulips, Narcissus, Gladiolus, Lilies, Paeonies, Tuberoses, Crown Imperials, Iris, Lily of the Valley, Snow Drops, *Dielytra spectabilis* (pink and also white), and others, all of which he will dispose of at reasonable prices. For particulars, call at

622 Clay St., room 9, second floor, between the hours of 2 and 4 in the afternoon.

VEGETABLE SEED,

From the Agricultural Department.

The Secretary of the Bay District Horticultural Society has received a package of Vegetable Seeds through the kindness of Mr. Watts, the Commissioner of Agriculture. He will distribute them among the members of the Society, if they will please call, between the hours of 2 and 4, at the office, No. 622 Clay Street.

Editorial Cleanings.

APPLE CIDER.—Mr. N. P. Woodworth, of Stony Point, has this year made 10,000 gallons of Apple Cider. The mill and press used are of his own construction, and will easily make 300 gallons of cider per day, with the assistance of a man and horse. The cider manufactured by Mr. Woodworth is converted into vinegar and shipped to the San Francisco market.—*Russian River Flag.*

TREE PLANTING.—It is stated that, if Tree Planting continues in Iowa for ten years at this year's rate, 1885 will find the State beautified with great forests.

PEPPERWOOD. — "Woodman, spare that tree," if it is pepperwood. Pepperwood is California Laurel, and is highly prized by the cabiner maker. It is now used in this country, or has been, for ordinary firewood. Close-grained, beautiful and durable timber is too scarce on this Coast to be wasted. The laurel and madrona are already finding their way from our county to San Francisco, a large shipment having lately been made over our railroad. The time is near at hand when the laurel will bring a higher price. The upshot of the whole matter is: Save your Pepperwood.—*Russian River Flag.*

AN ARTESIAN WELL on the grounds of Mr. Kower, near Fruit Vale, Alameda County, has every indication of giving a plentiful supply of water at a depth of 290 feet.

COTTON CROP.—The Snelling *Argus* says, Colonel Strong has finished picking his crop of cotton. The field of cotton consists of 51 acres, from which he gathered 74,450 pounds of seed cotton. The cotton is of excellent quality, being remarkably white and clean, and totally free from stains of any kind. The lint is fine, silky, and is sufficiently lengthy to bring it up to a high grade, ranking, perhaps, as "good middling."

CULTIVATION OF TEA.—Col. Hollister, of Los Angeles County, is making extensive preparations for the cultivation of Tea.

PLANT TREES.—The *Petaluma Crescent* calls attention to the desirability of shade trees in that city, and points the wealthier inhabitants to the example of the Laurel Hill Association, of Philadelphia, which admits to membership "any person over fourteen years of age who shall plant and protect a tree, under the direction of the Executive Committee." There were four hundred and twenty-three trees planted during the first year of the Association's existence. Prizes were also given to persons who made the most improvement in the grounds about their dwellings, who constructed the best sidewalks, planted the best-growing trees, and for similar purposes. Such an association would doubtless effect much improvement in the appearance of many of our cities and towns in California.

WALNUT TREES.—During the first two years of our late civil war, 28,000 Walnut Trees were felled to supply one European factory with the material for gun-stocks!

THE LEADING FRUITS in the Markets of New-York are now *Strawberries, Peaches and Grapes.*

DESTRUCTION OF THE PINE.—Two millions of Pine Trees were cut in the States of Wisconsin and Michigan during one single year, and it is estimated that in thirty years, at that rate of forest destruction, not one tree will remain.

COTTON GROWING will be experimented with in Kern county by an association composed of Californians and Englishmen. Kern County is supposed to be well adapted to Cotton growing and farming in general, and all that that district requires is practical men.

TO DESTROY RED SPIDERS.—The red spider on house plants is best destroyed by laying the plants on their sides in the open air, and using a hand syringe on them as powerfully as they will bear. If a little sulphur be used in the water, and the water is also a little greasy, it is still better.—*Gardeners' Monthly.*

ROSE CUTTINGS.—One of the best methods of securing the success of these, says a recent writer, is to stick the cutting about an inch deep into clean river sand, with properly-prepared soil about an inch below to receive the roots as soon as they strike. The clean sand prevents the roots from rotting. A correspondent of the *Horticulturist* succeeded with this when every other mode failed—and says he does not lose one in twenty.

A SUBSTITUTE FOR COFFEE.—From chemical analysis it appears that the seeds of the asparagus, when dried, parched and ground, make a full-flavored coffee, but little inferior to Mocha,—they contain in common with tea and coffee the principle called taurine. Dry the asparagus berries well, after being thoroughly ripened; then rub them on a sieve. The seeds can then be readily separated.—*Journal of Health.*

BEST WHITE ROSES IN ENGLAND.—The *Rural World* states, upon good authority, that the following Roses are the best for vigorous habit and free blooming: *Boule de Neige, M'dlle Bonnaire, Madame Gustave, Bonnet, and Mad. Noman.*

T H E

CALIFORNIA HORTICULTURIST

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No. 3.

AZALEA.

That California is well adapted to the cultivation of all kinds of flowering plants, with the exception of a few which do not grow to perfection, may now be laid down as a well established rule. Yet these exceptions comprise some very valuable and desirable classes of plants, amongst which stands foremost the Azalea family.

Although the fact is now generally recognized that Azaleas do not thrive in California, we are not entirely satisfied as to the correctness of this belief, and still hope that this beautiful flowering shrub may yet flourish in our gardens, if we will ascertain the treatment which it requires.

Probably from two to three thousand plants of the *Azalea Indica* have been imported by our nurserymen and florists during the past ten years, and of these there are probably not more than from fifty to one hundred alive, and still less are in healthy condition; although they certainly have received much care, owing to the fact that the prices paid were high, (Azaleas in flower have been sold for from four to ten dollars each plant.)

Almost exclusively the Azaleas have been treated with us as greenhouse plants, (as they are in colder countries); and perhaps this was an error. From the nature of the plants we are justified in the conclusion, that where the Fuchsia will grow luxuriantly, the Azalea may

also be expected to thrive well; and as the Fuchsia succeeds with us admirably well in the open air, why should not the Azalea do so also? We think that our climate is favorable to the successful cultivation of the Azalea in the open air.

But the principal cause of the failure in Azalea culture, seems to be in the soil. Neither our garden loam nor our drift sands are adapted to the successful growth of Azaleas; the best soil is a mixture of equal parts of *leaf-mold*, which is found in our pine forests, *sphagnum*, and *coarse river sand*. It is true that such a mixture is not close at hand, yet we think it might be obtained at a very reasonable expense, and might be made of great service in the cultivation of many other plants. The charges for bringing these soils here by sailing vessel or railroad cannot be very high.

Before we proceed any further in our investigation of the proper mode of treatment of this class of plants, we will state, that Azaleas are divided into two groups, viz: *Azalea pontica* and *Azalea Indica*. The former are natives of North America and are found in many localities in this State. The flowers are fragrant and mostly of a pale yellow color, changing to white; deciduous and perfectly hardy. The *Azalea Indica* is a native of Asia, particularly of China and Japan. It is an evergreen, and produces flowers of large size and of brilliant colors.

The varieties of the *Azalea pontica* are un-

doubtedly best adapted to our natural soils, and we would therefore suggest to begin with the introduction of these into our gardens. One or two trials have been made to procure the varieties growing wild in this State, but these experiments have failed; but these failures have been attributable more to the bad condition of the plants before planting than to any other cause. It would therefore be desirable to take them up in the proper season with care, and to give them another trial. If this method will not work well, then we suggest that our florists obtain the seed, which our native Azaleas yield in abundance, and we are almost certain that good and healthy plants may be thus obtained and acclimatized, which will thrive well in the open air. Having once our native varieties under cultivation, it will be an easy matter to introduce other and more conspicuous varieties by grafting and occulating.

Although this class of Azaleas in their natural state produce mostly yellow flowers, yet many varieties with new and striking colors have been obtained by skillful cultivation; for instance: *A. sanguinea*, dark red; *A. meteor*, orange red; *A. rosetta*, white with red; *A. cristata*, scarlet, etc.

We have every reason to believe that Azaleas may be made as prolific as Fuchsias and Geraniums, and our florists will doubtless find it a profitable business for many years to come, as good prices will be readily paid for handsome plants.

We admit that an extensive cultivation of the *Azalea Indica* will be attended with considerable difficulty, owing to the trouble in obtaining proper soil, etc. Yet we believe the established success of the *A. pontica* will soon be followed by new and successful efforts to introduce and acclimatize the *A. Indica*, and then at least some varieties will be added to our established list of hardy flowering shrubs.

The mode of propagation of the *Azalea Indica* is nearly the same as that of the *Pontica*, but we believe that plants raised from seed make stronger specimens and are better adapted for grafting.

The seed of Azaleas is very fine, and should therefore be sown on the surface and gently pressed in with a smooth piece of wood. Watering, if necessary, must be done very carefully. The box or pot containing the seed should be placed in a well shaded locality, as close as possible under glass. It is very important to transplant the young plants as soon as they have made their second leaves, and the oftener they are transplanted, the better they will thrive. It is hardly necessary to say, that the plants must be well shaded and carefully watered after transplanting. In two years such plants will be strong enough to flower or to be grafted. Often very fine varieties are produced from seed.

The propagation from cuttings is not very difficult, and, while it is very essential to cut the slips of other plants close under the leaf-bud, this rule does not apply to the *Azalea Indica*, which is known to form roots readily on any portion of the stem. Half-ripened wood is considered the best for cuttings. But with us the difficulty in propagating Azaleas from cuttings does not seem to be in inducing them to root, but in their treatment after roots have been formed. Our opinion is, that the young plants should be transplanted frequently, and not be permitted to remain too long in the same soil.

It is a pretty well established fact, although no positive cause has been assigned for it, that the soil we use for pot-culture in California is apt to become sour in a shorter space of time than is usual in other countries. This impresses on us the necessity for changing the soil frequently, until the plants are transferred into the open ground. We think that the entire secret for the more successful growth of Azaleas lies in this. So long as, and whenever Azaleas are treated as greenhouse plants, we would recommend placing them close to the glass, giving them plenty of air.

The best time for transplanting or shifting Azaleas, is undoubtedly after the flowering season; and in replanting, care should be taken to press the soil very firmly around the roots or ball of earth. We should give them

about the same amount of moisture as we give Fuchsias, and in transferring them into the open ground we prefer a shady place for them, such as the protection of some trees which admit a free circulation of air around them.

Copeland, in his "Country Life," recommends the following method for the propagation of Azaleas from cuttings: "Cuttings are prepared by taking the tops of the young shoots when three inches long, cutting off the lower leaves and leaving the upper; many should be put together into a pot three fourths full of peat, one fourth white sand, water gently upon planting and cover with a bell glass; set in a shady place, where the temperature will be from fifty to sixty degrees; after they have made roots, remove the bell glass—during the night at first, and finally dispense with it wholly—to harden them; at last put in two and a half inch pots, and keep them shady and warm till they are well established, then treat like all other hard-wooded plants." But Copeland also adds: "The chief objection to the Azalea is, its liability to die without much apparent cause."

The varieties of the *Azalea Indica* are very numerous, and our space will only permit us to mention a few of them:

- Amoena*, pink;
- Flower of the Day*, large white, striped with rose;
- Flag of Truce*, pure white, fine double;
- Laterifolia*, salmon red;
- Narcissiflora*, double white;
- Stella*, bright scarlet, stained with deep violet;
- Variiegata*, salmon, margined with pure white;
- Rotundifolia*, bright red, edged with white;
- Refulgens*, rich crimson purple;
- Lovely*, white, striped with lilac;
- Empress Eugenie*, rich pink;
- Duc de Brabant*, rosy salmon, semi-double;
- Bianca*, white;
- Coccinea*, scarlet;
- Alba pleno*, double white;
- Juliana*, orange-scarlet;
- Vitata punctata*, white, veined and striped with rose and lake.

PRESERVING FLOWERS.

The art of preserving flowers has of late made rapid progress, and has become a very favorite occupation with the ladies in particular. An impression prevails with many of them that the process is extremely difficult, and consequently but few have availed themselves of the many delights to be derived from this art. The New York *Horticulturist* has given to its readers the process for preserving flowers, and we hope to gratify our lady friends by publishing it in our columns. The *Horticulturist* gives two methods, one for preserving flowers so as to present a flat surface, and the other to preserve them in their natural form and fullness.

The following is the process for *preserving flowers to present a flat surface*:

This has been a favorite style of making funeral wreaths and bouquets durable mementoes of bereavement; and, until the last few years, the only method practiced in this country. Dried in this manner, flowers are employed in Europe for many purposes of ornamentation.

The best material to arrange dried flowers on, is card board. It may be covered with silver paper, or delicate black or white lace, according to fancy. To this the flowers are gummed in any design. Green leaves, except those of the laurel family, lose some of their brightness, even with the best management, and, unless resort is made to artificial tinting of their surface, cannot be used with preserved flowers. Hence, lycopodium and moss, that retain their brilliancy so long, are the verdure most frequently introduced, as little as possible being admissible. The design completed should be set in a dark, airy room to dry for a day or two; then lace of the same sort that lies beneath the flowers must be spread over them and gummed at the edges; a neat edging of the same, or a small silk fringe, being affixed in the same manner as a finish.

The requisites for drying flowers to present this uniformly flat surface are a quantity of clean white paper, light and soft, with an un-

dressed face (such as cheap books are made of), two covers of wire cloth (sheets two feet long and one and a half feet wide, their edges bound with a narrow strip of zinc), two stout leather straps with buckles, a paper knife, or a small wooden spatula and a camel's hair pencil.

The flowers must be freshly gathered; buds and half-blown blossoms are best. When wide-open flowers are used, it must be in the first hours of their expansion. A thick bed of smooth layers of the paper must be made, resting upon one of the covers. For small flowers, half an inch deep of the layers is sufficient; for Roses, Japonicas, and other large and double flowers and their buds, an inch will be needed; this is to absorb the moisture. Upon this bed lay the flowers, without crowding, in a natural position, using the paper knife and hair pencil to arrange the petals, the sepals and the stamens and pistils with great care. If possible, none but flowers of similar size and appearance should occupy these drying sheets at once; never admit but one color at a time, else there is a danger of dimness or discoloration. When all are smoothly arranged lay a bed of the same thickness of paper upon them, place the other cover, and make all tight and firm by means of the straps and their buckles. Suspend this in the sun and air—out of doors is best; if in a light breeze the drying is hastened. The smaller flowers will dry in six or eight hours of summer sunshine. The larger often require two days. They should not be removed from the drying sheets till all moisture has left them. Then take them carefully with the paper knife or spatula to a clean sheet of stiff white paper, and keep from dust and moisture till they can be wrought into the intended design. The outline of the design should be drawn in pencil upon the card-board it is to occupy. Within this, brush lightly gum tragacanth of the consistence of mucilage. Place the flowers thereon, and gently touch them here and there with the tip of a dry camel's hair brush to affix them. Put no gum upon the flowers or the leaves, or other verdure that accompanies them; the

gum must be only applied to the card-board. When glazed and framed these floral designs make handsome cabinet pictures.

In our next we will give the method for preserving flowers with the fulness of their natural forms.

THE "MAJETIN," vs. APPLE BLIGHT.

[Continued from page 36 of last number.]

It was found in the nursery at Warrenheip that some apples were more liable to the attacks of American Blight than others, and that some varieties escaped its ravages almost entirely. Observations conducted for several years have permitted of a classification being made.

The following lists will be valuable to cultivators.

LIST No. 1.

Apples nearly Blight-proof:

Cardinal	Gravenstein
Constantinople	Hawley
Cornish Gilliflower	Irish Peach
Devonshire Quarrenden	London Pippin
	Maiden's Blush
Duchess of Oldenburg	Northern Spy
Grand Duke Constantine	Triomphe de Luxembourg

LIST No. 2.

Apples very slightly affected by American Blight:

Autumn Passe Pomme Blanche	Red Calville
	Red Transparent
Bland Rose	Reinette de Canada
Count Orloff	Rinahkowski
Coe's Golden Drop	Summer Passe Pomme
Maiden's Blush	Blanche
New English Pigeon	Stone Pippin
Nicolayer	Yellow Bellflower
Quarrenden	

LIST No. 3.

Apples liable to the attack of American Blight, but not to a great extent:

American Fall Harvey	Crab, Transparent
Astrachan Red	Dundonald Pippin
Bess Poole	Dutch Mignonne
Barcelona Pearmain	Early Almond
Borsdorffier, Summer	Emperor Alexander
Cambusnethan Pippin	Early Strawberry

Forest Styre	Pomeroy
Golden Russet	Peck's Pleasant
Golden Reinette	Pippin Silver
Holland Pippin	Peach, Winter
Hubbard's Pearmain	Rosemary Russet
Islay Pippin	Rymer
Juneating	Russet, Pine Apple
Lodgemore Nonpareil	Scarlet Pearmain
Melon	Sonnette
Margil	St. Sauveur
New York Pippin	South Carolina Pippin
Newtown Pippin	Striped Beaufin
Nonesuch	Sturmer
Nonpareil Ross	Stettin Rouge
Norfolk Bearer	Stokes' Tulip
New York Pippin (co-Sam Young	
Old Man lonial)	Syke House Russet
Oslin	Tower of Glamis

LIST No. 4.

Apples liable to bad attacks of American Blight :

Adams' Pearmain	Garretson's Early
Beauty of Kent	Hawthornden, Red
Cox's Pomona	Hoary Morning
Cardinal	Ireland's
Cornish Aromatic	Kerry Pippin
Court of Wick	Keswick
Cockle Pippin	Lord Suffield
Cleopatra	Large Yellow Bough
Crab, French	Mannington's Pear-
Crab, Hagloe	main
Claygate Pearmain	Norfolk Beaufin
Downton Pippin	Nonpareil, Scarlet
Devon Bitter Sweet	Nonpareil, Old
Early Red Margaret	Omar Pasha
Early Julien	Reinette Van Mons
Early Harvest	Ribston Pippin
Early Nonpareil	Red Normandy
Fearn's Pippin	Summer Pearmain
Fox Whelp	Siberian Harvey
Forge	Stirling Castle
Foxley	Sam Montgomery
Fall Harvey	Snow
Fall Pippin	Siberian Bitter Sweet
Gloria Mundi	Spring Ribston
Garter	Yorkshire Greening
Green's Pippin	Waltham Seedling
Golden Russet	Warner's King

LIST No. 5.

Apples very liable to severe attacks of American Blight :

Brabant Bellefleur	Grand Sultan
Blenheim	Herefordshire Pear-
Bedfordshire Found-	main
ling	Jonathan
Boston Russet	King of Pippins
Baldwin	Lord Nelson
Broadwell	Mere de Menage
Court Pendu Plat	Northern Greening
Cherry Crab	Paradise Pippin
Cluster, Red	Quince Apple
Cronwell Pippin	Reinette d'Espagne
Calville, White	Reinette de Victoria
Dumelow's Seedling	Scarlet Pippin
Esopus Spitzenberg	Vineuse Rouge
Early Joe	Will's Sweet
Grange's Pearmain	Wormsley Pippin
Gooseberry Apple	Wyker Pippin
Golden Pippin	Yellow Siberian Crab
Golden Pippin, Hughes'	

PROOF VARIETIES.—The only proof variety, the "Winter Majetin," and perhaps the "Northern Spy."

I think the results of these lengthened experiments are in every way of a most satisfactory character, and such as will be highly valued by our fruit growers and horticulturists in general. Amongst other varieties of apples that have been subjected to severe tests, to prove if they really withstood the blight, have been the Irish Peach-apple, and the Northern Spy.

The Irish Peach has been, I am well aware, considered by many growers to be free from blight; and on some soils this apple has, up to the present, shown no signs of blight. On the other hand, after the most crucial tests carried on at Mount Warrenheip with plants of this variety obtained from four different sources, and also from Europe, the above-mentioned negative evidence cannot override the fact, that the Irish Peach-apple has been and still is slightly blighty at Warrenheip, and I have also seen blight upon trees of this variety within a few miles of Melbourne.

As regards the Northern Spy, I am inclined to think that this variety will become of great service as a stock, for although it has been subjected to the same severe tests as the Irish Peach, and many other kinds, up to the present time it has not been affected with this great pest, *Aphis lanigera*; and in further proof of this fact, the scientific experiments carried out with this variety show that the wood of the Northern Spy contains most of the component parts visible in the Majetin, although not quite so prominently exhibited as in the Majetin. The Northern Spy is also, as is the Majetin, a free and vigorous grower, with an upright habit. This celebrated apple originated about twenty nine years ago, in the State of New York, on the farm of one Oliver Chapin, of Bloomsfield, near Rochester. It belongs to the Spitzenberg race, and bears resemblance to the Esopus Spitzenberg. It has become such a favorite among American orchardists, that in the year 1847, the fruit of it was sold in New York City at 12½ cents each.

HARDY VINES.

[Continued from page 45 of last number.]

In our enumeration of Hardy Vines, it is impossible for us to give all the different species and varieties which are worthy of cultivation; we shall therefore confine ourselves to such varieties as can be readily obtained on this coast, and as will give general satisfaction under ordinary treatment. All those which we mentioned in our last, and which we will now describe, deserve popularity either for their pleasing habits and ornamental foliage, or for their yielding of elegant and in many varieties magnificent and deliciously perfumed flowers.

A very handsome vine of twining habit is *Dolichos Lignosus* (Australian Pea), but unfortunately it has gone out of fashion with us and is considered too common, because it is seen everywhere; our florists cannot any longer find sale for it, and it has disappeared from our nurseries. Yet it is a very pretty vine, evergreen and continually covered with

small pea-shaped flowers of a pinkish color. It is easily propagated by cuttings, or by seed which ripens freely upon the older vines. The vine grows very fast, and covers a large space with its dense and dark green foliage in a very short time. It is exceedingly well adapted for covering arbors, old stumps, fences or lattice work, and in this capacity becomes truly picturesque. We shall regret to see it entirely discarded as it answers the above mentioned purposes so well.

Kennedya (*Hardenbergia*) is also a very desirable evergreen vine of twining habit. Formerly the *Hardenbergia*, the *Zichya* and *Kennedya* were considered one family, but they are now separated, although some still adhere to the former classification. Various varieties of the *Kennedya* have been cultivated in California for several years, but principally until the past year as greenhouse plants. It is evident that they are perfectly hardy with us, and will flower in the open air more profusely and for a much longer period than under glass. In spite of the chilly and disagreeable weather which we have experienced for the past two months, we know of several specimens which have been and still are literally covered with flowers during November, December and January. The flowers are well adapted for bouquets, and are, therefore, particularly valuable during our winters.

The *Kennedyas* are natives of Australia, and thrive under ordinary soil and treatment; they prefer, however, an elevated position, and will probably do best if planted about rockeries.

They are propagated either from cuttings or from seed, which germinates readily, particularly if soaked for twenty-four hours in warm water.

The best varieties, as far as our experience goes, are—

Kennedya macrophylla alba, flowers white, in grape-like bunches, hanging gracefully from almost every joint; for flower-baskets we do not know anything more appropriate. Although this variety will do well with us in the open air, we also recommend it for the

greenhouse, where it will flower profusely, if trained close under the glass roof; the flowers will be larger there and of a purer color.

Kennedya ovata, flowers smaller, and of a blueish-purple color, quite hardy, and flowering profusely.

We are under the impression that another variety, with white flowers, was cultivated here some years since under the name of *Kennedya ovata*, but we are probably in error.

Kennedya cordata, is also well adapted for out-door culture; the flowers are of a beautiful violet.

Sollya heterophylla, is another of the hardy evergreen twiners which seems to delight in our California climate. Its sky-blue, bell-shaped little flowers are at all times profusely intermingled with its dense dark-green foliage. It may be cultivated to the best advantage as a specimen plant, supported by a stake or frame; its habit is decidedly graceful, and, like some of our evergreen shrubs and vines, it blooms most profusely during our winter season, when the gardens are comparatively bare of flowers; it is also well adapted for covering the base of verandas. The *Sollya heterophylla* may be readily propagated either by cuttings or from seed; the latter is produced abundantly on the older vines.

We cannot omit from our enumeration the old and favorite

Ivy (*Hedera*), which has at all times deservedly enjoyed great popularity. Its uses are manifold, and as a decorative plant it has probably no superior; in masses it carries itself grandly, and in a state of nature is at all times exceedingly picturesque, and when trained either upon artificial work, rustic stands, or around the parlor mirror, it adapts itself with ease to any desired arrangement. The Ivy is a vine of creeping habit, and attaches itself to wood or stone, if not too smooth, and soon completely covers the objects it comes in contact with. The different varieties are all cultivated for their foliage, which is extremely hardy and persistent. While young, the plants do not make great headway, but if once established, it spreads rapidly; there

are a number of varieties, of which the most popular is the

Irish Ivy (*Hedera Hibernica*), a native of Scotland. It is well adapted to cover walls of wood or stone; it has been said that walls, covered with ivy, are continually moist, and therefore unhealthy to the inmates of houses. This is not correct, the contrary being the fact; ivy growing upon walls will extract all the moisture, if there is any present.

For cultivation in the room, a coarse soil should be given, mixed with some pieces of porous stone or crockery.

Of late, some beautiful new varieties have been produced with variegated foliage, which, however, are as yet scarce in our market; some of the best are —

Hedera marmorata, large leaf, and beautifully marbled.

H. aurea maculata, blotched with gold.

H. marginata argentea, silver margined.

H. tri-color, green, white and rose color.

H. folia picta, leaves marbled-yellow.

All the Ivies may be easily propagated from cuttings, or layers, which form roots readily on any portion of the twig, in the ground or in water.

Clianthus puniceus is also a popular and well known climber. It is sometimes called Glory Pea, or Parrot's Bill, which the flower somewhat resembles. It is evergreen, and produces very showy flowers in clusters, of a beautifully vivid scarlet. The *Clianthus* may be grown to advantage on frames or fences, and would also present a very elegant appearance if grouped upon the lawn; and if left to itself for such purpose, the effect will be very picturesque as well as graceful and effective.

Clianthus magnificus and *C. Dampieri*, are varieties which are both worthy of a trial. They are propagated without difficulty from cuttings as well as from seed.

Another popular family of the numerous climbing vines is JASMINE.

Jasminum revolutum is a native of China; it produces yellow flowers, and is of robust growth and deserving extensive cultivation.

Jasminum officinale, a native of the East Indies; flowers small white, very fragrant; growing less robust than the former, but perfectly hardy.

Jasminum Catalonica (Spanish Jasmine), is mostly treated as a greenhouse plant, but will thrive well in the open air, under a reasonable protection from heavy winds; this variety is of rapid growth, but not so easily raised from cuttings as the former, upon which the Spanish Jasmine is extensively grafted. There is a variety of the Spanish Jasmine which is double, and which produces the elegant flowers so highly esteemed for fine bouquets; their fragrance is most delightful.

All the Jasmynes are most desirable climbers, the latter being the most valuable and highly prized for the flowers, which are always in demand.

We may add to this list the following desirable vines without further comment:

Cobaea scandens, a fast grower; flowers purple, large bell-shaped; best grown from seed.

Tecoma Australis, a very pretty vine of a twining habit, producing large flowers of a light pink (almost white) and dark purple towards the center; does not bloom very freely in the open air around San Francisco.

OLIVES IN CALIFORNIA.

At Santa Barbara a gallon of oil is made from 8 gallons of olives, and one tree there, when ten years old, produced sixty gallons of olives. Mr. Mayhew, of that place, thinks it safe to count on a net annual yield of two hundred and forty dollars per acre from an olive orchard ten years old, and that the cultivation of the tree would be profitable for fuel, so rapid is its growth. He thus communicates some of his experience to the *Santa Barbara Press*:

"I then obtained five hundred cuttings, from one inch to three inches in diameter, about fifteen inches long. In February, 1868, I put them in the ground so that their ends

were little above the natural level of the ground, and covered them by making a little mound. About one half of them started that spring, and are now from ten to thirteen feet high, and spread about seven feet, the trunk of the main stock being from two to four inches through. Some of the cuttings were dormant through one season, and started about one year from the time they were planted, and a few sprouted even two years from the time of planting, which are doing well."

The cultivation of the olive has been attracting much attention lately in Australia, where the oil of home production finds a ready sale at \$3 per gallon. In California, something that is supposed to be the best quality of olive oil retails at about \$5 per gallon, but the purity of it is subject to doubt. The olive tree is productive in only a few small districts, and its cultivation, when properly managed in those districts, cannot be unprofitable until the oil loses the credit which it now has throughout the world, of being unequalled for table use. Our largest olive orchards in California are not yet in full bearing, and neither oil nor pickled olives of domestic production are, so far as we know, obtainable in our city. The different varieties of the olive have not, we think, been studied in our State. Baron Von Mueller, Superintendent of the Botanical Gardens at Melbourne, recommends the following varieties:

1. *Verdale*.—Available for a good table oil, as well as for green conserve. This, and the next following, are early and abundant bearers.

2. *Blanquet*.—Adapted for dry ground. Oil is of a particularly sweet, delicate taste, and more pale than other kinds, but does not keep so long. This and the *Verdale* produce the fruit on low growing branches, so as to be accessible for hand-picking.

3. *Bouquettier*.—For superior oil.

4. *Redounaou*.—Eligible for colder regions; produces table oil, and is also esteemed for conserves.

Some other kinds are locally available, among them the Olivier de Grasse, the latter yielding an excellent table oil, and oil for perfumery; but the plant is high of growth, and the gathering of the fruit more expensive; it is of a weeping habit.—*Alta*.

HOP CULTURE.

The Hop-vine has for some time been cultivated in various localities of California; however, with but few exceptions, the attempts have been merely experimental. Very few planters have made the Hop-vine a permanent source of revenue, while the majority have been easily discouraged by the fluctuating prices of the article, which at times have been very low.

Hop growing can be made profitable, but there being a limit to the demand, the article necessarily depreciates in price, when the market is overstocked. We may take warning from the experience of the State of Wisconsin, where but a few years since Hop raising raged like an epidemic, one county alone producing four million pounds! But over-production was the result, and the extremely low prices were ruinous.

At the present time prices for Hops have advanced, and planters have made money this past season, but it certainly would be unfortunate if our farmers were to embark in Hop raising *en masse*, encouraged by the present highly remunerative prices, which cannot hold out long, unless the Hop fields of the East suffer extensively from the depredations of insects, which infliction has already produced a decided decline in this enterprise east of the Rocky Mountains.

The Hop-plant (*Humulus lupulus*) is a native of North America, Asia and Europe. Its habit is twining; the flowers are either male or female, and are usually produced on different plants, but are also found, although rarely, on the same vine. The male flowers appear in loose clusters, while the female flowers are produced at the base of scales, arranged in close clusters, which, when ripe,

are called the *Hop* of commerce. Between these scales a powder-like substance, yellow in color, is found, called *Lupulin*, or *Flower of the Hop*, which gives to the Hop its peculiar taste and flavor, and upon the amount of which the value of Hops greatly depend.

HOP CULTURE.

The best soil for the Hop is undoubtedly a deep sandy loam, slightly inclined, so as to drain off all surface water during the rainy season. Hops will also do well on our gravelly, uphill lands, which abound in California. It is desirable that the hop-field should have a free circulation of air, but yet be protected from strong winds by hillsides or belts of timber. The roots of the Hop Vine penetrate the soil to a great depth, and spread extensively, and the soil should therefore be deep.

The ground should be ploughed after the first rains in the fall, and again during the early part of spring, so that rain may be had after the planting. The plants or cuttings should be set in rows of from eight to ten feet apart. The general practice, in this State is, we believe, to drop the sets (or cuttings) from old vines into the trench made by the plough. It is, however, far better to plant with a dibble, which, although it makes a little more work, yet insures a certain growth. The sets or cuttings should have from two to three joints, and from three to four such sets may be inserted in one hill. Care must be taken to plant both male and female sets, at the rate of one of the former to about eight of the latter, making about ten male sets to the acre. Much of the success depends upon the late rains and upon early planting.

During the first year, corn, potatoes or turnips may be grown amongst the young vines, to cover the expense of keeping the ground in a good state of cultivation, frequent hoeing being necessary to keep the weeds down.

In regard to the mode of training Hop Vines on poles, different ways are practiced with success. Some cultivators set no poles the first year, asserting that the crop would

not pay for 'the additional labor; but when it is taken into consideration that one acre of vines will yield from four to six hundred pounds of hops in California during the first year, and that the extra labor consists only in the picking, drying and packing, poles may as well be set the first year. There are also different opinions as to the proper height of these supports. Some preferring them from fifteen to twenty feet in length, while others rather have them from ten to twelve feet; and lately it has been the practice with some to train the vines over horizontal frames, supported at eight to nine feet in height. The latter method seems to be the most convenient for picking, but we judge that such a treatment would deprive the plants of the free circulation of the air and of the solar influence, both of which are essential to the production of good hops. We are decidedly in favor of the old practice of using poles from fifteen to twenty feet in length. Two poles should be inserted in each hill, at about eighteen inches apart, as soon as the young plants make their appearance. These poles should be set firmly in the ground, to keep them from swaying back and forth by the force of the wind.

As soon as the young vines are high enough, they should be tied to the poles, and they will very soon take care of themselves. Not more than two vines should be allowed to one pole. All the other suckers should be cut off close to the ground. The vines should be trained to their proper poles, and the ground kept clear from weeds.

The Hops must be gathered just when the seed becomes hardened and of a purple color. To delay picking, when in this state, will materially damage the crop. It is also important to pick them clear of leaves.

The Hops are dried by artificial heat in kilns, built for this purpose; considerable expense is necessary for this operation, which is completed in from ten to twelve hours.

Immediately after the drying succeeds the work of baling, for which proper machinery is necessary.

In a good season one acre of vines will yield about one ton of hops.

During the past two years hops have been worth from fifteen to twenty cents per pound, California hops commanding the highest prices. This year prices are much higher, ranging from seventy cents to one dollar per pound.

California is now producing about 500 tons, most of which are exported to the East and to Europe.

Our climate is favorable to this enterprise, and a very fair business could be established in the production of the article for home consumption and for exportation, as blight and insects have operated very detrimentally to the hop fields of the Eastern States, and cultivators there, have consequently been much discouraged.

USES OF HOPS.

Hops are used principally in the manufacture of malt liquors, for the purpose of flavoring, and also to preserve them from acetous fermentation.

They are also used as medicine, and have a tonic effect upon the human system.

In Europe, the superfluous young and tender shoots are cut off as soon as they make their appearance above the ground, and are prepared for table the same as the asparagus, while some make a palatable salad of them. They are considered a delicacy.

INSECTS.—Some idea of the injury caused by insects to agricultural products, may be formed from the statement that, from seventy four tons of Spanish wheat stored in a granary, ten hundred weight of beetles were screened out in one instance, and in another, thirty five hundred weight were removed from one hundred and forty five tons of American corn. The offender in both cases was a weevil, known as *Calandra Orisæ*.

CURRENCY.—At the Salt Lake Theatre a pumpkin pays the admission of two persons, and they get two carrots in change.

PLANT TREES.

[The following article is copied from the second number of "THE WEST," which is a new monthly publication from the establishment of John H. Carmany & Co. We find the two first numbers replete with interesting and valuable matter, and we wish it every success.]

The value and importance of certain measures are often underrated for want of due consideration. This, we think, is true of the cultivation of trees around our houses on the Pacific Coast. We look from our cramped residences in the city, often without the cheer of trees or flowers, and sometimes without the sunshine, and sigh for those broad, rural homes, with their lawns and flowers, and orchards and groves. But as we look over our country, we find very few of our ideal houses; instead, we see houses standing unprotected by the foliage and shrubbery which give beauty and comfort to those of older countries. The two prominent causes of this neglect to cultivate trees in California, are the former unsettled title to lands, and the dryness of our soil in the absence of summer rains. The wisdom of so doing is freely acknowledged by all, yet nowhere more neglected, notwithstanding the undeniable fact that in no country can the cultivation of trees be of more importance than in California, both for their commercial and sanitary value, and the comfort they afford.

Except in the mountain and foot-hill districts of our State, there is a great scarcity of timber of every kind. A few scattered oaks constitute the timber of the millions of acres of our plain and bottom lands, and these will be exhausted in a very few years. To adopt measures for the future supply of timber to our State, for fuel and mechanical purposes, would be a wise foresight, and would result in great profit to the benefactor.

It is estimated that twenty acres of our bottom-lands, suitable to their growth, planted with hardwood trees, such as locust and maple, would in ten years be worth \$1,000 per

acre, or \$20,000; and that one man could cultivate these trees and support his family by the raising of crops from other land during the time. If these calculations are correct, it would certainly be a wise investment of capital and energy. Trees may also be cultivated, with great profit, on our dry plains, along our roads, and around our buildings. It has been said by those in the business, that to dig a large hole, say four or five feet wide, and from five to eight feet deep, and then to replace the soil, in which the tree is planted, so breaks the dry hard-pan that the moisture will rise and sustain a newly-planted tree on the driest land during our long, dry summer, with but little artificial supply of water. If this be true, it will pay every man to follow the plan. To have our homes and yards for stock, in the interior of the State, sheltered from the hot sun uninterruptedly blazing in the sky during the long eight or nine months, without rain or dew, would be a great profit, not to mention comfort. And who does not love to ride through the Alameda from San Jose to Santa Clara, and feel that he is in another world, or in a very shady part of the present one? Who does not feel that his farm is doubled in value when the trees begin to lock their branches over the roads surrounding it, and the house looks out from gracious shades, and his stock is protected from the burning heat?

Another great object to be attained by the cultivation of trees, is the tendency they would have to extend the bounds of our rainy season, and to increase the amount of rain-fall. It is a generally conceded fact, that growing vegetation, and especially trees, produce a condensed condition of atmosphere which often culminates in rain. This last motive, however, though a valid one, will doubtless be the last to cause the planting of trees.

The most valuable lands of Oregon are also quite destitute of timber. The summer months are too warm for comfort, and the timber on the hills and mountains, in many cases, is miles away. The future of the country is also great, and she has many motives in common with California for the cultivation

of trees, and can do so with greater ease and far less cost. The interior portions of all the coast have dry and warm summers, and have, therefore, the same reasons as our own State to engage in the cultivation of timber.

But the great result in comfort and pleasure to be derived from these cultivated shades, none but the half-civilized will be unmindful of. To see a hovel for a barn and a shanty for a house, whose windows are pasted over with paper or stuffed with rags; the gate off its hinges; the pigs in the yard; the cattle in the orchard; no trees or flowers; the children dirty, ragged and ashamed, is to look upon a sad picture. Were sickness and extreme poverty the cause for such a condition, they would have the sympathy and aid of all. But in too many cases negligence, laziness, and low views of life are the cause. Such people deface society, curse their offspring, and might better never have been born. We are happy to know, however, that we have not more than our proportion of this class of people on our coast; yet there are too many homes in the rural districts without those comforts and blessings which every man should gather around his family. Making home beautiful, cheerful, and comfortable, is a duty resting upon all who are rearing a family of children.

It is said that we are, in this world, what circumstances make us. If this be not absolutely true, it is in a great measure so, and the children will travel through life in nearly the same paths in which they are started by their parents. The child whose hands, face, and dress are always dirty, and whose ears are accustomed to harsh words from parents, becomes strong for the enduring of such things, and grows up with blunted sensibilities, perverted inclinations, and is ripe to become a member of the class which fills our prisons.

Make home beautiful and attractive; let it be a place associated with all that is pleasant and enduring; fill the inside with love, and surround the outside by beauty—it will be a fortification against evil influences from without, and will strengthen the love within.

Make it the most delightful spot on earth for the children, and a place of rest and enjoyment for ourselves. Plant trees.

TROUT FISHING, & ITS GENIAL INFLUENCES.

It would be a ridiculous and contemptible exhibition of insincerity for an enthusiastic lover of angling to pretend to offer a public apology for descanting on his much-loved pastime; how much more praiseworthy, even if he is mistaken in his views, for him, enjoying the sport and its concomitant exhilarations, to wish and seek to share them with his fellow-man, and, if in error, how consoling to him to know that his is a weakness of which some of the greatest and best of nature's noblemen have not been ashamed! for have not many of the brightest of statesmen, philosophers, and heroes excelled in throwing the fly? and have not some of them actually valued themselves more on this expertness than on sundry world-wide achievements, and dwelt with more self-gratulation on their fly-rod triumph over some splendid trout or lordly salmon than over mental and physical successes which the world views with admiration? How many of these giant minds have sought and found, from time to time, recuperation in the pursuit of this sport from the exhausting influences of their respective professions? and then, laying aside the rod, have returned with renewed energy and accumulated vigor to their several duties and occupations in the forum, the council chamber, the bar, the laboratory, etc.

California affords a fine field for the pursuit of this most fascinating sport, in her grand lakes, her noble rivers, and teeming rivulets, profusely prolific of those superlatively game fish, the genus *SALMO* in its many varieties; while the grandeur of her scenery, the salubrity, the evenness, and the indescribable inspiration of her genial climate lend an additional zest to all out-door amusements.

Every angler knows with what alacrity and right good will he steps out when turning his back on the pent-up city—(a chaos of crowded buildings, reeking with the unsavory fumes

of sordid humanity); with rod in hand, and full of hope and high expectation, he directs his course on some fine April morning towards one of our prolific lakes or teeming rivers, or even, mayhap, only to some favorite brooklet, far away and up amongst the hills;—joyous in spirit, inhaling in deep draughts the purer and more elastic atmosphere, his eye appreciative of and filled with the gorgeous landscape, and sensible of the rich odors from thriving vegetation—for every angler is more or less a lover and student of Nature). Supremely happy, he proclaims a truce between himself and care, and publishes a universal amnesty to every created being (not excepting even rival anglers—? Ed.), and feels at peace with himself, mankind, and the world in general. Everything he views seems to wear a sunny aspect, reflecting his own bright spirit. I would that in all our daily avocations some small portion of this genial influence could be infused: how would it lighten our ordinary burdens! But I have been chattering discursively, and unmindful of the more practical portion of my subject, have been descending prefatorily, laudatorily and sentimentally regarding my favorite pastime.

I will merely add, by way of still further recommending to my friends the pursuit of this most attractive art, what a recent writer on this matter says in addressing the careworn denizens of cities. He exclaims: “To you, ever surrounded by the cares of life, and perpetually bored, often to desperation, by that demon, whose imps are dollars and cents, in an everlasting, ceaseless contest, those glorious works of the Creator’s hands—green hills and sunny fields—are scarcely known; to you a mouthful of fresh air and a glimpse of rural scenes must be a treat indeed! Rise, then, gird on your mantle, and follow me, at least in imagination, and I will initiate you into some of the mysteries of the “gentle art,” giving you such a taste of rural entertainment as shall render the country ever dear to your recollection; and the squalid haunts of vice, pestilence, and immorality forever hideous and detestable.”

And now for a few words practically, and

conneted somewhat with natural history (a science co-relative with Horticulture, and doubtless of equal interest in a horticultural journal,—in which, indeed, a few columns devoted to it would be quite appropriate.) With regard to trout: they are found to differ considerably in proportion, color, and size, in different rivers and lakes, and even in different parts of the same river, according to the quality of the water, and the nature and abundance of their food. The average size of trout in most streams may be said to vary from eight or nine to sixteen inches in length, and from half a pound to two pounds in weight. A well-proportioned trout of a pound, or three quarters of a pound is a *good fish*; and there are many more below that weight than above it. An industrious angler in any of the rivers or brooks of our Pacific Slope may consider it quite an uncommon event, if he is fortunate enough to bag a common river or brook-trout of our species of *salmo fario*, of three or four pounds in weight. The largest trout, perhaps, on record, was one captured in England at Drayton manor, weighing 22½ lbs. It is now preserved in Professor Owens’ collection.

[We would like to know where this man fishes, as from personal experience, and from not a few inspections of other takes, we are led to believe that six inches is nearer the average of trout taken on this Coast, the records and journals of the San Francisco Anglers’ Club, notwithstanding.—Ed.]

The condition of a trout may be judged by the thickness of the shoulders; the depth of the belly, the general firmness of the flesh, the brilliance of his coloring (our brook-trout are not so rich in silver and gold colors and spots as the English or Eastern species of *salmo fario* or *fontalanis*, and are of a much more sober complexion), the vigor and determination with which he resists his capture, and the comparative smallness of his head to the bulk of the body.

The favorite haunts of large trout during the summer, are such places as an eddy behind a stone, or where two currents meet; the pool below a ledge of rock or gravel;

behind or underneath a large stone or log of wood; the hollow under a bank, especially if the current sets against it; beneath lumps of turf in the middle of the stream; roots of trees, under the shade of overhanging bushes, and in pools into which sharp streams and rapids fall. In small rivers they frequently ensconce themselves under sedges and weeds, especially in the beginning of the season, before they have fully recovered their strength, after spawning in November and December, and also during the heat of the day in summer or fall, when the waters are low.

But when in full vigor and on the feed, they will be mostly found in the swift streams, and often in the upper part of mill-races. In the glare and heat of the sun in summer the largest trouts lurk beneath hollow banks, roots, and bushes; scarcely ever coming out to feed until the shades of evening summon them to chase the small fish in the shallows, or gulp down any luckless moth that may inadvertently alight on the treacherous water. It is then that the ardent angler, adroitly manœvering his artificial bait in the rapids and shallows under the gathering mantle of night, may succeed in hooking his one, two, and three pounders, in places which in the day time would seem scarcely fit to float a small shiner; or the enthusiastic fly-fisher may ever and anon hear a sullen splash, and feel a sudden and determined pluck at his portly moth-flies, very unlike the tiny tug of the little skipjacks he is in the habit of pitching over his head during the day. At this time of the evening, or in the early morning, if he is not a disciple of the highest grade of the art, he may pitch a worm or a grass-hopper into the stream opposite, with as long a line as a powerful rod can guide: tug goes the line; birl goes the reel; and after a short but fierce struggle, a magnificent two-pounder [more frequently a lighter fish—Ed.] lies gasping on the rock or sand; but more of this anon. E. J. H.

SAN FRANCISCO, Dec. 31st, 1871.

IRRIGATION.

[We copy the following excellent article from the *Alta* of the 23d of January. We believe the subject of Irrigation to be of equal importance with Forest Tree Culture.—Ed.]

The question of Irrigation is taking a great hold upon the public mind, if we may judge from the great interest which our remarks upon the enterprises now being prosecuted have awakened, and the numerous inquiries which have been addressed to us upon the subject, and many of which we reply to in this article. There is certainly no subject which has greater importance to the whole people of this coast than that of storing water for mining, water power, irrigation and transportation. Water is the essential element, without which mining and agriculture come to an end; and when, as in the past year, miners are thrown out of work and farmers ruined, causing a general stagnation of business and a fall in the value of property, a system which, by the application of capital, would guarantee a continual supply at small cost, is a desideratum so great, as to appeal at once to the practical understanding of every business man. The system now undertaken in this State is not an experiment. It is one which has been brought to perfection on the largest scale in India and in the hands of the same individuals who find here the natural advantages far greater than in India. We have a basin of 16,000 square miles or 10,400,000 acres, surrounded by an amphitheatre of mountains from whose sides descend innumerable streams, that supply an abundance of water if man will but take the trouble to store and distribute it. The storing is done by artificial lakes on the streams. These are no more a novelty than a mill-dam or road. In Southern India there are tens of thousands of them, constructed by dams of $\frac{1}{2}$ a mile to $1\frac{1}{2}$ miles in length. They are 20 feet deep and a width of 70 feet at the bottom. In that country, where the rainfall is light and evaporation rapid, 10,000 cubic yards of water must be stored to irrigate

Boston sends \$2,000,000 worth of Flowers to New York every year.

25,600 superficial yards of wheat. The maximum quantity of water required for wheat, barley, corn, cotton and teas, is 1,500 cubic yards per acre; that is, 11½ inches of water distributed by three irrigations of 3¾ inches. But with a fair rainfall but 7,000 cubic feet per acre each watering, or a total for the crop of 21,000 cubic feet. The effect of the water has been established by experiment to be, that a field of wheat yielding 800 with one watering after sowing, will yield 1,300 with a second watering in thirty days after sowing, and will give 1,700 with a third watering when the seed is in the flower. The heavy adobe soil of California will need a watering before cultivation. These waterings on the foot-hills take place directly from the artificial lakes, which also supply miners and water power. The channels from the lakes should have a vent of 8.3 square feet to supply each 640 square acres of soil with water running at the rate of one mile per hour on each stream. These successive lakes connected by channels, supply water to the canals in the valleys. The leading canals so supplied in India, are as follows:

	Miles.	Dis. cub. ft. per sec.	Cost.	Per Mile.
Ganges,	900	6,750	\$13,500,000	\$15,000
Baree Deab,.....	470	3,000	7,050,000	15,500
Eastern Gumna,..	134	1,250	871,000	6,500
Western Gumna, 450		2,500	1,350,000	3,000
Sutleg,.....	550	3,500	8,250,000	15,000
Loan,	826	3,124	7,434,000	9,000

The cost of the first and last of these includes the distributing canals, of which there are three miles to one of main canal. The average width 90 feet, depth 8@10 feet, grade 18 inches to 1½ inches per mile. The effects of these artificial lakes and canals are very important. Thus, the Ganges was partly completed in 1867, and the crops irrigated by it, where before there were none, was in that year \$7,500,000, of which wheat \$2,500,000, cotton sugar and indigo, \$3,000,000. These were entirely due to its influence. It produced, in the first year, a capital equal to half its cost. Who that has had experience in the last two or three years, in the San

Joaquin region, would not recognize the vast blessing of such a work in the region where the capabilities of the soil are vastly superior to those of India? The charges in India for the use of water are \$1½ per acre per annum; for watering cattle, \$3 per 100 head per annum; sheep and goats, \$1, per 100 head. Those farmers whose sheep have died by the thousand from drought may estimate this advantage. For filling reservoirs, \$1 per 8,000 cubic feet, in bulk, is charged. The greatest benefit the Government derives from the works is, however, their indirect influence upon the value of land, the activity of trade and the consequent appreciation of all properties, which therefore return more taxes at the same rate of levy. The annual cost of the canals is \$90 per cubic foot of discharge per second, which suffices for 220 acres of wheat; on this outlay the return is 1¼ per cent per month. Another effect of the irrigation has been found to be, that in the alkaline plains, where no drinkable water was to be had, irrigation has corrected the character of the local water and made it drinkable.

This system, as we have said, is now being applied in the San Joaquin region. Forty miles of canal have been built, and Tulare Lake, which is 200 feet above the sea, and having a surface of 900 square miles, will receive an embankment of fifteen feet around its circumference, at a cost of \$2,000,000, which will reclaim 100,000 acres of first-class lands. The water of three feet of its surface will suffice for 1,500,000 acres. That land which produces nothing, without the water, produces two first-class crops of grain in the year, with water at \$1 25 per acre. It will give six or eight tons of alfalfa to the acre, with irrigation. If a man plants 1,000 acres with wheat and loses his labor and seed for want of rain, but can have 35,000 bushels certain, worth \$35,000, by paying \$1,250 for the water, there certainly seems to be a great advantage in the operation.

Fayal oranges sell in Boston now for half what apples of equal weight will bring.

OUR WINE-YIELD FOR 1871,
And Future Prospects.

It is not possible to form a correct idea of the total Wine-yield of California for the year 1871; it will probably be between five and six million gallons, all told.

The official statements for 1869 give a total of about two and a half million gallons.

Statistics, as far as ascertained for 1870, make the entire yield of that year from three and a half to four millions of gallons.

The principal wine-producing counties are Sonoma and Los Angeles, of which two, the former furnishes the finest wines, having paid more attention to the cultivation of better varieties of foreign grapes.

The work of planting vineyards is steadily progressing, and the yield must necessarily increase from year to year, unless the crops are injured by severe droughts, insects or sickness.

The demand for California wines is on the increase, and will mainly depend in the future on the quality of wine which we send away. We have not yet opened up all the natural channels for export, and if we can at this time dispose of five million gallons in the process of home consumption and export, it may reasonably be expected that in ten years from now, we will dispose of double that quantity to good advantage. It cannot, therefore, be advanced that the wine business is being overdone, but we maintain that the making of *poor wine* is overdone.

Viniculturists should be more particular in locating their vineyards; soil and aspect are two important desiderata for the grape vine, and more so where the making of wine is the principal object.

We should also satisfy ourselves as to the best varieties of wine, table or raisin grapes adapted to the location; the foreign varieties being now very generally substituted for the old Mission grape; but we as yet lack much information regarding the best varieties.

Land well adapted for grape culture can be bought at various prices, from three to twenty-five dollars per acre, and at the rates

which are at present paid for grapes, the yield per acre in the third year should not fall short of one hundred dollars; ten acres of grapes would, therefore, give a very respectable living to a family, one man being able to do the entire work with comfort.

The cost of bringing a vineyard under cultivation here is not as expensive as in the East or in Europe, as our climate and soil favor the cultivation. The plowing and planting per acre will not exceed fifteen dollars; one thousand grape vines of one year's growth will plant an acre, and may be purchased for twenty to twenty-five dollars. This would make the total expense for one acre from thirty five to forty dollars; however, ten acres may be planted for comparatively much less. Three hundred dollars, judiciously invested in a vineyard of ten acres, will, after the lapse of three years, make the owner independent, and the value of his land will increase from year to year. We hope to see the time when hundreds of industrious men will avail themselves of our favorable climate and soil, to establish for themselves small vineyards and farms, and thus constitute the most prosperous portion of our community.

NOTICE OF A FOSSIL FOREST

In the Tertiary of California.

Professor O. C. Marsh, of Yale College, examined a locality about five miles southwest of the Calistoga Hot Springs, in October, 1870, where a number of fossil trunks were found, showing that this Tertiary deposit contained the remains of an extensive forest, of very large trees, which had apparently been overthrown and entombed by some volcanic irruption. Several of the trunks found, had portions of their roots still attached.

The trees when closely examined appear to be all conifers, and resemble the modern redwoods. A microscopic examination of some of the best preserved specimens has demonstrated a great similarity to the *Sequoia sempervirens* (our ordinary redwood.)—ED.

Editorial Portfolio.

Very much has been said of late in relation to "Our Park that is to be," and some of our city papers have portrayed the affair so vividly, that many are under the impression, that the great Park of San Francisco, with its manifold attractions, will very shortly become the *Grand Center of Fashion* of this coast.

Some of our leading newspapers have seen fit to give the Park Commissioners much credit for marvellous deeds, which have, say they, been accomplished with so little money. We have no doubt that they believe all that they assert, but how far they have succeeded in convincing the general public, that the interests of our city have been properly subserved, we leave others to judge.

Unfortunately, a piece of land has been forced upon the good people of San Francisco as a park reservation, which nature had reserved undoubtedly for other purposes; the masses have not been consulted, and our authorities exhibit no particular desire to obtain a popular expression on this and similar projects. If the people had been permitted to exercise their prerogative, there would certainly be no park in the locality which is now known as the Park reservation under the ostentatious title of "Golden Gate Park."

It is evident somebody wanted a Park there, and the City owning the land, authority was obtained to expend a certain sum of money in the improvement of this desert.

Meanwhile some other one wanted a Park near the Presidio. The Supervisors requested our Representatives in Washington to use their influence to induce the Government authorities to donate a portion of the Presidio reservation to the City of San Francisco for park purposes; and this latter application will, most probably, be considered during the present session of Congress.

In the meantime some one else is anxious to have the Park located in the southern portion of the city, although no steps of any

magnitude have at present been taken to carry out this latter scheme.

Each of these three schemes is entitled to due consideration, and the best, most convenient and most practicable site should be selected for the Park. Of the three localities, the present one is certainly the most ineligible in every particular. Nature has positively contributed nothing that can be made available towards utilizing this God-forsaken country designated "The Golden Gate Park." Either the Presidio or South San Francisco are far better adapted for such an improvement, than the Ocean site.

Sundry important considerations should be kept in view in selecting a site for a park, as—the convenience of visitors, good soil, and attractive natural features, which should be rendered still more effective by the application of skill and taste.

In the matter of convenience, it will be at once admitted, that the present reservation has none to offer. The nearest road is by way of Hayes Valley proper, and crosses the unsightly mountains at the back of the valley; this will be but little frequented for the next twenty years. The fact is, this Park location is out of the way, and not within range of those rapid improvements which are manifesting themselves in every other direction. It will be many years hence ere street railroads will be established in that line. Nevertheless, the City owns the land, and should make the most she can of it.

Our Park Commissioners have sold \$75,000 worth of bonds: of this about \$40,000 have been expended for salaries, surveying, grading and other preliminary work; while the insignificant amount of \$2,000 has been devoted to the raising of trees. This action, on the part of the Commissioners was, to say the least of it, impolitic, unreasonable and thoughtless—inasmuch as no Park can be anywhere established without a sufficient growth of trees being first secured. What we require for a Park are, trees, shelter, and some kind of vegetation to cover a barren and unsightly surface. It is sheer nonsense to tell us that drives have been constructed which will soon

be thrown open to the public, because to the pleasure-seeking public the approach is so inconvenient that it may be said to be virtually inaccessible—and if reached, it possesses no attractions, nothing to induce a second visit, and a drive in that direction must result in disappointment and disgust to any one seeking Park scenery. And we stoutly maintain, that no Park can ever be inaugurated on that site that will be worth seeing or having, without establishing in the first place a good and sufficient growth of trees and shrubs. There was really no necessity for grading, and the entire money should have been expended in covering the reservation with vegetation and such trees and shrubs as are adapted to the locality.

The Commissioners tell us, that if they are placed in the position to sell another \$150,000 worth of bonds, they will make an effort to reclaim the sandhills, which they think can be done. We wish to know why they did not experiment with the reclamation in the first place, to test whether it was practicable, and before some \$40,000 were expended in such work, as will prove to be a total loss, if the reservation is found to be impracticable for a Park? The Park Commissioners ought, and must have known that efforts were being made to secure another site, and they should have exercised more prudence in their expenditures.

The days are approaching when strong efforts will be made to reclaim all of the lower sandhills surrounding San Francisco, and to establish belts of timber-trees for the better protection of the city. We fully expected that our Park Commissioners would have made many and persevering experiments in this direction, in order to test its practicability; and had they proved successful, others would have followed, and not only the Park reservation would have been reclaimed in the course of a few years, but also the owners of adjoining lands would have been encouraged to commence the work of reclaiming and embellishing their now useless grounds.

Had the money been expended thus, the

benefits which would have accrued in a few years would have fully compensated for the outlay; and if the people of San Francisco saw fit to have their Park elsewhere, the growth of trees and shrubs would have so enhanced the value of the land that the investment would have been considered a fortunate one.

We advise the Park Commissioners to stop grading, and secure in the first place a growth of trees and shrubs, which are the only proper basis for a Park, and without which the avenues so far laid out are only a fruitless expense, and nothing else.

The approach avenue has been graded at considerable outlay, in order, we suppose, to reach the intended main entrance to the Park; but there was no necessity, nor even excuse, for this. This approach is an unnatural one, and the old Ocean House road would have answered all purposes for years to come, and would have been a more popular way by which to reach the Park grounds.

Arrest the drifting of sands, by covering the surface with some kind of vegetation; plant trees and seeds by the million, endeavor to keep them alive for five years to come; and then prepare to lay out drives and walks for the use of visitors.

Who ever would think of planting and beautifying an approach avenue, while the grounds proper remain a barren and unsightly desert, destitute of every attraction?

FOREST-TREE CULTURE.

We have for the last year and a quarter been earnestly and continually urging on our readers and the public in general the grave importance of *forest tree culture*. We append sundry slips from various periodicals, attesting that ours is not a solitary, idle mania, but a note of warning, which is now echoing and re-echoing from widely-distant points, and will soon be reverberating in thunder notes throughout the length and breadth of the land, awaking many a dull, sordid, idle and dishonest Legislature to a sense of its duty,

and compelling many an unworthy Representative to stop thieving, and attend to the interests of his constituents.

Frank Leslie on Forest Culture :

In California the people are asking for an officer who is much needed, but whose very name will probably sound strangely to most of our readers, to wit., *Forester*—in other words, his office would not only be to protect existing forests, but to see to their growth in districts that cannot be profitably devoted to grazing or agricultural purposes. We commend the proposition. The destruction of our forests is rapidly converting vast areas of territory into deserts, and preparing the way for destructive freshets at one time and devastating fires at another, drying up our mill-power and destroying our “finny tribes,” from which of yore we gained great pleasure and some profit. “Woodman, spare that tree!” should be the inscription on the Forester’s badge. We have preached to that text for years, and shall not faint from iteration. To spare is good, but to create is better, and we cannot too strongly recommend to the prairie States and those of the plains, as a guide for legislation, the following Act of the Kansas Legislature :

“An Act to Encourage the Growth of Forest-Trees :

SEC. 3. Every person planting one acre or more of prairie land, within ten years after the passage of this act, with any kind of forest-trees, and successfully growing and cultivating the same for three years, or one half mile or more of forest-trees, along any public highway, said trees to be so planted as to stand at the end of said three years not more than one yard apart, shall be entitled to receive for twenty one years, commencing three years after said grove or line of trees has been planted, an annual bounty of two dollars per acre for each acre so planted, to be paid out of the treasury of the county in which said grove or line of trees may be situated. The bounty to be paid so long as said grove or line of trees are cultivated and kept alive, and kept in growing condition.

That the County Assessor shall not assess lands planted and encumbered with forest-trees any higher than the lands adjoining, on account of the said lands being so encumbered.”

The California Farmer on Tree-planting :

“TREES PRODUCE MOISTURE.—Of this truth, well established, there can be no doubt, and in a country like ours, one so long exposed to a dry and hot atmosphere, this subject should excite a general discussion of the subject so as to produce and bring about a system of forest-tree planting that would soon prove that trees produce moisture. Our own observation and experience has long since convinced us that the leveling and burning away our forests and clearing up land has ever tended to the dryness of the surrounding climate, and any careful observer can satisfy himself of this by traveling on a hot day through a district where there are good orchards and vineyards and noting the atmosphere that surrounds them, and then pass into an open and barren plain next to them and note the difference—this will convince any one of the value of trees. We are truly glad to know that our Senator, Hon. R. Betge, has introduced a bill to encourage Forest Culture, and bring it under the patronage of the State. With such patronage and fostering care, great good can be accomplished for our State and Coast. It may take years to perfect this plan, but devotion to this subject for simply *five years* would change the whole current of feeling and action, and work a revolution over the entire Coast.”

The Northern Illinois *Horticultural Society*, on the subject of Forest-Tree Culture, says :

“We further recommend, pursuant to and in accordance with our former acts, and with other horticultural bodies, we again ask both National and State patronage to enable us to carry forward this enterprise by enlisting the whole country in the work (of forest-tree planting), and by such other means as the wisdom of this honorable body may deem expedient.

Your committee unite with all the friends of Horticulture, and especially those who are

interested in forest planting, in hearty congratulations for the deep and increasing interest manifestly felt on this subject, not only by horticultural bodies, but throughout the country."

TREES AND CLIMATE.

In a recent lecture before the Wisconsin State Horticultural Society, Mr. Richardson concludes his very interesting remarks by saying :

"This uncovering the face of the earth renders rain less frequent, and when it does come, it is in the shape of a deluge, and produces, alternately, the opposite extremes of burning droughts and destructive inundations. The evidences of changing climate are becoming more apparent as the destruction of the forests proceed. In the Old World, the latter results have followed the disappearance of the trees; regions that previously were of the most fertile character, have become entirely divested of herbage, and are now barren deserts. A similar fate in the United States can only be avoided by restoring, in a measure, to the destitute parts of the country a portion of its forests, which are equalizers of our climate; trees we must have."

NUT TREES.

Nut-bearing trees are profitable. The price of edible Nuts is steadily increasing. In the East, native chestnuts are worth from \$10 to \$12 a bushel; hickory nuts, \$4; and Spanish chestnuts, \$15 to \$18. The lumber from these trees is worth from 10 to 20 cents a foot, board measure. We can grow nut trees faster here in California than they can in the East. The cultivation of nut-bearing trees should receive immediate attention.

The Sacramento Farmers' Club is in favor of tree-planting. At a late meeting of this Club, composed of intelligent and wide-awake farmers, a committee of five was elected by ballot to draw up a bill for the encouragement of forest culture, and to present the same to the Legislature, urging its early passage.

TREE PLANTING IN IOWA.

In Iowa the planting of trees is encouraged by law. Every acre of forest trees planted

releases taxation for ten years on one hundred dollars' valuation, and for each acre of fruit trees planted, the tax is remitted on fifty dollars' valuation for five years; and the same for shade trees and hedges along the highways. There are now maple forests in several counties from which sugar is made, where fifteen years since there was nothing but prairie grass and hazel shrubs. → *Ruralist*.

WORK FOR FEBRUARY.

Much of the work which should have been effected during January, has been delayed in consequence of the unfavorable weather which continued up to the middle of the month. The storms during the latter part of December and the earlier part of January, were heavier than we usually experience, and the damage inflicted on our farms and gardens was considerable, particularly on low lands; however, the plentiful rains more than compensate for the injuries and losses sustained. Some labor has been required to repair these damages, but the regular work of plowing, sowing and planting was speedily resumed, and every one, stimulated by brighter prospects, seems to be busy in our fields and gardens, taking advantage of this favorable season. The demand for labor has increased, and there are very few who cannot find work at fair wages.

The pruning of fruit trees and grape vines should no longer be delayed, except in the extreme northern portions of the State.

The season for planting is rapidly drawing to a close, and no effort should be spared to hurry up the work.

Our nurserymen have been complaining of dull times; orders for young trees, etc., are coming in slowly. This could not be expected to be otherwise, on account of the inclemency of the weather. We have every reason to speak encouragingly of their prospects; many important private as well as public improvements are contemplated, which will take up a great deal of the stock on hand.

Seeds which have been planted in the vegetable garden have suffered severely during the heavy storms, and we advise replanting immediately. Lettuce, radishes, peas, spinach, carrots, turnips; beets, parsley and onions are likely to do well, if sown now. Tomatoes, cucumbers, cabbage, and cauliflower will be better if raised in frames under glass cover, until they are large enough to transplant. Such of the latter as have been planted during last month, should receive frequent airing in order to harden them for the open air. Frames, during pleasant weather, should be aired at least six hours per day, when we are satisfied that our nights are not cold enough to injure them. By neglecting to open the frames frequently, the young plants become weak and cannot bear the change to the open air.

Celery is a hardy vegetable, but the young plants should be grown under glass, as the seed is fine and easily lost in the open ground; it is also of much importance to force the young plants so as to advance their growth before planting in the open air.

Onions may be sown now in light soil.

In the ornamental grounds many trees, particularly evergreens, have been lost during the heavy storms; this exemplifies the necessity of staking all trees after planting and of balancing them well by proper pruning, so often pointed out. Other causes for this destruction of old and established trees by our heavy gales, are the habit of shallow planting, and the neglect to cultivate and to prepare the soils deeply enough. The consequence is, that the roots cannot penetrate to any great depth, and cannot properly anchor the tree against the force of heavy winds.

In regard to a proper soil for vegetable and flower gardens, we would recommend one third clay, one third sand, and one third manure. In many localities these proportions of sand and clay forming a good loam are original; such soils will, with the addition of a little manure, produce all kinds of vegetables and flowers. But there are heavy clay soils which must be made lighter by adding

sand, or else the soil becomes hard and unmanageable; and there are sandy soils to which clay must be added in order to give it the body necessary for a healthy growth and development of fruits and flowers.

The same varieties of vegetables should not be grown on the same ground in consecutive seasons; rotation of crops has been proved to be indispensable.

In the selection of seeds, the best should always be obtained as far as we are qualified to judge, and we should not be influenced by cheapness.

It is rather early to plant annuals, yet if the weather continues fair, such as pansies, mignonette, sweet alyssum, candytuft, larkspur, sweet peas, etc., may be sown with good success.

Hardy flowering bulbs, such as tulips, hyacinths, crocus, narcissus, paeonies, gladiolus, anemones, ranunculus, etc., should be planted at once.

In the greenhouse and conservatory much care is yet necessary in the operation of watering, which should be performed sparingly. Plants must of course be kept alive, but that is about all; the time will soon come when the increased temperature of the Spring season will develop a new growth and an abundance of flowers. Wherever artificial heat is applied, the treatment of plants must necessarily differ, but even in the latter case we must be cautious in watering.

We have found from experience, that plants keep much better during wet and cold winters in small pots, than in larger ones; and particularly is this the case with Begonias, and other soft-wooded plants. This in a great measure is due to the fact, that plants in small pots, after having exhausted the soil, will remain in a somewhat dormant condition — they rest, in fact, hibernate — and plants in such condition are hardier than those which are kept in a growing state by giving additional soil; we must also take into consideration that small pots hold less moisture and are, as a matter of course, better drained, and the soil in them is therefore kept in better condition. Some plants must be shifted into

larger pots one month before they are expected to go into market, while others should be shifted at least two months before, in order to produce fresh foliage and an abundance of new flowers.

REPORT ON THE FRUIT MARKET.

It frequently occurs to people who are curious, or who wish to obtain information, about the names of particular fruits, when they query a retail dealer and taking up a Jargonelle for instance, they ask him whether that is the name of the fruit, that they receive as answer, "No, it is 5 cents." This to an intending purchaser is in one point of view rather an unsatisfactory answer, yet it is not to be expected, it is true, that all fruit hucksters, especially foreigners who know but little of our language, should be learned in Pomology. But if they could be made to perceive that it would be a benefit to them to learn the exact name of every fruit they sell, I think they would very readily get posted sufficiently to make an accurate distinction between one kind of fruit and another, and it would be profitable to them to do so, did consumers but know more of the relative qualities of the fruits which are offered them in the markets, and were they able to associate desirable qualities with these names.

It would really be a good thing if it were to become the custom for producers to label the fruits they dispose of by their right names, and for the retail dealers to sell each by its proper name.

I have often heard cultivators of fruit declare that the majority of persons do not know the difference between one variety of fruit and another of the same family, and that they do not buy a fruit on account of its quality, but are governed in their choice more by its size and color. It is often asserted, even by members of Horticultural Societies, that our cities preferred beauty and size to quality. I can hardly believe that the tastes, even of the masses of our people, can be so crude, though it is possible that, if the investigation

could be made, these assertions might prove to be correct.

I was walking one day along the street of a certain city with a friend, and observed some Seckel Pears on one of the stands. I said, "Here are about the highest flavored Pears in the whole list, let us have some." "Oh, you would not surely buy those little rusty things; stop till we can find some large, handsome, luscious looking Pears that are worth eating," said my companion. I, however, persisted in purchasing, and insisted that my friend should taste the "little rusty things;" and having once tested their delicious flavor, he required no second invitation to taste. The little Seckel made its way to a high place in his estimation, the moment it had the chance of tickling his palate. He has often told me since, that he seldom passes a Seckel without purchasing, when he is in the humor for fruit, and now never sees one without knowing it immediately.

I have also observed that "king of all Plums," for richness, exquisite flavor, sweetness and juiciness—"The genuine Green Gage,"—passed over by purchasers, and some larger and finer complexioned and more showy plum chosen in its stead. The small highly flavored Golden Russet, too, is often slighted in the same way, as are also some other delicious but unpretending pomological productions.

If producers would only educate the public by having their fruits labeled, (at present this is practiced by only a very few), and if the hucksters would carefully follow the same plan, they would in a little time secure a market for the choicest fruits at prices which would render their culture profitable, even though they may be grown with greater difficulty than the more showy varieties, though I do not know that such is the case in our favorable climate and soil. A little effort on the part of producers, and co-operation on the part of dealers, would materially elevate the standard of taste in regard to fruit as well as establish the character and quality of the fruits cultivated. This effort should be made. Nothing will so quickly secure this result as

the proper labeling of fruits exposed for sale, and let the price correspond to the quality of the fruit. In the case of grapes for the table, we find that this matter of price is far more consistent with the respective merits of the varieties.

People like to know what they are eating, especially if it gratifies the palate, and more especially when they may hereafter have an opportunity of cultivating it for themselves. They remember the delightful sensation it yields, and always associate it with the name, and they like to deal with those men who educate their tastes and enable them to make a judicious selection and choice.

I urge, therefore, that the producer should plainly label the fruit he sends to market, and that the dealer should sell it by its legitimate name, so that the consumer may be able to distinguish one 5 cent pear from another, and judge of its desirability by some other characteristics than its mere size, color and price. Even Germans, Italians and others who are imperfectly acquainted with the English tongue, might easily copy the names.

At this season there is little of additional interest in our fruit and vegetable markets, and not much variety from last month. The exhibition on the stalls is being more and more restricted in varieties, some of them being entirely withdrawn, especially among the fruits. The latest supplies of oranges from Los Angeles are much better in quality if not in size, than the first. The greatest show is with the Apples and Nuts; as the season advances Apples become less juicy and inviting to the taste, though they have the market pretty much to themselves. Pears are getting scarce. The fine Winter Nelis still maintains its superiority. The good Easter Buerré is beginning to come in.

Mushrooms are plentiful, with Brussels sprouts and Oyster plants. New Potatoes are from 8 to 10 cents per lb. California dried fruits were never better nor more reasonable in price.

E. J. H.

Put not off till to-morrow that which should be done to-day—plough deep.

FOREST AND TIMBER TREE CULTURE, ONCE MORE.

We have devoted a great deal of space in the *Horticulturist* of late to the subject of Forest and Timber-tree Culture, with the hope of having the matter thoroughly discussed, thereby enabling the members of our present Legislature to take the matter in hand properly, by collecting and condensing data and arguments on this most important subject, so that they may frame some law which will meet all the requirements.

The merits of forest and timber trees have been discussed fairly and sensibly by our agricultural papers. The *California Farmer*, of the 18th of January, has argued the matter ably; and the *Rural Press* has made many valuable suggestions in one of its late numbers, which we to a great extent endorse.

We do not propose to say anything now in relation to the evils attendant on forest destruction, nor upon the favorable influences of trees; these facts are pretty well impressed on the minds of our intelligent farmers. But we wish to devote some little space to the practicability of the proposed or a similar measure to that which now lies before our Legislature for consideration.

As we hoped and expected, there is every prospect that the bill proposed by Senator Betge will undergo some very important changes, and we understand that it is proposed to form a Forest Board, similar to the plan suggested by the *Rural Press* and the Delegation of the Horticultural Society. As suitable Commissioners for such a Board, the *Rural Press* suggests the Governor of the State, the President of the State Agricultural Society, John Bidwell, of Butte County, and E. D. Lewelling, of Alameda County—all capital men; but if permitted, we would propose one or two more: Professor Bolander, President of the Horticultural Society, who is thoroughly posted on the nature and usefulness of our California trees, and who would do all in his power to promote the object, being much in favor of tree culture; and we would also add Leland Sanford, who, as we

understand, is very much in favor of tree culture, and may do much good in facilitating the transportation of trees from one place to another, understanding and fully appreciating the desirability and the benefits to be derived from forest and timber-tree culture.

Now, if the Legislature will give us a Forest Commission composed of these men, or any desirable number of them, we entertain no doubt that the people will feel assured, as far as the expenditure of money is concerned in connection with this measure.

We understand that the amount of money proposed to be appropriated in the original bill, will be considerably reduced; and we are in favor of this action, as the enterprise will have to be considered as an experiment, until we have seen some of its practical results. But we think the State can well afford to devote the sum of \$7,000 or \$8,000 per annum to this experiment, as it must necessarily result in some good.

Should the proposed bill become law, much of the success of tree culture will depend upon the judicious appointment of the man who will be entrusted with the carrying out of the provisions of it. Our personal acquaintance with many horticultural men, enables us to state, that there are men among us who are well qualified for the position, and we have the utmost confidence that such men as we have named above, will select the very best man for the office.

The aforesaid bill proposes that the seeds of different trees should be distributed, accompanied by circulars instructing in the proper mode of treatment, etc. If, however, this was left to the discretion of the Forest Board, a large number of young seedlings, of from three to six inches, could be obtained within one year for general distribution; but we would urge the raising of these seedlings from seeds collected or otherwise obtained, and we object very much to the gathering young trees from the forests, which would require much more care, and more especially as we know from experience, that from one half to three fourths of them would perish. There are some which may be readily trans-

planted from the forests, such as the *Libocedrus decurrens*, but most of the Coniferæ tribes do better if transplanted in nursery rows, for reasons which we cannot explain here. As to the cost of furnishing such young seedlings, we beg to differ from the statements of Mr. Williamson and of Mr. Aiken, as reported by the *Rural Press*. According to these statements, Mr. Williamson will contract to furnish young Sugar Pines and Redwoods at \$2 per 1,000, and Mr. Aiken says that the evergreens of the different valuable kinds grown in the East may be had at the same price of nurserymen there, by mail and postage paid. Now, as for the Sugar Pines, there are no trees one year old, because the old trees did not produce any seed last year, and very few the year before, it is a very difficult matter to obtain Sugar Pine seedlings now. We have a customer for Mr. Williamson who will take all the Sugar Pines of one, two and three years old he can furnish, at the price named by him, and we will guarantee him one hundred per cent. in addition. As for the statement of Mr. Aiken, we will say, that we are in receipt of the wholesale Price Lists of the most, if not of all, responsible nurserymen in the East, and we have never met with anything in the shape of Evergreen seedlings which could be bought for less than the following:

Norway Spruce.....	\$ 6 per 1,000
Scotch Pine.....	10 " "
Austrian Pine.....	10 " "

However, we venture to say, that a competent man may, with an appropriation of \$8,000 from the State, be able to furnish one million of seedlings within one year for general distribution, and the collection would probably contain fifteen to twenty varieties of trees.

We advocate distributing seedling trees, as well as the seed itself, and we like the idea of establishing an experimental ground for that purpose; but it must be left to the discretion of the Forest Board. The objection raised to distributing seeds, upon the ground that very few understand the management

of them, is not a valid one. The process is easy, and the proper instructions may be given without difficulty. Many varieties of trees do much better if they are allowed to remain where the seeds were planted, and, with the aid of a little mulching, they will soon establish themselves.

We are of opinion, that if the work of forest and timber-tree culture is encouraged by the State, through some such act as the one proposed, we may, in the course of a few years, have on this Coast an establishment similar to that of the Botanical Gardens at Melbourne, which furnish annually thousands of trees of all descriptions, and thousands of pounds of seeds—an institution of which we might well be proud. All that we require is proper and good management.

WOODWARD'S GARDENS.

Considerable alterations and improvements have been made in the arrangements at these Gardens since our last visit; a Pool and Rockery have been constructed for the exhibition of Seals, of which there are several interesting specimens; a house for the protection of gallinaceous birds is in progress, to which one of the latest and most successful incubating inventions will be added; Considerable additions are also being made to the Greenhouse, which will be fitted up with rock-work and a Fernery, and will also afford accommodation and shelter to sundry smaller tropical animals.

We noted considerable additions to the collection of Orchidaceous plants, also the Coral plant, from the Sandwich Islands.

A fine specimen of *Strelitzia Regina*, familiarly known as the Bird plant or Queen plant, is about to bloom. Many varieties of Tropical Seeds have been received, which are in course of cultivation.

We understand that the public-spirited proprietor of these Gardens, Mr. Woodward, (under the superintendence of Mr. Schuman, who, we are pleased to say, has returned from Europe, and has furnished himself with all

needful data), is about constructing one of those highly instructive and exceedingly interesting adaptations of the present day—"a Marine Aquarium," after the latest and most approved style adopted in various European capitals. Only those who have had the opportunity of contemplating the curiosities of one of these superb collections, can form any idea of the pleasing novelty and fascinating wonders of such a scene. Everything is new and strange, and the beholder can scarcely divest himself of the idea, that he is in a rocky cave at the bottom of the ocean, looking out through crevices in the rocks upon deep-sea scenery, teeming with strange life. Fish, to him previously unknown, disporting among coral rocks, adorned with marine plants of curious growth. Algæ, Rhodospermæ, Fuci, etc., Polyps, Zoophytes, of curious forms; Actiniæ, Asteroids, Echini, Annelidæ; innumerable varieties of strange insect life; Moluscs, of various kinds, traversing the sandy and rocky bottom, Crustacea, etc., etc. The Sea Anemones are particularly interesting as specimens of animal flowers. We shall watch the progress of this work with intense interest.

SAN FRANCISCO'S PARK.

We have given our views somewhat in detail, on this Park matter, in another column of this number. We have expressed our disapprobation of the course which has been pursued by our Park Commissioners, and we shall now call the attention of the public, and those who have something to say and pay in the matter, to the fact, that the work, which in our estimation should never have been undertaken, has at least been done unsatisfactorily. We refer particularly to the Avenue, which is certainly graded imperfectly, some portions being too low; and we understand that this error is admitted by some of the Commissioners themselves, yet kept from the public. We do not wish this statement to be taken as incontrovertible evidence, but we desire very much that this matter should

be inquired into without any delay. We object very much, and we believe that the entire community of San Francisco will agree with us in this, that large sums of money should be expended for that grading which is not necessary; and we object still more to it, as we shall undoubtedly be compelled to do it over again. Improper and injudicious grading has cost San Francisco so much already, that the very word is disgusting: this City, we are persuaded, will not permit that these same errors shall be committed in a Park where the effect of a spoiled job will be so palpable and so seriously felt.

A committee of competent men should be at once appointed to investigate the matter, and if our assertions are found to be based on positive facts, the work should be stopped until more competent men can be appointed to take charge of our Park grounds.

We do not know who is at fault in this blundering, and what is more we don't care; but some one is responsible, or at least ought to be.

We are convinced that men may be found in this community of acknowledged taste and good judgment, who would be willing to serve as Park Commissioners, although no provision is made for paying them. We do not doubt the sincerity, integrity and good will of our Park Commissioners, but we have surely reason to doubt their peculiar qualification, so essential for the establishing a Park under the existing local difficulties and subject to a restricted appropriation.

MEETING OF THE AGRICULTURAL BOARD OF DIRECTORS.

SACRAMENTO, Jan. 24th, 1872.

The Board met at the call of the President.

Present: Directors Lewis, Hamilton, Mills, Carey, Covey, Younger, Wheeler & Coleman.

On motion, Col. Younger and Secretaries Hoag and Beck were appointed to meet the delegates from the other Agricultural Societies at the Pavilion, at 7 o'clock this evening.

On motion, President Reed, Col. Lewis and Carey were appointed a committee to secure

the necessary appropriation from the Legislature.

Col. Younger was voted \$150 toward defraying his traveling expenses in furthering the interests of the Society.

Ben. E. Harris and his horse Regulator were suspended [by the neck?—Ed.] for non-payment of entry money.

The President appointed, as a committee to revise the Premium List, Col. Younger and Carey, to which was added the President.

President Reed, Covey, Mills and Hamilton, were appointed a committee on the Speed Programme.

On motion, a vote of thanks was passed to President Reed for his very efficient services during the past year.

The Secretary was instructed to deliver the Gold Medal in the Second Department, as awarded by the Committee.

On motion, the Board proceeded to the election of Treasurer, and R. T. Brown was unanimously elected.

Robert Beck was elected Secretary unanimously.

I. N. Hoag was elected Corresponding Secretary unanimously.

Senator C. Cole and A. A. Sargent were elected Delegates to represent the State Society in the National Convention.

The following preamble and resolution were then offered, and adopted:

WHEREAS, the rapid strides being made by the Empire of Japan in civilization arrests our attention and challenges the admiration of the world; and, whereas, there are representatives of that Empire now in our State engaged in studying Agriculture and Stock-raising; therefore, be it

Resolved, That the State Agricultural Society of the State of California, appreciating as well the advantages to grow out of more intimate commercial relations with the Japanese Empire as the duty we, as Americans, owe to a great and progressive people, struggling with a will and emulation never before known for a high civilization, offer our services to them in every way that will be conducive to their interests.

MEETING OF DELEGATES

Of the State and District Agricultural and Horticultural Societies of California.

The Delegates of the Agricultural and Horticultural Societies of California met in Sacramento, on the 24th day of January, for the purpose of a more thorough organization throughout the State.

The Bay District Society was represented by H. R. Covey; the Bay District Horticultural Society by F. A. Miller; the Santa Clara Valley Agricultural Society by J. P. Sargent, F. C. Frank, W. C. Wilson and Senator Maclay; Sonoma and Marin District Society by L. Ellsworth, F. W. Lougee, H. L. Weston and E. N. Hinchman; San Joaquin Valley Agricultural Society by J. K. Doak, George West, T. K. Hook and Senator Evans; the Upper Sacramento Agricultural Society by Senator Perkins, E. Hallett and Assemblyman W. N. De Haven; the State Society by C. Younger, Robert Beck and I. N. Hoag.

J. K. Doak was elected Chairman and I. N. Hoag Secretary.

The general subject of the advantages of organizing Agricultural Societies in all the different localities in the State was discussed.

The conclusion of such discussion was an agreement to work in conjunction to secure a proper appropriation to the State Society and to each Society now organized in the State, and the following gentlemen were appointed a committee to draft a bill for that purpose: State Society, C. F. Reed and E. Mills; from the District Societies, John Boggs, F. A. Miller, W. C. Wilson, F. W. Lougee, J. K. Doak, E. Hallett, T. B. Mott and C. Kent.

The committee appointed met at the room of the State Society, at 9 o'clock on the following day, and agreed upon a bill calling for an appropriation by the State to each of the Societies organized and represented, which will be submitted to the Legislature in proper form.

There was a general desire for a more thorough organization, but no steps were taken to inaugurate it, as it was deemed best

to call a convention at some future time for that purpose.

The Committee submitted their Report to a meeting of the delegates, held at noon of the same day. The Report was unanimously accepted, and the Committee then adjourned.

 GOV. HAIGHT ON AGRICULTURAL TOPICS.

I have heretofore recommended legislation to prevent the snaring and killing of small birds and singing birds, as a measure of great importance to agriculture. In other countries these birds, which are so useful to the farmer in the destruction of insects, are propagated at great expense, while here we permit their indiscriminate slaughter.

The repeal of the system of "lawful fences," and the enactment of laws making owners of stock responsible for trespass by it, will doubtless engage your attention. It is manifestly unjust to compel each farmer who purchases or takes up a quarter section to expend more than the price of his land to protect himself against his neighbor's cattle. Every man ought, in justice, to be required to take care of his own stock, or suffer the consequences. The present fence system has been an incubus upon agriculture, which is becoming every year more intolerable. Upon agriculture, which is the basis of our prosperity, is placed the burden not merely of the cost of fences at first, but of their renewal and repair from year to year. Public sentiment demands a reform of this injustice, and I doubt not its demand will be heeded by your Honorable bodies.

 NEW AND RARE FRUITS.

St. Crispin Pear.—This is a variety of Pear recently introduced, of size like unto the Bartlett, of better quality, and ripening just after the Bartlett and continuing a month or more, thus filling a want of the people for a continuance of the Bartlett. He who plants of it, will win pecuniarily.—*Exchange*.

Lanier Apple.—This new seedling apple was exhibited at the Cotton States Fair, in

1870, and again in 1871, and attracted much attention. Its principal merits are, large size, fine appearance and good bearing qualities, as we were assured by the originator, Mr. Thomas B. Shaw, of Edgefield, S. C. The tree is some fifteen years old; very vigorous grower and of good habit; fruit large to very large, oblate and always regular; skin yellow, thickly streaked with carmine and with a purplish carmine cheek, a few green blotches near the base; calyx small, open, in a shallow and regular basin; stalk short, slender, set in a deep cavity; flesh crisp, brittle, sugary, rather coarse-grained; quality, good; maturity, end of October to end of November.—*Farmer and Gardener.*

The Narragansett Raspberry.—A seedling from the Brinckle's Orange, and is six years old from the seed, having been in bearing four years. It bears luxuriantly, the berries averaging much larger than any other variety. The fruit is cone-shaped, of excellent flavor, the color bright crimson, bearing carriage better than any of the favorite market sorts. It belongs to the ever-bearing family, producing fruit on the new canes which come up in the spring, thus carrying the crop along until the last of October, or until the frost kills the foliage and green fruit. This variety first appeared in the garden of Mr. John F. Jolls, of Providence.

New England Homestead.

OUR EXCHANGE TABLE.

If one tenth of the interest was taken in reading Horticultural and Agricultural papers and magazines, that is taken in the perusal of political newspapers and romances, the country would be in a more thriving condition. The information gained from the reading of a few Horticultural and Agricultural papers, would undoubtedly repay the small cost of subscription.

We call the attention of our readers, and the public in general, to the following periodicals, which are worthy of extensive patronage:

The *California Farmer*, now in its seventeenth year of existence; is published by

Warren & Co., San Francisco. Subscription \$4 per annum.

The *Pacific Rural Press*, in its second year of general usefulness; published by Dewey & Co., San Francisco. Price \$4 per annum.

The *California Agriculturist*, monthly; published by Holloway & Herring, San José, Cal. Price \$1 per annum.

The *Gardeners' Monthly*, devoted to Horticulture and Floriculture in particular, now in its fourteenth year; edited by Thomas Meehan and published by Brinkloe & Marot, Philadelphia, Pa. Price \$2 per annum.

The *Horticulturist*, a journal of Rural Life, Literature, Art and Taste, established in 1846; published monthly by Henry T. Williams, New York. Price \$2.50 per annum.

Tilton's Journal of Horticulture and Floral Magazine; published monthly, by J. E. Tilton & Co., Boston, Mass., is in its ninth year. Price \$1.50 per annum.

Moore's Rural New Yorker, a weekly, finely illustrated; published by D. D. J. Moore. New York City. Price \$2.50 per annum.

American Agriculturist, a monthly, handsomely illustrated; published by Orange Judd & Co., New York. Price only \$1.50 per year.

The *Rural Carolinian*, a monthly, of 56 pp. of reading matter; published by Walker, Evans & Cogswell, Charleston, S. C. Price \$2 per annum.

The *Western Pomologist and Gardener*, devoted to Pomology, Horticulture, etc.; published by Mark Miller, Des Moines, Iowa. Price \$1.50 per year.

Journal of the Farm, a Rural and Family monthly; published by Baugh & Sons, Philadelphia, Pa. Illustrated. Price \$1 per annum.

The *Willamette Farmer*, a weekly of general interest; published by A. L. Stinson, Salem, Oregon. Price \$2.50 per annum.

The *Ruralist and Ohio Valley Cultivator*, monthly, published at Cincinnati Ohio. Price \$1 per year.

The *Journal of the Agricultural Society*, of New South Wales, is furnished free to all the members of the Society.

If any of our readers or their friends wish to subscribe for any of the above publications, it can be done through the office of the CALIFORNIA HORTICULTURIST.

LITERARY NOTICES.

Publications just received.

Forest Trees, for Shelter, Ornament and Profit; a Practical Manual for their Culture and Propagation. By Arthur Bryant. *Henry T. Williams*, Publisher, New York City.

This is one of the most useful little volumes of practical information on the subject of Forest Tree Culture which we have seen. The author very appropriately descants on the evils attending the destruction of our forests, the favorable influences of trees upon moisture, rainfall and climate, and also on the practicability and value of timber plantations.

Over 200 varieties of trees are described, and the proper mode of propagation and cultivation given in a very intelligible style.

We recommend this publication to all interested in tree culture. Price \$1.50. The book may be obtained through our office.

The West.—We have received the first number of this monthly, which is devoted to the general interests of this Coast. It is replete with valuable and interesting information and we wish it every success. The price is \$1 per year. Published by the Dial Publishing Co., San Francisco.

The *Monthly Report* of the Department of Agriculture, for November and December, is on hand as interesting as ever. Thanks to Hon. Fred. Watts.

The *Ladies Floral Cabinet*, is a new monthly, published by H. F. Williams, of New York. It is certainly beautifully illustrated, full of practical information and pleasant reading matter. Price only 75 cents per year. Everybody should read it. It may be obtained at our office.

For Everybody.—A new and finely illustrated Family Paper, published monthly, by Henry A. Sage, Buffalo, N. Y. Price only \$1.50 per year.

The *Farmers' Club*, devoted to the interest of the Farmer and the entertainment of the Home Circle; published monthly, by F. P. Lefevre, Oxford, Chester County, Pa. Price \$1 per annum.

The *Evergreen and Forest Tree Grower*; by Pinney & Co., Sturgeon Bay, Missouri.

The *Atlanta Journal*, devoted to the interests of Commerce, Railways, Mining, Manufactures, Immigration, Statistics, etc. Published weekly by W. F. Clark, Atlanta, Ga. Price \$2.50 per annum.

The *Little Corporal*, for January, makes his salute in a handsome new uniform, having laid aside his military dress and donned the garb of peace. We are pleased to note this new departure, and deem it timely and proper. This number contains the first chapter of the "Prize Story," which opens out in a very interesting manner. The illustrations are fine, and not excelled by any other similar periodical in the land. While parents and children are looking for something nice for the New Year, let us suggest a trial of "The Little Corporal." Terms \$1.50 a year. John E. Miller, Publisher, Chicago, Ill.

Our Fireside Friend.—This is the name of a new eight-page original and illustrated story and family weekly, published by Messrs. Waters, Eberts & Co., Chicago. The paper presents a neat and pleasing appearance, and exhibits much taste in its make-up. Its contents are varied and rich in interest and full of instruction. It contains well written continued stories of great interest, beautifully illustrated, and entertaining short stories, sketches, poems, etc., with departments especially devoted to the Farmer, the Housewife and Children. One of the principal features of this number is Will. M. Carleton's great Poem, "The Burning of Chicago," which the publishers have beautifully illustrated. "Our Fireside Friend" will find a welcome in every family circle. The Publishers will send a specimen copy free to any address.

CATALOGUES RECEIVED.

S. W. Moore, San Francisco, Catalogue of Seeds, Fruit and Ornamental Trees.

J. M. Thorburn & Co's Descriptive Catalogue of Vegetable and Agricultural Seeds; No. 15 John Street, New York.

Wm. Appleby, San Francisco, Descriptive Catalogue of Roses.

Wholesale Price List of Bryant's Nursery, for 1872; A. Bryant, Proprietor, Princeton, Illinois.

Wholesale Price List of Seeds for sale by E. H. Janes & Bro., Fond du Lac, Wisconsin.

Wholesale and Retail Price List of Apple Trees; by W. Jayne, Wilton Nursery, Wilton Junction, Iowa.

Wholesale Trade List of Seedlings, Fruit and Evergreen Trees; J. H. Plattmann, Penn Yan, Yates Co., N. Y.

Wholesale Price List of the Keystone Grape Nurseries; S. J. Allis, Proprietor, North East, Pa.

Special Trade List of Seeds, Stocks, Scions and Supplies, for sale by Wood & Hall, Geneva, N. Y.

Wholesale Trade List of the Painesville Nurseries, for Dealers and Nurserymen only. Storrs, Harrison & Co., Proprietors, Painesville, Ohio.

Storrs, Harrison & Co's Chestnut Circular, for the Fall of 1871 and Spring of 1872; Painesville, Lake County, Ohio.

Wm. Merton & Sons' Trade List of Evergreens; Portland, Me.

ORANGE TREES IN SACRAMENTO.

During our late stay in the city of Sacramento, we visited the grounds of E. B. Crocker, Esq., who has shown much taste and perseverance in establishing one of the most pleasing features of Sacramento.

We were particularly pleased with the Orange trees in the open ground, loaded down with ripe fruit, producing a striking and most decided effect; and establishing the fact, that this fruit may be successfully grown in Sacramento City as well as throughout the Valley, the necessary conditions being about the same.

We were also much pleased with the fact, that one of the trees, now about thirteen

years old, is a seedling, and has the past year produced a fine crop of most delicious Oranges. The gardener, our friend Mr. Ebel, informed us that this same tree had been budded, but that branches produced by the original stock being also permitted to grow, had developed with more vigor, as is generally the case, and now form almost entirely this well developed tree, the budded branch being still alive but having made very little progress. This budded branch made fruit earlier, but the branches of the original stock produced a much finer and more delicious fruit than the former, showing conclusively that good fruit may be produced from seedlings, without any further improvement by budding or grafting.

The only objection is, that such seedlings will come into bearing later than budded trees. But the fact that a seedling will produce a better growth and is better adapted to the open ground, than a budded tree, will more than compensate for the delay of an abundant crop for two or three years.

Unless we desire to produce fruit superior to those which our markets now offer, seedlings undoubtedly will answer the purpose better than budded or grafted stock.

We also noticed upon the same grounds a good sized *Mespilus Japonica* (Loquat) in full bloom, and the gardener informed us that the same tree, last year, produced a good crop of fine and delicious fruit. This, we believe, is the only tree which has produced fruit to any extent in this State.

GUNPOWDER vs. RAIN.

We understand that the price of gunpowder has materially advanced since the Sacramento *Union* has suggested the propriety of exploding a few cargoes during the ensuing dry season in the valley of San Joaquin River, for the purpose of "fetching the rain." By the way—is it the smoke of the gunpowder, the noise of the explosion, the concussion of the air, or the extra gas evolved which is to produce the coveted moisture? What next?

LIBOCEDRUS DECURRENS,
(*Thuja Lobbii.*)

A correspondent of the *Gardeners' Chronicle* thus speaks of this native of California:

"Next to the Wellingtonia I would regard this as the most important addition made to our pine-trees during the last quarter of a century, as it promises to be something more than a mere shrub; in fact, it bids fair to eclipse the mammoth tree of the Far West in rapidity of growth, upwards especially. It forms a nice clean stem or bole, tapering like a fishing-rod, and its slender, graceful growth is still further enhanced by the bright green fern-like spray with which it is clothed, not standing vertically, like so many of the *arbor vite* class, but horizontally, curving over towards the beholder in the loveliest manner, so that I imagine the tree must be a general favorite. It is also very hardy, as our severest winters do not seem to have taken any effect on it, and, as before observed, it grows very fast; our largest specimen is thirty one feet high, its yearly growth averaging three feet, and in two consecutive years its leader was lengthened seven feet eight inches; it has certainly a sheltered position, but other trees fully exposed grow equally as fast. I would recommend it as one in a collection limited to six species.

WINTERING COLEUSES.

These plants are almost as difficult to winter as Verbenas. If kept too cool, or in a close atmosphere, they are quite likely either to damp off, or the leaves will die. To keep them safely, the temperature should not be allowed to go below 45 or 50° at night, and just sufficient water should be given to keep them from wilting. If the object is merely to keep the plants through winter, without propagating from them, a rather dry atmosphere is better than a moist one, and very little water should be given to the roots. Several of our lady readers complain of losing their Coleuses in winter, and the cause is, probably, the not attending to the conditions mentioned above. They are not plants

well suited for home-culture in winter, and those who have no conservatory or greenhouse must be content with merely keeping their plants alive, even if they do not make much growth. Young cuttings, struck in autumn, are usually kept through winter with less trouble than old plants.—*Moore's Rural New Yorker.*

NEW AND RARE PLANTS.

Epimedium Alpinum rubrum, is a native of Japan, and described thus in the *Rural New Yorker*:

The plants grow in dense clumps, somewhat like our common *Spiraea Japonica*, throwing up numerous flower-stems twelve to eighteen inches high. The outside of the flowers is bright red, the edges of the petals folding over, so that the color is seen when looking at the inside of the open flower. Inside, the petals are white, with a light stripe of red running down the center of each.

The long panicles of flowers possess a delicate grace, which is scarcely exceeded by any other plant of this class.

NEW DOUBLE GERANIUMS.

G. Glijm, bright scarlet, flowers of good form, and in habit the dwarfiest of the scarlet section—the best sent out last year.

Sapeur Pompier, brilliant orange-scarlet; trusses large and of good shape, leaves of a bright green, with a distinct zone.

Madame Racouchot, light rose; individual flowers large in size, and produced in very large trusses; free flowering.

Tom Pouce, cerise; flowers also very fine in size.

Merveille de Lorraine, rose, tipped with white; first rate.

Madame M. Buchner, bright salmon-rose, shaded with carmine: the trusses large, and the habit dwarf and vigorous.

Gardeners' Chronicle.

THAT EVERGREEN TAMARACK.

The Editor of the *Evergreen and Forest Tree Grover* has received from a friend residing in California the seed of what he took to be a variety of the Tamarack (*Larix Ameri-*

cana), and wishes to be enlightend on this subject. For the information of the *Evergreen Grower*, we would state, that the tree he refers to is the *Pinus contorta*, which grows upon moist flats and river banks of the Sierra Nevadas. This pine has much resemblance in form and habit with the *Larix Americana*, and is therefore often confounded with it. There is no Tamarack indigenous to California.

WASH FOR PLANTS.

The following preparation is strongly recommended for mildew, scale, red spider, etc., upon greenhouse plants, as well as out-of-doors shrubs and trees:

Flour of sulphur, two ounces, worked to a paste with a little water; sal soda, two ounces; cut tobacco, half ounce; quicklime, the size of a duck's egg; water, one gallon. Boil these together, stir them for fifteen minutes, and let them cool and settle, when this preparation should be diluted according to the character of the plants, which should be syringed with water after the application.

Correspondence.

SAN FRANCISCO, Jan. 10th, 1872.

Editors California Horticulturist:

GENTLEMEN:—In a recent trip from Oakland to San Lorenzo, my attention was particularly drawn to the horticultural progress in Alameda County.

It is evident that there is not a city in the State which can boast more justly of its Horticultural improvements than Oakland. As far as ornamental trees and shrubs are concerned, I think that city is far ahead, and deserves much credit.

We passed through Brooklyn, and kept the county road toward Haywards. This beautiful tract of country, located between Oakland and Haywards, appears as though it had been more or less inhabited and in a state of cultivation for the last twenty years, yet, to a new-comer or stranger it would seem almost barren, exhibiting little improvement to indicate any pride or ambition of its old inhabitants. One would imagine that the people lived only for their own personal sub-

sistence, with no desire to leave any memorial for their children or future generations, save the good and fertile soil. It is, however, consoling that the time has come when the great mass of the people seem to realize the utility of Horticulture. The many trees and shrubs that may be seen from Oakland to San Lorenzo, is an excellent proof of this.

San Lorenzo is a flourishing little town, almost as old as Oakland, but far behind the times in regard to Horticulture, seemingly through the sheer negligence of its people. In its Courtyard may be seen a very good variety of conifers, acacias, eucalypti, and many other fine shrubs, too numerous to mention here, all growing to perfection, with little or no care. In no part of the country where I have traveled did I see trees thrive better than there. The country from San Leandro to San Lorenzo is rather thinly inhabited, yet wherever there is a house you are sure to see it surrounded with trees and shrubs. We finally arrived at San Lorenzo, a wealthy little town that may well boast of her perseverance and acquisitions in Horticulture, of which I intend to speak at some future time.

I will now conclude by urging all who are blessed with a few acres of land, to lose no time in planting out a few fruit trees and shrubs around their houses; no matter how humble the home, a few trees and flowering plants will give it a neat and cheerful appearance, and I hope the time will come when I shall see the roadside from Oakland to San Lorenzo lined with ornamental trees, and the valley and hillsides dotted with deciduous and evergreen trees and shrubs.

Yours as ever,
P. J. FORD.

USE OF LOCUST TIMBER.—We understand that the gold medal for the best "farm wagons and wagon materials made from California grown wood" was awarded by the State Board of Agriculture to Mr. Soule of Sacramento. We are glad to see home industry encouraged and to see the fact demonstrated that we can grow timber here for this purpose. The timber of the Locust was used by Mr. Soule in the manufacturing of the articles on exhibition during the late State Fair.

T H E

CALIFORNIA HORTICULTURIST

AND FLORAL MAGAZINE.

VOL. II.

MARCH, 1872.

No. 4.

FLOWERING BULBS.

Under this head we have given our readers our experience on the Hyacinth, Tulip, Paeony and Gladiolus; and as bulbous rooted plants seem to grow in estimation with us in California, at the present time, we shall continue to give the proper treatment of other favorites.

One of our principal objects has been to cultivate a taste for flowers, and during the past year we have used every effort at our disposal to encourage the cultivation of bulbs, and we are satisfied that in this, our endeavors have not been a failure, taking into consideration that more bulbs have been sold in our market this year, than in any two preceding ones, notwithstanding a general effort to economize; and we predict that within a very few years the cultivation of Flowering Bulbs will become both general and extensive. In all countries the development of taste for flowers has taken the same course, and after the cultivation of bulbs has become general, we shall then find our people inclined to cultivate annuals more extensively. It requires Flowering Bulbs, as well as annuals, to give to the flower garden a proper finish, and to make the borders effective and pleasing at all times of the year, and particularly so on this coast where we may see both annuals and bulbs in flower in the open air during our winter season: or have them still

more perfectly developed in our parlor windows and greenhouses.

Next in the list of popular and favorite Flowering Bulbs comes the

Narcissus, this is a class of plants which does well under ordinary treatment; the flowers are produced in early spring, and are now, (Feb. 10,) in the height of their glory with us. The flowers are showy and effective and very fragrant; the bulbs are cheap and propagate rapidly, so that every two or three years the set of roots may be taken up and divided. The *Narcissus* family is subdivided into various groups as follows:

1. *Polyanthus Narcissus*, (*Tazetta*) produces from half a dozen to a dozen flowers on a single stem, colors from a pure white to a deep orange, very fragrant; they produce a very good effect if planted in clusters, or masses, and are the most popular of the *Narcissus*. Some of the best varieties are

Grand Monarque, large, white with orange cup.

Glorioso, large flowers, white, with orange cup.

Grand Primo, fine flower, white with citron cup.

States General, lemon yellow, with orange cup.

Queen Victoria, white.

Bazelman Major, very fine flower, white, yellow cup.

Grand Soliel d'Or very fine, yellow, with orange cup.

Luna, pure white.

2. *Double Narcissus*, (*Queltia*) producing one large double flower to each stem. The oldest variety is *N. incomparabilis*, flower sulphur yellow, and fragrant, several varieties have been produced; *Orange Phœnix*, of orange and straw color; *Alba Pleno Odorato*, (incomparable flore pleno) white and fragrant; *Sulphur Phœnix*, of a sulphur yellow; the double *Narcissus* is a native of Spain and Portugal.

3. *Single Narcissus*, (*Narcissus poeticus*) of which there are several very good varieties; the best are: *Poeticus*, flowers pure white, edge of the cup red, very pretty; *alba simplex*, pure white.

4. *Jonquils* (*N. Jonquilla*) natives of the Southern parts of Europe. The flower stems of this group produce a number of fragrant flowers, double, semi-double and single, but smaller than the double *Narcissus*.

The best varieties are the *Large double*, yellow color; and *Single sweet scented*.

In connection with the *Narcissus* we often hear the name of "*Daffodil*," which is however given to some of the varieties of the *double Narcissus*, and does not form a group by itself.

There are no bulbs which are easier cultivated than the varieties of the *Narcissus*, and in the days of their flowering we have nothing so pleasing and effective.

We next call the attention of our readers to a class of plants called

Crown Imperials (*Fritillaria imperialis*), the botanical name hardly ever being used. The original stock is a native of Persia and has been under cultivation for many years; but much improved varieties have been added, both single and double, so that the group is now quite interesting.

The flower stem of the *Crown Imperial* grows from three to four feet high, forming at that height a large bunch of bell-shaped flowers, hanging down, above which the stem culminates in a bunch of leaves, giving the

plant a most peculiar and attractive form which is generally admired. The bulbs are round and thick, and produce a disagreeable odor.

The most important item in the cultivation of the *Crown Imperial* is to let the root remain in the ground undisturbed for several years, in order to produce thrifty flower stocks.

The roots of the *Crown imperial* may be bought at from fifty cents to two dollars each according to variety, they will bloom generally in the second year. Plant about four to five inches deep, in ordinary soil which should be well manured.

The leading varieties are: double yellow, double red, single yellow, single red, and those with variegated foliage, which are particularly pleasing.

From our list we cannot very well omit the *Crocus*, these are mostly natives of Europe and produce their flowers very early. It may be argued against the cultivation of the *crocus*, that its flowers fall too quickly, which is true, yet if planted as a border or in masses, and if allowed to remain in the ground for a number of years, the flowers are produced so numerous that the effect is most pleasing. However if planted in groups, not less than from ten to fifteen bulbs should be set in one place, and about four inches apart. In many cases where cultivators have been disappointed, we found that the little bulbs were planted too late and also too shallow. They should be set in the fall of the year and from five to six inches deep.

If cultivated under glass or at the window, they should receive plenty of air and be kept as cool as possible in order to produce a thrifty growth and well developed flowers. The colors of the different varieties are blue, white, purple, yellow and striped. Sandy soil well manured is the best for this class of bulbs.

Crocus sativus is a variety flowering in Autumn (about October) from which the saffron of commerce is produced.

PRESERVING FLOWERS.

[Continued from page 68 of last number.]

Flowers dried in the fullness and symmetry of natural form, with their colors as brilliant as when living, are available for all sorts of ornamentation; for the most experienced eye can scarcely detect the least difference between them and freshly gathered blossoms.

The articles needed for drying flowers in rotundity of form, are: river, lake or sea sand (this is called white sand—it is sometimes of a bluish-grey tint), a wire sieve with a wooden cover to fit its base, a paper-knife, and a camel's-hair pencil. The flowers for this method of preservation, as for flat drying, must be freshly plucked, and without dew or any other dampness. Everything about this work must be thoroughly clean. The sand must be rubbed and rinsed in clean water till the water flowing through it is as clear as that from a well. Then put it in crockery dishes to dry. It must be perfectly dry and just blood-warm when the flowers occupy it.

When the sand is of the right temperature, close the cover over the base of the sieve, and pour it in till it fills the whole space beneath the wire cloth. Place the flowers in an upright or natural position by inserting their stems in the apertures of the wire-cloth till they rest firmly in this sand below. Do not crowd them, nor, if sprays or panicles are dried, let the flowers overlap each other to injure their form. Fold a sheet of stiff white paper to make a cone-shaped funnel, and pour the warm sand through this around and under and within the flowers. The cone should be folded to give the smallest possible stream of sand, and it must be poured with great care and gentleness, especially within and among the heliotrope florets, and the heaths and other small flowers. It is a slow and careful operation. Within the bells of mahernia, among the spireas, deutzias, acacias, verbenas, lantanas, bouvardias, and the like, special attention must be given to cause the sand in falling to fill all vacancies and to support every portion of the flower

correctly. The sepals and corolla of fuchsias require nice management, or, rather, patience enough to allow time to pour the sand properly. Roses and japonicas also must have particular pains given to preserving the curves of their petals; sometimes the edge of the paper-knife or the tip of the hair-pencil is needed to hold or raise them while the sand is poured under and upon them to effect this. After filling in and under and around the flowers, sand must be sifted over them, warm, to the depth of half an inch. Then set the sieve where it will keep the temperature of 70 degrees steadily, until the flowers are dry. The smallest flowers will dry in six hours; but the large, full sorts, with thick petals, require ten, twelve or more hours to dry thoroughly. For this reason, those of about the same texture and size should occupy the sieve at one time. When it is reasonable to suppose that the flowers are dry, take the cover from the base of the sieve, and the sand will fall through the wires, their colors as fair and bright as when placed in the sieve, yet dry and rigid. Leaves should be dried entirely by themselves, the thin and delicate sorts alone, because they are soon siccated; and the thicker ones also require to be treated separate from others. The foliage of the myrtles and laurels give the best satisfaction; the more flexible and succulent species lose some color, and often need to be superseded by moss or lycopodium.

When both flowers and leaves are dry, they may be clustered and tied like fresh ones in garlands, crosses, bouquets, or any other device; and as they need no moisture to keep them in fair and life-like appearance, are very desirable as grave decorations.

Baskets of flowers dried in this manner are very effective hanging in an arched doorway or window; and nothing more beautiful can be designed for the dinner-table than an epergne filled with an assortment of these flowers tastefully arranged; while as wall-decorations, bouquets or wreaths composed of a handsome variety, well contrasted, gummed to card-board and then glazed and

framed, lend a summer-like aspect to any apartment, and are a perpetual delight.

Preserved flowers, properly speaking, are these dried flowers coated with wax, stearine, or paraffine. They closely resemble wax-work, but are less expensive. Of course the talent that is required for success in making wax-flowers is not needed for this work; only a certain tact and skill, gained almost wholly by experience, in manipulating the flowers, and in using the coating material.

When flowers are to be *preserved*, they must first be dried in warm sand as directed above. Then melt white wax, stearine, or paraffine—paraffine is preferable—to a fluid state, in a clean bowl, which rests in boiling water. Keep the water hot over a spirit-lamp, gas jet, or the stove, and then the fluid will be in right condition. Have the flowers conveniently near, in a flat dish, on which they can lie while the calyx and under part of their corolla is coated; apply the melted paraffine with a camel's-hair pencil, with light, careful touches and strokes. When these portions are nicely covered—just as little as possible of the coating must be used, yet all must be covered—take the flower by its stem in your left hand, and with the pencil drop the liquid paraffine in and about the various divisions, letting it flow as it will, but not enough to obliterate the finer parts; and then with quick, gentle touches finish the remainder of the flower. Proceed in the same way with the buds and the leaves. When the color of the leaves is unsatisfactory, some persons color a little paraffine with Paris green, and coat them with that. There is danger of making the flowers and leaves too clumsy if the paraffine is not in a fluid state. Be sure to guard against this; and take care not to dim or hide the colors by too liberal applications of the fluid; there is less danger of this with the paraffine, than with wax, because it is of a more transparent nature.

Harps, crosses; wreaths or bouquets, composed of these preserved flowers, are very beautiful, but they need shielding or screening from the dust as much as wax flowers do.

It is best to enclose them within a frame with glass front. Even with blossoms eternalized in this way, lycopodium and moss must be used to fill vacancies between and among the flowers and buds.

Although when nicely done, these *preserved* flowers are elegant, and can withstand the influence of moisture, drought, cold, and a good degree of heat, yet those who prefer Nature in her simplicity, will choose only the process of drying (the second method) for eternalizing their floral treasures; which, if not perpetuating their charms for a lifetime, as the last method does, yet renders them permanent for several years, and with careful shielding from changes of the atmosphere, by enclosure in an air-tight frame under glass, they may display their beauty for a still longer period; so that mother's bridal wreath may challenge comparison with Mary's, and Tom's button-hole bouquet may be stolen from his grand-mother's May-day garland.

THE "MAJETIN," vs. APPLE BLIGHT.

[Continued from page 70 of last number.]

Having been frequently asked what kind of apple the Majetin itself is as regards its fruit, I append the following description, at the same time remarking, that it has this season (1871) been well fruited at Ballarat, also near Melbourne, and at South Brighton.

Winter Majetin.—Fruit middle-sized, having five regularly-formed equi-distant ribs, which are acutely marked near the crown: eye small, rather deeply sunk; stalk of the medium length, slender; skin dull green on the shaded side, slightly tinged with brown on that next the sun; flesh resembling the Easter Pippin in texture and flavor. It is of Norfolk origin, and not surpassed by any other in productiveness and hardiness, and it sets at defiance the *Aphis lanigera*.—Described in Hort. Trans., Vol. IV, page 68; Hort. Soc. Cat., No. 1170; Ency. of Gard., page 982; and George Lindley's Guide, No. 111. In England the fruit is in use from November until March, and in Victoria during the months of April, May, June, and July.

From the above it will be seen that this most valuable variety has other important recommendations besides its incalculable qualities as an *Aphis lanigera* resister; it is, in fact, one of the most useful apples we possess.

With regard to the propagation of the Majetin as a stock in this colony, and relative to this important subject, many questions have been asked, and also various opinions given, so that I shall, as regards this, merely lay before my readers the various methods adopted by the experimentalists, and also the plan considered the best and most effectual, after careful consideration and practical trials, carried out with large numbers. The Majetin, like most of the free and vigorous kinds of apples, will grow, and may be propagated from cuttings, but they do not strike freely under these circumstances; and although every variety of apple may be grown from cuttings, still it is well known to cultivators that some root with greater facility than others. For instance, all those of the Burknott and Codling tribes grow as well this way as by any other, and some growers allege that the trees so raised are not liable to canker (*vide Hort. Trans.*, Volume I, page 120,) which is supposed to be owing to their putting out no taproot, but spreading their numerous fibers from the knot or burr horizontally. Even the Golden Pippin may be continued this way, and trees have remained many years in perfect health, when grafts, taken not only from the same tree but from the branch, part of which was divided into cuttings, cankered in two or three years. (*Vide Hort. Trans.*, Vol. I, page 65.)

The Majetin can also be propagated by grafting on pear stocks, and by grafting upon the thorn; but from the fact of such stocks not being thoroughly lasting and enduring, I cannot advise this mode. Also by grafting upon crab roots; but from the great danger of the roots of the one being mistaken for the roots of the other, or from the possibility of the Crab roots becoming the dominant roots, it is not by any means a de-

sirable process, nor one to be recommended. The only really safe and reliable process is to graft Majetin wood on Majetin roots, and then work the stock high. This, together with the propagation by layers, and by stools, from which the suckers may be taken off, and planted out for stocks to work upon, are the only facile methods recommended by the experimentalists, and finally adopted by them in propagating the Majetin in quantities for a stock.

It is well known to most cultivators that the selection of proper stocks upon which to work the various fruit trees, has for many years engrossed much attention. The late Professor Thouin observes, that the historians and poets of antiquity have written, and the more modern have repeated on the faith of others, that every scion will take on any sort of stock, provided there be any resemblance in their barks. Thus Pliny, Varro, and others speak of apples and vines grafted on elms and poplars; and Evelyn mentions that he saw a rose grafted on an orange tree in Holland. Such absurdities are even to this day believed in by some, although the ancients acknowledge that such grafts were but of short duration. "The result of numerous experiments," observes the professor, "proves that if any of these grafts seem at first to succeed, they all perish more or less promptly." (*Vide "Encyclopædia of Gardening," p. 650.*) The effect produced upon the scion by the stock was noticed by Lord Bacon, and by most pomological writers since his day. Miller says, decidedly, that the fruit is, to a certain extent, influenced by the nature of the stock; and Mr. George Lindley, in reference to the increased fertility that may arise from the use of certain stocks, observes: "In proportion as the scion and the stock approach each other closely in constitution, the less effect is produced by the latter; and, on the contrary, in proportion to the constitutional difference between the stock and the scion is the effect of the former important. Thus, where pears are worked on the wild species, apples upon crabs, plums upon plums, etc.,

the scion is, in regard to fertility, exactly in the same state as if it had not been grafted at all; while, on the other hand, a great increase of fertility is the result of grafting pears upon quinces, peaches upon plums, apples upon whitethorn, and the like. In these latter cases, the food absorbed from the earth by the root of the stock is communicated slowly and unwillingly to the scion: under no circumstances is the communication between the one and the other as free and perfect as if their natures had been nearly the same; the sap is impeded in its ascent, and the proper juices are impeded in their descent, whence arises that accumulation of secretion which is sure to be attended by increased fertility. No other influence than this can be exercised by the scion upon the stock. Those who fancy that the contrary takes place, that the quince, for instance, communicates some portion of its austerity to the pear, can scarcely have considered the question physiologically, or they would have seen that the whole of the food communicated from the alburnum of the quince to that of the pear is in nearly the same state as when it entered the roots of the former. Whatever elaboration it undergoes must necessarily take place in the foliage of the pear; where, far from the influence of the quince, secretions natural to the variety go on with no more interruption than if the quince formed no part of the system of the individual." It is a well understood fact that some varieties of the same kind of fruit trees will take more readily, and be of longer duration, when wrought upon some kinds of stocks than on others. The whole of many kinds of apples already worked upon the Majetin appear in every way vigorous, strong, and evidently well at home.

TENDER VINES.

Although many vines which florists of the East and Europe cultivate under glass, with us are perfectly hardy, and develop to perfection in the open air on this coast; yet there

are very many which live and grow here in this exposure, but will not produce flowers under this treatment, and even if they do, they are certainly but poor specimens. All such vines we call "*Tender*" here, and their proper place is in the greenhouse or conservatory.

In our list of Hardy Vines, we mentioned a few varieties which do well in the open air, yet give more satisfaction if grown under glass; such for instance, as the Spanish Jasmine, which we will also include in the list of Tender Vines.

One of the very best of Tender Vines is the *Stephanotis Floribunda* (*Ceropegia Stephanotis*) a native of Madagascar. The stem of the *Stephanotis* is twining, the leaves are thick, leather-like and smooth. The flowers are of a pure waxy white, and very fragrant; they are used for fine bouquets, and florists find ready sale for them at a good price. The *Stephanotis* flowers with us during the Summer months, when choice flowers for fine bouquets are rather scarce. The finest blossoms we have seen were produced by plants confined to a close atmosphere, and partially shaded. The best soil seems to be a coarse peat, and where this cannot be obtained, a gravelly soil will do well.

The propagation of the *Stephanotis* seems to be attended with some little difficulties here; cuttings remaining in the propagating soil for months without forming roots. This difficulty, may however, be overcome by giving bottom heat, and by making the cuttings a month or two before the flowering season commences. As soon as the growing plants have fairly established themselves, they will make a rapid growth, and sometimes produce flowers in the third year. The *Stephanotis* is an excellent vine to cultivate in the parlor window, provided that gas can be excluded. If cultivated in greenhouses or conservatories, they will do much better if planted in the ground.

We shall next call attention to another most valuable vine for the florists, called *Hoya* (Waxplant), and which is with us strictly a greenhouse plant. The flowers of

the Wax plant are very delicate and wax-like in appearance, and of a flesh, purple or white color, growing in bunches from the different joints of the stem. The Hoyas are natives of the East Indies, where they grow upon the trunks of trees in moist forests. Their treatment is not correctly understood where the plants are kept in a constantly growing condition; Hoyas require rest and should be very sparingly watered after the flowering season, while a great deal of water may be given during the time of flowering. Our sandy soil is not well adapted for the Wax plant; the best soil is a coarse peat mixed with leafmould.

The propagation of the Hoyas requires little care. The branches will form roots readily and at almost any time. They may also be propagated by planting the leaves, but we find this method requires too much time for the formation of plants.

The most popular variety is the *Hoya Carnosa* (*Asclepias Carnosa*), which has been under cultivation for about 75 years. The flowers are flesh colored and fragrant. *Hoya Bella* is also much admired for its delicate white flowers; this, however, is not a vine, but sends out branches like a shrub. *Hoya imperialis* is very little known, although its purplish flowers are a most beautiful ornament in a floral point of view.

Maurandia is another very pretty vine, exceedingly graceful and ornamental, and flowers almost all the year round.

The *Maurandias* are natives of Mexico, and are well adapted to our climate, yet they must be protected from the wind and from the least frost, and must therefore be exclusively treated as greenhouse plants. They are raised from seed or from cuttings, which grow readily. It is better to raise young plants every year, which flower finer and are much more vigorous than old plants. Care should be taken not to water the foliage too profusely, as that, together with the stems, will rot very easily. We cultivate on this coast exclusively the *Maurandia Barclayana* of which three varieties are known, namely: the blue, the pink and the white.

This vine should be cultivated much more extensively, as there are very few vines indeed, which give more general satisfaction. They are also exceedingly well adapted for hanging-baskets, rustic stands, etc.

Allamanda is a vine which is at present rarely cultivated; in fact we do not just now know of any specimens. Mr. Walker some years since attempted to grow them, and why they have been neglected is a mystery to us. The *Allamandas* are natives of Brazil and require a warm temperature; however, not more so than many greenhouse plants which thrive well with us under ordinary treatment. They have always been considered most desirable acquisitions. The flowers are mostly yellow, but strikingly beautiful.

Cissus discolor (*Cissus marmorea*) is a most beautifully colored decorative vine now extensively introduced into our more prominent establishments. It was brought from Java in 1851, and created quite a sensation. Several fine specimens were exhibited at our late horticultural exhibition. Although a tropical plant, it seems to do well under ordinary treatment; all the protection it seems to require is a glass cover. Cuttings strike root readily, and for proper soil we would recommend a light loam mixed with well decomposed leafmould.

To be continued.

LILY OF THE VALLEY.

It is only of late years that our florists have attempted to force hardy plants into bloom during winter. There are, however, many species, that produce flowers very abundantly when thus treated, and we do not know any more beautiful plant than the common Lily of the Valley, (*Convallaria majalis*). The flowers are of the purest white, and their delicate fragrance and form always command admiration and a good price, especially during the holidays.—A few days since, while passing up Broadway, we saw a small bunch of these flowers in the window of a well known dealer in flowers and the price marked on them, only \$10.00, was, as near as we

could judge, a little more than their weight in gold.

How to force the Lily of the Valley: "In Autumn take up the desired number of good strong roots, such as have plump buds or crowns, pack them closely together, either in pots or in broad shallow boxes, covering the crown about an inch deep with fine rich soil.

Give sufficient water to settle the earth firmly about the roots, then place them in a position to grow and bloom.

If wanted for the holidays, they should be kept in a warm situation about the 1st of November. If it is not desirable to have them all bloom at one time, a portion can be kept in a cellar and brought out as required. If one has no conservatory in which to force them, they can be placed near a stove, or in any warm position until the leaves appear, then set in a window, where they will receive the light. It is not necessary, however, that they shall receive the direct rays of the sun the entire day, as a partial shade seems to suit them best."—*Rural New Yorker*.

WINE MAKING IN CALIFORNIA.

Processes and Varieties.

Wine making in California is becoming a subject of so much importance to the community, that we cannot well give too much attention to it: there are so many questions to discuss, so many conflicting theories connected with the manufacture, that all our watchfulness is needed to steer clear of costly error, and avail ourselves of the experience of others:—believing the following article calculated to throw some useful light on the subject, we extract it from the *Overland Monthly*.—

"That the making of wine may be done in a proper, as well as profitable manner, every available portion of the grape should be made use of. All the juice that can be easily pressed out should be made into wine, and the remnants of the grapes after the pressing should be used to produce brandy. Unfortunately for the wine-makers of the State, the laws and regulations made by Congress for governing distillers generally, are entirely

impracticable as applied to the distillation of the product of grapes. These regulations have proved in practice to be so onerous and burdensome to this class of distillers, that not one-quarter of the brandy is manufactured even from the refuse of the press that should be made. Wastefulness is never considered profitable, but if these Federal regulations are carried out (as they are), it is almost an advantage to the wine-maker to throw away the leavings of the press. And this is just what has been done ever since the unwise legislation of Congress has been enforced. The wine-makers everywhere, with hardly any exceptions, simply press out the juice as much as is practicable, and then throw away the balance, thereby losing, for themselves and the community, the value of ten proof gallons of brandy to every original ton of grapes. Instead of there being, as there should be, a small still attached to every vineyard, no matter what its size, there can hardly be found one to every hundred vineyards, under the present regulations. This is all wrong; and a strenuous, as well as united effort, should be made to bring Congress to a just understanding of the damage that its inapplicable rules are causing. As a single illustration of the absurdity of the law, we will mention the capacity regulation. This consists in making a survey of the still, and fixing thereby its capacity for distilling per diem. Now, some of our wines will yield sixteen per cent. absolute alcohol, while the remnants from the pressings, in many instances, do not yield five per cent. The difference is eleven per cent. when half and half are distilled, and much greater when more of the weaker wine is distilled; in fact, it is impossible to reach the Government survey without anything but a right strong wine, and hence but little other is distilled with profit. There is another part of these regulations, which is a very heavy burden to wine-makers; it is that which compels them to pay the Internal Revenue tax upon their brandy so soon after distillation. This tax amounts to two-fifths of the salable value of the brandy, and its tendency is to make the producer dispose of it at the earli-

est possible opportunity. He can not keep it to acquire the proper quality by age, when, besides its original cost to him, he has to add one hundred per cent. more in the shape of a cash outlay; so, instead, it is hurried upon the market long before it has attained any of the necessary qualities. The Government should build, or cause to be built, bonded warehouses, at convenient distances in the wine districts, where these brandies might be bonded and be left to attain age, and only exact the taxes thereon when removed, or after a reasonable number of years, say from two to four. The distillers of grapes throughout the State would immediately avail themselves of this privilege, and in a few years we would seldom meet any raw California brandy. It is even more important that brandy should have age than wine, for when new it is uninviting, and even unpalatable. There is still one thing more which should be allowed to grape distillers: that of exemption of taxes upon all brandies exported without the limits of the United States. If this were done, there would hardly be a limit to the trade that would be carried on when the business of exportation had once properly begun. Our brandies would then be within the reach of the whole world—France not excepted. Pure and entire grape brandy could be sold, if exempt from taxation, at eighty cents per gallon—less, even, than it is sold for in France. It would, from its very cheapness, immediately become an article of export to all the countries bordering upon the Pacific Ocean. All our poor wines and grapes would be distilled into brandy; the refuse would no longer be thrown away; hundreds of thousands of dollars would be saved to the community, and as many more returned as a result of our export. Wines themselves would bring fairer prices, not being in competition with those only fit for the still, and a new era of prosperity would begin. It is to be hoped that proper representations will be made to Congress with regard to this great interest of our State.

As to the progress we have made in the improvement of the qualities of our brandies,

it has been equal to that made in our wines. We have no brandies of any considerable age; but still, limited quantities are procurable which are from three to four years old, and which, though not presenting the exact taste of any particular brand of Cognac, nevertheless are just as pleasant and drinkable as most of them of the same age, and of less than one-quarter the price. It is not essential that our brandies resemble exactly any one kind of French Cognac, for no two brands from France are counterparts. Each house dealing in Cognac has adopted a certain flavoring, and they all differ. Our distillers have not got so far yet as to make a general use of flavoring in their brandies; and we must say, that when these are properly distilled and refined, aided by reasonable age, they require no artificial flavoring, and become rich, mellow and inviting.

There have been various methods and processes suggested and tried, to give the qualities of age to brandies and wines. One process consists of heating the wines or brandies; and another of freezing them. One consists of pumping air into the wine; while another pumps it out. Each and all claim perfection for their processes; but those who have tried them thoroughly have condemned all these expedients, as entirely inefficient in producing the benefits promised. The only change effected was a vapid softness, that in no manner resembled the qualities acquired by age. Age develops the flavor, through a long, slow and gradual change of the natural ingredients of the wine; and when this flavor has become fully and agreeably developed, is called bouquet. There is no artificial process yet invented which can produce this result. It is much to be regretted that many of our wine-makers are so enterprising, because they have been, and still will be, victimized by every sanguine process-inventor who comes along. Thousands of gallons of good wine have thus been spoiled annually, by people who wish their wines to acquire all the qualities that age alone can communicate. But we learn as we grow older; and the good days of these would-be inventors have passed.

We are fast coming to the conclusion, that Nature's laboratory, managed by Time, is the most perfect of all; and man can follow closely, but not excel, nor even equal Nature's silent work.

GRAPES, WINES AND RAISINS.

Mr. Lockwood of Napa, reviews the proceedings of the grape-grower's association, which held its meeting in Sacramento a short time since, in the following letter to the *Rural Press*:

REGARDING VARIETIES.

It was conceded on all sides, that in the present state of viniculture in California, that the variety must be one of heavy product. If too heavy bearing qualities, we can find a grape whose fermented juice has aroma and bouquet; such a grape is best fitted for vineyards with soil and condition suitable for its cultivation. Of the light colored grapes, the Rieslings have a preference for flavor, and would be recommended for the first place in selecting cuttings for planting, but for the want of evidence as to their productiveness. It was not denied that if trained and pruned as we train and prune the Mission grape, the yield is not satisfactory. Dr. Crane's experience has convinced him that trained high the Riesling is a good bearer. Others hold the same opinion, but there is still wanting the test on a sufficiently large scale, to answer the full purpose of exactness.

BEARING QUALITIES.

There are two kinds of white grapes that have of late increased much in favor, and merit attention for their good bearing qualities, viz.: the Golden Chasselas and Berger. The Chasselas variety, are as a rule, good bearers, but the Golden Chasselas, so called, is the largest and has the advantage of possessing a vigorous stock. The Berger is still more productive. There is much tartness in its juice, while the Golden Chasselas abounds in sugar; thus furnishing different requisites in making wine.

HIGH FLAVOR.

When musk grapes are wanted for their peculiar flavor, preference was given to the

Muscatel, otherwise called Rhenish Muscat and Frontignan. Its yield is not so large as some other Musk grapes, (as the Muscat of Alexandria on rich soils) but its flavor is superior.

QUALITY AND QUANTITY.

Of black grapes experience enough has been gathered to justify the selection of two kinds to satisfy the demand of quality and quantity, viz: the Black Malvoisie and Zinfindel. The first named is a larger bearer than the Mission, and is believed to be more certain. It makes a good white wine when rapidly pressed, and as a red wine, one of better color and better taste than the Mission. The Zinfindel is entitled to all these encomiums, and much more, for it is a still larger bearer than the Black Malvoisie and communicates to its vinous product, a peculiar raspberry flavor and an agreeable tartness.

VARIETIES FOR WINES.

This gives us two white and two dark grapes for ordinary white and red wine—one grape for musk wine or to mix with others to communicate flavor. For this end, the Catawba some would be disposed to add. Many excellent varieties are excluded by their objection of being shy bearers, but in planting a vineyard for wine, it is safer to confine the selection to a limited number, trusting to the plan of grafting to make changes, if by experience it is found that others would prove more profitable or better suited to any particular soil.

TABLE GRAPES

In regard to market grapes, it is manifest that no grape can permanently command the highest price, and hence it is not safe to select for the purpose of selling for table use, that grape which for the time is quoted highest. It happens, however, that in most instances, our best market grapes are valuable for other uses. The Malvoisie, Chasselas and Hamburg, are all good bearers, and well suited for wine. The Muscat of Alexandria, in many soils very prolific, is good, but not perhaps the best for a musk wine, and is likely to be largely used for raisins.

RAISIN GRAPES.

As regards raisin grapes, attention is chiefly directed to three varieties: Muscat of Alexandria, Fahir Zagos, and white Malaga, or as sometimes named in California, White Tokay. Among these the Fahir Zagos possess the recommendation of being most easily dried, of having a thin, delicate skin, and but few seeds. Both the Muscat and Malaga are larger, and would be preferred where size is desired. The Fahir Zagos raisin is better adapted to culinary purposes, the other for table display.

BRANDY FROM MANZANITA BERRIES.

The experiments recently made by Messrs. Rolfe & Rogers, of Nevada City, in the manufacture of Brandy from Manzanita berries, seems to attract some attention, and certain of our leading newspapers anticipate a new industry arising from this new method of producing Brandy. We do not question the statements made by the above gentlemen, that Manzanita berries will produce a superior article of Brandy, but we doubt very much that the thing is practicable. From what we have seen of Nevada County, we do not believe that fifteen hundred pounds of Manzanita berries can be easily gathered during the season, and if it can be done, the expense of gathering will far exceed the value of the obtained spirit. It certainly will not pay to make Brandy from Manzanita berries. However, we shall not be surprised to see the experiments of the above named gentlemen resulting in the fact, that an extract is made out of Manzanita berries for flavoring liquors, or that it is discovered to be possessed of some medicinal virtues. The leaves of the Manzanita are known to contain estimable qualities, which, however, are not as yet clearly defined; undoubtedly the berries will be of some service, whenever the science of chemistry shall have demonstrated their peculiar qualities.

—Guarana, the seed of a Brazilian fruit, is a new rival to coffee.

TROUT FISHING.

THE MORE PRACTICAL PORTION OF THE SUBJECT.

In continuation of what was more generally advanced in the last number of the Horticulturist, on the healthful exercise, and superiority of recreation in the artistic capture of the *Salmo genus*; it may be further added that the trout has been justly styled the "Monarch of the Brook," as the salmon has been termed the "Emperor of the River," not only for the pre-eminence of their meat over that of other fish, but for the greater diversion in fishing for them, and the superior skill necessary for their capture.

But now to the more practical portion of this matter; we will address ourselves particularly to those who, with a view to their health or amusement, or as a relaxation from close business pursuits, or for all these combined, may choose to indulge in this fascinating pastime.

And first to tyros who may be desirous of some information as to the *modus operandi* in this sport, and to the habits of the fish of which they are in search.

The trout mostly delight in sharp shallow streams; at times in the small eddies caused by rocks, stumps, or banks of sand or gravel, under over-hanging banks or rocks, or among the tangled roots of sheltering trees where the water is also deeper, and where the current passes; they are closely watching their prey which they seize as it is swept past them; at other times swimming and seemingly striving, against the stream: they are also found plentifully in streams, the water of which is so cold that other species of fish cannot live in it; they are likewise found in clear, sandy or gravelly bottomed springy ponds, which have a stream passing through or from them, but they neither breed nor thrive so well in them as in rivers and brooks. When spawning, they seek the head waters to deposite their spawn in the shallows, in sand or gravelly banks, after which, they retire during our cooler season to the deep still holes and under the shelving banks to recu-

perate, having lost to a considerable degree the brilliancy of their coloring and some flesh; but when the days lengthen, and the sun attains sufficient power to make his influence felt in their retreats, they seem to take a new lease of life, and leaving their hiding places return to their old feeding grounds, where among the sand and gravel of the sharp runs, they speedily rub off sundry pedicular attaches acquired in their hours of indolence, and at the same time divesting themselves of their old and worn out coats of mail, appear in an enlarged edition of their former proportions and colors.

The trout are rapid and sharp feeders, they are not very particular as to the material; being omnivorous, and being also very voracious, the majority of those taken generally fall victims to those who are usually styled bottom-fishers. Earth-worms, grasshoppers, various kinds of grubs and maggots are the usual baits, some anglers also recommend hog's liver.

The bottom fisher usually partaking of some of the attributes of the trout, being likewise omnivorous and generally not over particular, has these advantages over the fly-fisher, that as there are many other varieties of fish in our streams, who although they will not rise to the fly, will greedily take a bottom bait; he has the chance of sport when the trout will not feed, and both in fresh and salt water has many more days, and even months in the year in California, when he can take his prey; when the fly-fisher must lay his rod aside during rainy, cold and wintry weather, there being also restrictive laws which forbid his amusement during the spawning season.

To be successful in fishing for trout, the sportsman should be as wary as a cat in pursuit of a mouse, for the fish are shy and suspicious of anything unusual in the water or on the banks, and in accordance with the laws of refraction, can see the angler before they are seen themselves, and if they do not immediately make themselves scarce, remain on the watch and will not feed. The water should always be approached cautiously, as

even when the fish cannot see the fisherman, a heavy footstep or incautious movement will make them aware of his presence; we will not pretend to say whether they can hear or not, (they possess the organs,) but quietness costs nothing; and we generally find that noisy people are also usually clumsy.

And now for a few simple directions for their capture. It will suffice for the bait-fisher to supply himself with a short rod or pole, and a line without any reel; this will be sufficient for the narrow streams, and will be more manageable among the trees and thick bushes which usually encumber the banks; his hook should be of moderate size mounted on silk-worm gut; it is also advisable to affix a medium sized split shot about a foot above the hook to keep the bait well under the surface; a few spare hooks are advisable in case of accidents; it is better also to be provided with a basket or creel, as it is called, slung over the shoulder by a strap to put the fish into as they are caught, interposing a spray or two of fern, or a little grass to prevent their bruising; they will thus retain much of their handsome appearance; while carrying them in a bag subjects them to too much friction, and they become very unsightly, especially in warm weather. A well filled bait bag or box is also necessary, this should always be provided before starting; to trust to finding bait on the fishing ground is absurd and almost certain to result in loss of time and disappointment.

The best season of the year for taking trout is about the middle of April, they are then in the best condition; and the best time of the day is early morning or late in the evening; the best condition of weather is with a light westerly wind and an overcast sky, bright sunshine is not desirable as it enervates both fish and fisherman, and exposes the tackle; it is advisable in almost all cases to fish down stream, especially in rapid waters, there is less noise and disturbance, less chance of being seen, the line is kept taut, and what is also very essential, the bait is kept in motion, and looks more natural.

The bait which should be of medium size, should be placed neatly on the hook, and be very lightly handled so as not to bruise it, and if ends are left hanging, they should be very short.

Thus equipped, the fisherman should start in from as far up stream as convenient, and work downwards, noting what we have previously observed about displaying himself, or causing any unnecessary disturbance; he should not go and look first to see if there are any fish there, but attend to what we have said of their haunts; never allowing any slack line, it will sell him, as if the fish feels the point of the hook or the line, or is at all suspicious, he will eject the bait instantly. It is not necessary to fish long in any one place; if the trout has not been alarmed and the bait is decent, and he feels inclined to feed he will take it immediately with a snap as quick as lightning, turning down stream in the action, and a turn of the wrist will secure him; there is no necessity to sling him over your head into the bushes, it is generally sufficient to lift him out.

Fly-fishing is far superior to bottom-fishing in many points; it is less toilsome, as from the mode of operation it is necessary to select that portion of the stream which passes through the more open country, the valleys and plains, where the fisherman will not be incommoded by overhanging trees and bushes; where the stream is broader and more easily approachable, and consequently the traveling pleasanter, and where from these circumstances combined, if he has any taste that way, (which is almost invariably the case) he can luxuriate in the delights which magnificent landscape affords, combined with opportunities for botanical and entomological research; it is, in fact, a more refined and gentlemanly pleasure; it requires, however, considerably more skill, and far more caution is necessary than in bait-fishing, as he has less to screen him from the ever watchful fish; his prey averages larger and is more experienced, and it is no easy feat to cast a fly in a scientific style and sometimes against the wind, beneath an over-hanging bush or bank,

or into any little eddy below rocks or stumps where his well practiced-eye induces him to suspect a trout; there is a great deal of knowledge and appreciation of the surroundings necessary to select the spot for a cast, and a large amount of self-gratulation when the fly lightly, and truly curving to the spot, the sudden break in the water, and the smart pluck indicate that a fish is hooked.

The fly-fisherman has but little to carry with him; the nature of his sport will not allow him to remain idly in one place, but as he roves along the banks of a stream, with a light rod in hand, his creel at his side, and fly-book in his pocket, he may travel for miles without soiling his fingers, save to disengage a fish from his hook. The really scientific fisherman very rarely uses any but the artificial fly; he may occasionally try the spinning tackle where he suspects a fish of superior dimensions, who however, declines the fly; but the natural insect more properly belongs to a hybrid between the bait and the fly-fisher.

The requisites for fly-fishing are a light pliant rod, a long fine line of plaited silk and hair, wound upon a reel which is attached to the butt of the rod, a book to contain artificial flies of which it is well to have a selection, and a creel or basket to contain the fish, all these are obtainable for a small outlay at the tackle stores.—The rod when put together should have all the small rings on it in line, the line should be passed through them and a trace, leader, or gut length of about three yards, should be looped to it, to the end of this the stretcher, or end fly, (which should be the smallest) should be attached; a larger fly, which when thus used is called a dropper, may be attached to the line about three feet from the stretcher; when thus prepared the fisherman may approach the water cautiously but remain at some distance from it, to avoid being seen, heard or felt, remembering that even his shadow or that of his rod is sufficient to alarm the fish, it is not well therefore to fish with the back to the sun if it is a clear day, it should be remembered that a frightened trout will not rise to the fly; how-

ever when not alarmed he is a rapid and sharp biter and not in general very particular as to the kind of fly. Small flies are best and the color should be suited to the condition of the water and weather, in clear water use a fly with clear wings, in muddy water the fly may be larger, a few properly selected will be sufficient, (possibly we are more fastidious than the fish, but we pride ourselves on the variety in selection which our fly-book affords,—Ed.) as we have said with regard to bait fishing, fish down stream, always selecting the spot to which you desire to throw, either because you believe from appearances that it shelters a trout, or because one has just risen below it, keep your line taut, and with a series of short, interrupted and curved motions draw your flies to you across the stream and repeat your cast,—but very rarely to the same place.—A proficient in the art will cast a fly so lightly that the line will frequently not touch the water until a fish has taken the bait. When you have a rise strike instantly, or the fish will reject the hook. If you have a light wind to your back it will materially assist in the casting (but if the wind is strong it is better to remain near some sheltered and deep place), continue walking down stream and keep your flies in continual motion; early morning and evening are the best parts of the day.

Successful results in fly-fishing do not depend so much on the kind of flies used, as on the skill in casting, and a poor fly lightly cast into the right spot will do more execution than the best fly clumsily cast into an ill selected place.

Although the trout in California is not as beautiful as his cousin in the East or in Europe, yet he is one of the handsomest of all our fishes; although not as large nor so powerful as the Salmon, and very prolific, abounding in all our brooks and rivulets, and indeed living at our very doors; he is as lovely as a sunset and as brave as bravery itself—to use the words of a friend of ours “How he flashes upon the sight as he grasps the spurious insect, and turns down with a quick little slap of the tail! How he darts

and rushes hither and thither when he finds he is hooked! How persistently he struggles and fights till landed, or enveloped in the landing net! and then with what piteous gasps and quivers he breathes away his fast ebbing life! Who does not admire the lovely trout? with what a feeling of sadness we look upon a beautiful fish as he lies upon the mossy bank, the sunlight sparkling from his colors fading in death! with how deep regret we see his strength fainting away, his breath growing shorter, his struggles feebler, and when he has grown stiff in death, how proudly sad we feel over our triumph. (We generally tap him smartly on the occiput to allay his nervous irritability, and to preserve the flavor; and with a passing and self-gratulatory estimate of his weight and proportions, consign him to our creel, and go on fishing—Ed.)

Perhaps this is going a little too far and savoring rather of hypocrisy, seeing that the captor afterwards gladly claps his victim into his basket, and exultantly carries him home to be complacently devoured by himself and family—but at any rate the man who kills merely for the sake of killing, who is not satisfied with reasonable sport, who slays unfairly and out of season, who wantonly adds one unnecessary pang, that man deserves the contempt of all good sportsmen, (and the punishment assigned by Byron—“A hook in his gullet, and a little trout to pull it.”—Ed.) Of such, I trust there are but few. E. J. H.

San Francisco, Feb. 28, 1872.

FOREST-TREE CULTURE.

We have ascertained that certain parties are urging upon members of the Legislature the passage of a bill, which proposes to encourage forest-tree culture by awarding certain premiums for each tree kept alive for four, five or six years; but why this bill is not submitted to public criticism, we cannot understand, and we infer that these said parties are aware that the bill in question will not bear discussion, which is our own opinion from what we have heard of it.

If forest-tree culture is carried on with any degree of success, a law which provides the payment of a certain sum of money out of the State Treasury for every tree which is kept in growing condition for a certain number of years, would become a most formidable burden to the State, and would doubtless amount to millions of dollars; on the other hand, if forest-tree culture is impracticable in California, then we had better at once cease to advocate the undertaking. We have had a fair example of the working of such a law in the act passed a few years since for the encouragement of mulberry tree planting, and which was much abused, and had not the desired effect. A few large land owners and rich people could, and probably would avail themselves of the benefits of the proposed law, would draw large sums of money from the State; while the small farmer and poorer land-owner could not afford to purchase the seeds or young trees and cultivate them for a number of years, ere they could realize first cost; and even if they did make the necessary purchases, they would still be without the requisite knowledge for cultivating them.

Our opinion is, that if anything is to be done by the State for forest-culture, the seeds and plants should be given away, accompanied by proper instructions how to cultivate. Farmers should be informed which trees may do well in their respective localities, and after a forest commission has been in active operation a short time, if composed of intelligent and observant men, they will be able to form some tolerably accurate idea as to the best and most useful varieties of trees for forest culture in the various localities of the State.

The Bill now proposed by Senator Betge has been before the public for some time, and its merits are fully understood. The outlay for which the bill provides, has been reduced to a mere bagatelle compared with the importance of the undertaking.

The only argument against the passage of such a bill has been, that it would give to

some one an opportunity of swindling the State out of so much money; but we maintain that the same objection might be raised as justly against every bill and every public officer—that evil is radical and underlies our whole executive system, and is mainly attributable to the low moral status of our professional politicians—it is only fair to give our arboriculturists a show, they are at least as honest as other office seekers. In this case a swindling scheme could not be carried on very extensively, as the provisions of the bill are very explicit, and the very limited funds placed at the disposal of the forest commissioners, could not possibly offer any temptation to corruption, even were the commissioners so disposed; and further, the commissioners at present named in connection with this forest culture, possess the confidence of the people to such an eminent degree, that a doubt about their integrity cannot be entertained by any reasonable man.

We have heard it asserted by two or three persons that forest culture is impracticable in California, and that trees will not grow without irrigation. We do not think it necessary to enter into any argument with these individuals, as we can bring positive proof that thousands of trees one and two years of age have been taken from the nurseries, planted out on dry land, (which however was ploughed deeply) and have made a fine growth without a drop of water during the past two summers, which everyone knows were of unusual dryness. Deepploughing, early planting and good mulching are sufficient to insure the growth of many varieties of most desirable timber trees. We admit that every tree will not grow in the different localities, and it would be one of the most important functions of the forest commission, as proposed in Betge's bill, to ascertain and codify a set of instructions on this subject. The State can well afford to expend a few thousand dollars for this experiment, which, we are confident will accomplish much good and attain the desired result, if the right men can be induced to take action in the matter.

CULTURE OF FOREST TREES.

The bill before our Legislature to promote Forest Tree Culture by Senator Betge, is one of very great importance to our State, and should not be passed upon in a hurry, nor until the Bill shall have been well discussed both in the Senate, where it originated, and in the Assembly.

The promotion of Forest Tree growth is particularly important to our State on account of its liability to long dry seasons, and as we increase our forest trees and all tree growth, we increase the moisture of the seasons, and to a certain extent, the healthfulness of our climate,

It is of the most vital moment for the success of such an enterprise that the provisions of such a bill, as the one now named, should have wise and liberal appropriations, in order to make it a success, and then it should only be committed into the hands of men who have no selfish or private ends to attain, but whose sole aim should indeed be to benefit and beautify the State.

We notice the remarks and suggestions made by several journals, but we must say that we are totally opposed to any system of *Premiums* for such an enterprise; it would result as did the bounty on Mulberry trees, and Silk, and Silk Worms, the Law about which was but recently repealed. It was a scheme of a few to grab all, while the truly industrious received nothing. Some of the remarks made, relative to this bill by parties, would induce the belief that they had some special interest in the matter.

Should a bill of this kind pass and of a liberal character, and without the temptation of the premium, but left to a Committee three in number, men who are above any personal motive, great good could be done our State, but otherwise, it were better not done at all. We are not behind the scenes, therefore know not how the work proceeds.

We would indeed be glad to see a good bill pass, and if such men as John Bidwell, of Chico, Gov. Stanford, and Prof. Bolander

were the Commissioners, then our State would see a work of this kind go on and prosper.—*California Farmer*.

FORESTS AND RAIN.

Does the Destruction of Trees Diminish the Rainfall?

We extract the following paragraphs from the letter of "W." to the *Morning Call* of 3d of February ult., as relating to the important subject of Forest Tree Culture :

"Boussingault, in his 'Rural Economy,' gives as his opinion, 'that the felling of forests over a large extent of country has always the effect of lessening the mean annual rainfall.'

Baron Humboldt stated, in his 'Asiatic Travels,' that 'in crossing the steppe of Baraba, on his way from Tobolsk to Baroul, he perceived everywhere that the drying up of waters increases rapidly under the influence of the cultivation of the soil.'

The same experienced traveller, in his description of Lake Valentia, in the Valley d'Aragua, in Venezuela, a sheet of water on the high table lands, and without any outlet, ascribed the diminution of the waters to 'the extensive clearings which had been effected in the course of half a century in the Arragua Valley,' and concludes by stating that 'men in all climates seem to be bringing upon future generations two calamities at once—a want of fuel and a scarcity of water.'

Early travelers on the Colorado Desert, in this State, will remember the cluster of about thirty palm trees at the so-called Palm Springs, on the west side of the cañon, between Vallecitos Springs and Carissa Creek, and about twelve miles south of the former. These palms were planted by the padres of the old San Diego Mission. From the traditions of the old Mission, we learn that the padres found a small flow of water at irregular intervals at this particular place in the desert. They planted palms there for the same reasons which induce the Arabs to plant date palms at the springs in their

deserts, viz: shade and water. From the circumstances of the case, the conclusion is a fair one, that these Vallecitos Cañon palms were propagated from the dried dates of the Mediterranean, shipped among the supplies to the Mission. These palms increased the supply of water from the springs, and made it perpetual. The same vandal gold-hunting element that used the well-buckets and curbs on the Colorado Desert for fuel, cut down these few palm trees, and the spring shortly after disappeared. What renders this vandalism without excuse, is the fact, that the palm trees were unfit for fuel.

A similar phenomenon is recorded by M. Desbassyns de Richmond as having occurred in the island of Ascension. Upon planting the trees anew, however, the spring in a few years reappeared. No doubt our palm springs would reappear if we replanted the palms; and we respectfully submit these facts to the attention of the proper Legislative Committee, suggesting that a few hundred dollars be appropriated for this purpose.

Forests retard evaporation; agriculture increases it. Forests hold back the water that has fallen, and thereby diminish the chances of floods. Every leaf, every stick, and the beds of moss and mould are miniature reservoirs."

CALIFORNIA ACADEMY OF NATURAL SCIENCES.

A PLEA FOR OUR FOREST TREES.

Dr. Stout presented to the Library two works in German, by Dr. Robert Von Schlaginweit, a German savan, both on California, being an embodiment for German readers of the author's observations in California. They are entitled: *The Land and People of California*, and *The Railroads of North America*. Dr. Stout said that the author laid great stress on the comparison of the flora of the mountains of California with the flora of the mountains of Asia. One point that was particularly

worthy of attention at this time was that the author deprecates the wholesale destruction of the magnificent forest trees of the mountains of California, which is going on by fire and otherwise. Dr. Stout thought the trees ought to be taken under the protection of the State laws, and he was glad to be able to state that a bill was already before the Legislature to create a State Forester to protect the trees of the State. He said the length and earnestness with which Dr. Schlaginweit dwells upon this subject, might profitably be considered by those who were interesting themselves in the passage of the bill.

WANT OF TREES IN CALIFORNIA.

There is no State in the Union suffering so much in various ways from the want of a proper proportion between the timbered and untimbered lands as California. What, but a want of this proportion, what but a want of growing timber or forests to shield the surface of the earth from the immediate rays of the summer sun, throughout our large open valleys, causes the withering drouths and the life-destroying northers to which those valleys are so frequently subjected! To what, but this lack of timber to collect the humidity of the atmosphere and to break the rain-bearing clouds can be attributed the great disparity between the amount of rainfall, for the past two or three seasons on the open and untimbered valleys of the State, and the adjoining timber-covered foothills and mountains! The very nakedness of the earth's surface in these valleys, becomes the cause which reproduces this same nakedness from year to year. Nature in this case has not the power to correct itself or change its tendencies. It must be done if done at all by artificial means, and Nature itself indicates what those means must be—the planting of trees—the cultivation of artificial forests. Every consideration of private and public policy is in favor of this system.

We would say then, as we said at the beginning—*Plant Trees.*—*Rural Press.*

SPOILED AND RUINED TREES.

Every lover of beautiful trees must feel pained as they pass the many gardens in our city, and more especially Portsmouth Square, and see the *ruinous butchery* that has despoiled the beautiful evergreens that would be an ornament were they not ruined by poor, and unskilled *tree cutters*—we will not say gardeners, for they are not worthy of such a name.

Portsmouth Square, and other squares, now in charge of paid workmen, look more like "Grave yards," than Public Squares. The most of the trees are ruined by an ignorant system of cutting, and at present many of the trees are held up with wires and cords—a shame and a disgrace to our city. Does any one want a proof of the folly of such a system let him go where these trees grow naturally, and see if nature uses wire and rope to hold up what *she* grows. Our Plaza in its present is a disgrace.

The only consolation a lover of handsome trees or correct landscape gardening can have as he looks upon such a place as Portsmouth Square, is that a few years and the *death of the trees* will give our authorities a chance to start *de novo* and plant again.

THE POST OFFICE YARD.

Here is another evidence of miserable work. The readers of the *FARMER* will remember that some four or five years since, we spoke of the miserable and uncouth manner in which the trees were planted, and predicted that they would all be uprooted. Our prediction was true; the soil was not proper; the trees were not of the right kind, nor was the work well done, and the results are that thousands of dollars, kindly given by generous contributors, have been worse than wasted, and this will always be the case where men undertake to do tree planting and ornamental gardening, who are as ignorant of this science as our little children are of the Japanese language.

California Farmer.

AMERICAN FORESTS.

One fortunate result of the great fires which have swept over the wooded region of the Northwest will be to call attention to the waste which has been going on in the last few years, and to the necessity for protecting what is left. We have as yet a good supply of forest timber, and it may be many years before it will begin to be exhausted. But in the life of a nation, the contingency which these disastrous fires bring to mind is too serious to be overlooked. In the older portions of the country the necessities of a rapidly increasing population have already swept away the greater part of the primeval forests, and it is useless to expect that they will ever be restored. It is only here and there that trees may be successfully cultivated without interfering with the conveniences of our native and growing communities. But wherever they can be cultivated it is one of the first duties to see that the necessary means are employed, and that wanton waste is made a crime.

Some time ago, English economists were discussing the probable exhaustion of the English coal-fields, and it was decided that at the present rate of consumption the end would be reached about the year 2971, and there was considerable trepidation in consequence. But the predictions made by our foresters as to the probable exhaustion of our valuable forests are much more alarming. The *Scientific American*, discussing this subject, urges the enactment of stringent forest laws, analogous to the mining laws, with a view to the preservation of the timber supply in the vast tracts of country where scarcely anything except timber can be properly cultivated. Precedents for such legislation are furnished by nearly all civilized countries. In Europe, where the importance of a liberal supply of timber has been long felt, active measures have been taken on the part of various Governments to protect existing forests and encourage the cultivation of timber. It is estimated that there yet remain in France 2,700,000 acres of State Forest, the revenue

of which, previous to the recent war, was \$8,700,000. Bavaria has about 2,000,000 acres of forest; Prussia, as it existed before the war, had upwards of 5,000,000 acres. In each of these countries, schools of forestry, under State control, are supported, in which men are trained in the scientific and economical management of the State timber lands.

For protection against fire, the same authority makes the sensible suggestion that, wherever it is practicable, artificial breaks in the continuity of forests should be made, and that as far as possible, the cleared spaces should be brought under cultivation. This would serve as an aid in stopping the progress of great conflagrations, and would doubtless be effective except in cases of extraordinary severity.—*The Calais Times, Me.*

Editorial Portfolio.

OUR PUBLIC GROUNDS.

The public grounds of the State of California as well as those belonging to the City of San Francisco, have, we regret to say, been hitherto managed with considerable recklessness; yet although this fact is generally known, we see no effort made to provide for amended action in the future.

We hoped that a Board of Public works would have been established by our present legislature, composed of men who possessed the proper qualifications for inaugurating a thorough reform in the system of management of our public grounds and their maintenance; but it now seems that our expectations will not be, for the present, realized, and that self interest will continue to be the order of the day.

While nature has done so much for California in relation to climate and soil she has evidently neglected to develop for us public men to whom we might look for a change for the better.

We have frequently referred to the injudicious management of our public squares; a matter which is entirely under the control of

the Board of Supervisors; but they are evidently unwilling to listen to any expostulation, there never has been a thoroughly professional gardener employed, nor has there ever been an effort made to obtain one. Unworthy considerations of a selfish nature have been instrumental in bringing about the present state of affairs, and a change for the better can never come, so long as political considerations are permitted to preponderate.

When the Board of Regents of the University was constituted, we had every reason to believe, that the University grounds would be laid out in an artistic manner, and with reference to the future requirements of the Institution, (and we knew that there were men among them of enlarged views and refined taste as their own grounds testify); we had faith in the superior judgment of many of the Regents, but the arrangement and planting of the grounds were deputed to men better qualified for monopolizing and controlling markets etc., than for the display of executive ability in the liberal and enlightened management of Public Institutions.

Again, when the Board of Commissioners was appointed for the Golden Gate Park, we were almost certain that a new era had commenced, as only by the combination of sound judgment, superior skill and indomitable perseverance could success be achieved. But unfortunately, personal interests have predominated, and the system of park development adopted, and the condition of things in general have blighted our last hopes.

When we notice with pleasure the steps, which the Park Commissioners of New York and of St. Louis, have lately taken in the appointment of good professional Landscape Gardeners as superintendents of their parks; we are at a loss to comprehend the action of our own park commissioners, in appointing so young an engineer, to the important position of Park Superintendent; he may be very excellent at figures and mathematical lines, but he has neither the reputation, nor has he so far shown such qualifications as should entitle him to such preference.

It is only by the intelligent application of

the science of Landscape gardening combined with a thorough practical knowledge of our existing local advantages and disadvantages, and the exercise of untiring perseverance, that the city of San Francisco can ever expect to possess and maintain a park worthy of her.

At the present time there are only two commissioners remaining of the Board, and we understand that there is no concert of action between them. These commissioners cannot act if difference of opinion exists, and the law seems to be very defective in not making provision for such emergency as the present, which cannot be met by the remaining two commissioners.

We are also assured that all the appointments hitherto made, have been by exercise of personal influence and total ignoring of the matter of qualification.

However, something may yet turn up during the present session of our legislature, which may possibly effect a change for the better; and we shall wait patiently for a time, before we say anything more on the subject.

CITY PARKS OF ST. LOUIS.

As considerable complaints have been made in reference to the management of our park affairs, it may be well to notice the action of the park commissioners of other cities.

At a recent meeting of the Park Commissioners of St. Louis, Mr. M. G. Kern, a professional Landscape Gardener, was nominated for the position of Superintendent of the Park.

Mr. Kern was called for, and stated, that he was not seeking the position, but would accept it, if he were allowed to manage the park improvements in accordance with his own ideas.

The nomination was unanimously confirmed. The parks, it is believed, will now have a competent Superintendent.

The Rural World, hopes that he and the Commissioners, will work harmoniously together.

THE CENTRAL PARK OF NEW YORK.

According to the Horticulturist, a complete change has been made in the management of this the most celebrated and admired of American parks. All the Ring Commissioners, officers and employees, have been dismissed; and a new Board has been elected in the interest of true and judicious reform, of this, Henry J. Stebbins is President, and Messrs. Olmstead, Vant & Co., have been reappointed, Consulting and Supervising Landscape Gardeners.

Robert Denecke, formerly of the King's Gardens at Berlin, Prussia, has been appointed Superintendent of Landscape Gardening and conservatories.

The Horticulturist, very properly suggests, that more space should be devoted to the display of flowering and ornamental foliage plants, and the establishment of a "Sub-tropical Garden."

WORK FOR MARCH.

It would be exceedingly pleasant if we could have everything our own way, but nature asserts her undoubted right and is evidently unwilling to consent to any short-sighted amendments which we, in our conceited blindness, see fit to suggest to her dominant laws, and on the contrary compels us to stand ever ready and prepared for emergencies. The prevailing opinion is now that, we have had rain enough for all good purposes, and some farmers are necessitated to delay the preparation of their ground on account of super-abundance of moisture. At the time of this writing, however, there is a fair prospect of sunshine, and we sincerely hope that the croakers will let us rest for a while, although they may have some plea for indulging in their infirmity, on account of this most formidable snow-blockade, which keeps us from the receipt of our usual supply of mail matter, remittances, and merchandize from the other side.

This unfavorable weather for out of door work has necessarily delayed operations, and probably two-thirds of our orchards and

vineyards have not yet felt the pruning knife. What we said in our last issue, applies with equal force to the month of March. Where trees and vines exhibit the vigor of new vegetation, severe pruning may prove injurious; this has particular reference to fruit bearing trees and vines.

Evergreens may be trimmed at almost any time, although we consider the months of March and April particularly favorable to this operation.

Gooseberry and currant bushes should have been pruned two months since, but care should be taken to destroy all young shoots making their appearance from the roots; these take away a great deal of nourishment from the plants, and also form too good a protection for all sorts of insects, cutworms, etc.

In the cultivation of raspberries, growers must bear in mind that it is the last year's growth which will produce the fruit of the coming season; it is therefore, most important that not more than from three to five young shoots should be allowed to develop themselves; more than that number will weaken the plant and prevent the obtaining of thrifty stocks for the next year.

Blackberries should be cut back severely to secure superior fruit.

The planting of additional vegetable seed should be delayed until the weather has become more settled; clayey soils in particular are unfit at present for the reception of any kind of seeds. The weather has been very favorable however, for the transplanting of cabbage, cauliflower, etc.

The planting out of ornamental and shade trees has increased considerably during the last month, but we are sorry to say, that they consist chiefly of *Eucalyptus* and *Cypress*. We are of opinion that very little judgment is used in the selection of trees for ornament. While we have advocated the planting of *Eucalyptus* as a useful timber tree, and where rapid growth is required, we insist upon the superiority of many other species for ornamental purposes. Recently we have seen some very fine specimens of *Grevillias*

which were for sale at a very reasonable price, but notwithstanding the many excellent qualities of this tree, both for ornament and usefulness, purchasers prefer a *eucalyptus* or *cypress*. We must confess that we have never met with a class of people less willing to listen to proper information regarding the value and adaptability of trees and shrubs, than the present generation of Californians. We do not expect that they should study botany, but we would like to see that persons who are desirous of planting trees and shrubs, would take a little interest in the selection of many good varieties which our nurserymen are in vain endeavoring to introduce. We see a large number of small front gardens where a few roses and fuchsias might appropriately find room; but the entire space is occupied by one or two pines or *cypress*. Is it not time that better taste and judgment should be displayed?

In the shape of evergreen flowering shrubs our nurserymen have of late placed a very good stock of *Ericas* in the market; they are exceedingly handsome shrubs for the flower-garden, but very little sale has been made of them. We heartily recommend them to all persons desirous of exhibiting good taste. We could name many other fine plants which meet with the same fate, and we regret very much to see that the laudable efforts of our nurserymen and florists to introduce superior plants are discouraged by a want of due appreciation of that which is really good.

There is a great scarcity of good bulbs and flower seeds in our market at the present time on account of delays on the Overland Railroad; but as the unusually wet weather has not been favorable to their planting, we hope that a good stock will arrive in time for spring planting.

Our greenhouses and conservatories do not look as cheerful and bright as we are accustomed to see them at this season of the year; this is also due to the unfavorable weather. Many tender plants, such as *coleus*, *begonias*, etc., have been lost under the usual treatment; flowering plants have made slow progress in developing their new growth of flow-

er beds; in short, everything seems to be behindhand. We must continue to treat greenhouse plants with care, giving frequent airing, and watering sparingly; the time for forcing has not yet arrived, except by artificial heat.

Our graperies are also in a dormant condition as yet, no signs of vegetation are visible. Here, however, we must place all blame on the management. Graperies are maintained only by rich people who can well afford the extra labor and cost of a proper artificial heating apparatus. A grapery which will not yield grapes *early* and *out of season*, is not worthy the name of a grapery and is not worth having.

We place entirely too much reliance upon the favorable climate of California; we might accomplish much more than we really do, if we, on our part used proper exertions and intelligently availed ourselves of our superior advantages.

PUBLIC IMPROVEMENTS.

We have from time to time called the attention of the public to the many errors committed in the management of our public grounds, and we have endeavored to show that the arrangement of these grounds requires the employment of our best men, who have made the art of landscape and ornamental gardening, their study and occupation. This view is supported by all those who have given the matter serious consideration. But unfortunately for the good people of California, and particularly those of San Francisco, men have worked themselves into position to control our affairs, who are either totally unqualified to exercise their judgment, have none to exercise, or who have no other interest at heart but their own. When we began to advocate the work of reform, we stood isolated and did not receive much encouragement; lately we have been backed by the members of our Horticultural Society, which, although in its infancy, numbers on its roll a goodly array of practical and intelligent workers for the good cause of progress, and

we feel confident that before long our course will be endorsed by all true and intelligent citizens, and that the people will demand a more judicious expenditure of their money.

The people of California are always ready to assert the unequalled productiveness of the soil, and to boast of a climate which admits the successful cultivation of a majority of the trees, shrubs, and flowers indigenous to tropical, subtropical, and temperate climates; yet our public grounds are not worthy of a visit.

THE UNIVERSITY GROUNDS AT BERKLEY.

An excellent opportunity offered for making these grounds a school of learning and of taste, and we were in hope that steps would be taken for thus utilizing these grounds. There existed no necessity for expending one dollar more than has already been expended in the laying out of these grounds, and the planting of trees; yet the results might have been more creditable. We do not know how many trees have been planted there, but we venture to assert that, if for every ten Eucalyptus, Cypress or Pine, only one of some other and more desirable variety had been selected, and if the arrangement of planting had been assigned to a skilful hand, we should now have an excellent foundation for an establishment of instruction and usefulness.

Lately the newspapers of California informed us, that a proposition was on foot to remedy the evil, and to establish a Botanical Garden within the University grounds; the suggestion was made by a person, whose popularity, scientific knowledge and practical good sense should have carried much weight with the proposition, but some of the less practical regents were of opinion that "no more trees were wanted there!" This, we can assure our readers, lets the Botanical Garden out, for the present at least, (perhaps for a longer period than we may be permitted to live.) The Eucalyptus forest will stand as evidence of the success of the originators in their attempt to create an Australian scene.

THE GOLDEN GATE PARK.

It has been usual with the people of larger cities desirous of having a park, to select the most picturesque and otherwise well adapted locality within their boundaries for the purpose. The Supervisors of San Francisco had undoubtedly this object in view, but they have undoubtedly succeeded in selecting a site which is, and will be, an eyesore to San Francisco. To this evil already in existence, another has been added, that of creating a Board of Park Commissioners who are unwilling to acknowledge the situation, and who do not understand how to go to work to make the best of it. We do not attach all the blame to the remaining two Commissioners, one of whom has only very recently entered upon his official career; the responsibility of ill-management rests upon every one who has caused the inauguration and the continuance of the work so far progressed.

The Horticultural Society at one of its recent meetings, appointed a committee to examine the so called improvements at the park grounds. This Committee, consisting of practical men, visited the park reservation, and the result of their observations is about as follows:

1st. The eastern end of the main avenue in the Approach Ground has been graded too low, and was macademized before the mistake was discovered; much extra expense is necessary to remedy this evil.

2d. The grading seems to have been overdone; hills covered with vegetation and partially with live oaks, around which drives could have been established, with a very easy sweep, have been most injudiciously cut down to make room for the road projects of the engineer, who manages to remove every obstacle in the way of the lines he has marked out on his plan. The Committee are of opinion that the same hills so injudiciously destroyed were necessary wind-breaks, and would have been, when properly laid out, most desirable objects for park grounds, obviating the appearance of sameness, which

the present engineer has unfortunately established.

3d. In two instances, within the park grounds proper, the drive has been cut through the very centre of elliptical shaped hills, establishing thereby high and unmanageable sand banks, which evil cannot be efficiently remedied but by a total removal of the entire remaining portions of the hills; an artistic sweep could have been formed around said hills at a much less expense than the cutting through.

4th. Drives and walks cross each other too frequently, and persons on foot will be constantly in danger of being run over by vehicles.

5th. The force at work is entirely too much scattered, and practical supervision is impossible.

6th. The system of trenching ground is not understood, and is done in a most unworkmanlike manner.

7th. The nursery stock on hand is very limited, and the trees in consequence, could have been bought for less than they have cost in raising. The greenhouse, constructed for rearing trees, is a very impracticable structure, much better adapted for a show house than anything else. The nursery ground was located in a swamp, and many of the trees have died in consequence of the roots being submerged in water. Not until the damage had occurred were orders given to drain the ground, which should have been done in autumn.

8th. Much of the grading, making of walks and other work, having been altered several times, the expense of such work has been double what it should have been.

9th. The Commissioners are purchasing trees in San Jose, which could have been had for the same price in this city, and the Committee of the Horticultural Society is of opinion that the Commissioners should have made out a list of such trees and shrubs as were needed, and advertised for proposals, thereby deriving benefit from the consequent competition, and if prices were the same, preference should have been given to San

San Francisco nurserymen, who pay their share of the taxes.

10. A stock of Elms, Maples and Poplars, have been purchased which cannot be expected to do well under the present unprotected condition of the park. Elms and Poplars in particular, cannot be grown in the park grounds at present.

The above points are well taken, and being an opinion expressed by practical men, the Commissioners should not fail to change their mode of operations. They ought to be willing to profit by the experience of others, and should bear in mind that every error committed, only increases the existing strong and well founded prejudice against the present site for the park. The Commissioners should give their almost exclusive attention to the reclaiming of the barren sand hills, for not until the possibility and practicability of such reclamation is established, will the people of San Francisco place any confidence in the Golden Gate Park.

In our next, we shall endeavor to point out the proper course to pursue for the reclaiming of the sand hills.

REPORT ON THE FRUIT MARKET.

I was pleased to find the intelligent and well posted writer of the *Alta*, in his usual weekly editorial article on the Industrial Condition of the State, approve and endorse my suggestions in my last Report of the Fruit Market, relating to the great necessity for all fruit raisers and venders labelling the fruits on their stands, so that purchasers may acquire some knowledge of pomological nomenclature, and when they find any varieties that suit their taste, they may be able to ask for them by name; for many fruits are mean, small, and shabby in appearance, while their flavor is first-rate, for instance, the Seckel, Green Gage, etc.

Those persons who are ignorant of the names of most of the fruits, which at nearly every season of the year in this State, are placed before them in the markets, may be said to live under a ban of deprivation of all

the fair and goodly productions of the orchard and garden. For they only can be said to fully enjoy Pomona's gifts, who can discriminate between the most delicious, and the more indifferent and poor of them. In the matter of fruit, as in many other things in life, it will not do to trust merely to appearances.

This subject really deserves a few words. "Fine fruit is the flower of commodities," as has been rightly said. It is the most perfect union of the useful and the beautiful that earth knows. Fruit, rich, bloom-dusted, melting and luscious—such are the treasures of the orchard and the garden, temptingly offered to every citizen in this sunny, mild, delightful and healthful climate. And is it not worth while for everybody to acquire some knowledge of the names of the finest and most prominent fruits? The dwellers in a city cannot certainly be expected to be as learned in the nomenclature of fruits as the fruit cultivator who makes a business of it, for, from the great accumulation of names, even to these last, Pomology has become an embarrassing study; but let the cultivators and venders help the city purchasers, and have a card or paper appended to each variety of fruit, for the information and edification of all concerned in this interesting subject.

We have now a Horticultural Society among us—"The Bay District." Let any cultivator, salesman or purchaser of fruits, when ignorant, or in doubt of any particular specimen, bring or send it to the rooms of the Society, 622 Clay Street, and some of the members, nurserymen or cultivators of fruit there, or a Fruit Committee, to whom such matters are generally referred, will name it, if it is within their knowledge, having their own experience and the best pomological writers and authorities in their library as their guides.

We hope the influential writer above referred to in the *Alta*, will keep this subject before the public until we shall see on every stall or stand in the markets, or on the streets, clearly written cards, giving the names of every variety of fruit offered for sale.

We award great credit to cultivators and salesmen in this city and State generally, for the neat and handsome manner in which their fruits are displayed; and we admire the system and regularity with which the fruit is uniformly packed in boxes; we have seldom observed it done so well in the Eastern cities, and we only need the labels to perfect the work in a goodly manner.

Large shipments of Los Angeles oranges are now being made for this port, and many have already arrived. They do not, at present, seem so sweet as they have been in some former seasons, owing, it is said by some, to the trees having exhausted themselves, and having had too great a drain upon their strength, but more probably merely because those which first come are usually rather sour. From Honolulu the consignments of oranges, as well as of bananas, have been light; but those of cocoanuts, have been considerable. Oregon has been sending to us a pretty good supply of apples, which bring fair prices, as well as some of the late pears, of which there are yet a few on the stands, chiefly Easter Buerres. We have the announcement, from those well informed, that strawberries may be expected in two weeks. There is still an abundance of nearly all kinds of vegetables. Celery is remarkably fine this year. Green peas, rather unusual at this particular time of the year, are yet in small quantities. The late cold weather has operated unfavorably for them, as well as for tomatoes. Cauliflower-heads, which would bring one dollar apiece in Cincinnati, and five dollars in New Orleans, are here now in plenty, and reasonably low in price. They are of grand dimensions, and are beautifully white, firm, close, and of billowy form and roundness—perfect pictures in the vegetable line.

E. J. H.

SAN FRANCISCO, Feb. 26th, 1872.

The Exhibition of the Bay District Horticultural Society, has been postponed to Thursday, May 16th.

REGULAR MEETING OF THE
BAY DISTRICT HORTICULTURAL SOCIETY,
Saturday, January 27th, 1872.

The Committee on Exhibition reported that a suitable building may be constructed for about three thousand dollars, including gas and water-pipes, the material of which may be resold for about twelve hundred dollars.

The Committee estimated that the premium list and the fitting up of the grounds may amount to about fifteen hundred dollars.

Whereupon, the Board of Trustees was authorized to take the necessary steps regarding the Spring Exhibition.

The following resolution was introduced:

Whereas, a bill having been framed by the Delegates of the different Agricultural and Horticultural Societies of California, assembled in Sacramento on January 24th last, and having been submitted to our present Legislature providing for State aid to the different Societies—

Resolved, That the San Francisco Delegates in the Senate and Assembly be hereby requested to use their influence in procuring the early passage of said bill, as an important and necessary measure for the encouragement of Agriculture and other industries.

The resolution was unanimously adopted, and the Secretary instructed to forward the same to our Delegates in Sacramento.

A Committee of three was appointed to frame a Premium List for the next Exhibition; the members of said Committee being E. L. Reimer, F. A. Miller, and F. Luedemann.

The following resolution was introduced:

Whereas, it being represented that serious blunders have been made by the San Francisco Park Commissioners in grading the Avenue of the Golden Gate Park—

Resolved, That a Committee of five be appointed to investigate this matter, and to call the attention of the proper authorities to the subject.

Adopted unanimously.

The following members were appointed on said Committee:

Wm. Meyer, F. A. Miller, E. L. Reimer, C. Schumann, and R. Michelsen.

The following resolution was introduced:

Resolved, That the Secretary be hereby instructed to confer with the War Department at Washington on the proper course necessary to be taken for the establishing of Meteorological observations upon this coast.

Carried.

Some twenty volumes of valuable books were presented to the Society by Mr. C. Stephens.

Mr. C. Schumann having recently returned from a tour through the East and Europe, promised to communicate to the members of the Society his observations in a horticultural point of view, and appointed Saturday evening, February 3d, at the Society's room, as the most convenient time.

THE EIGHTEENTH REGULAR MEETING

of this Society took place on Saturday February 24th.

The principal business transacted was the final adoption of the premium list for the Spring Exhibition.

James Lick was elected an Honorary Member. Two new members were also elected, viz: Richard Linke of San Francisco and J. M. Asher of San Diego.

The Rules and Regulations governing the Spring Exhibition were revised and finally adopted.

We are authorized to state that informal meetings of this Society will be held every Saturday evening for Horticultural discussions, while the Regular Monthly Meetings take place on the last Saturday of every month.

THE SPRING EXHIBITION

of the Bay District Horticultural Society of California.

As was announced some time since, the Horticultural Society will hold a Spring Exhibition of trees, plants, flowers, fruits and vegetables, which will open May 16th and continue nine days.

Within a few days active preparation will be commenced, and it is anticipated that the flower show will be far superior to that of last year.

The premium list foots up over one thousand dollars in cash and the inducements for general co-operation and competition are considerable.

Various objectionable features in the regulations have been discarded.

One provision reduces the time required, for having the plants to be exhibited under cultivation, to six weeks; the time formerly stipulated was three months.

Exhibitors who are not members of the Society are required to pay ten per cent on the premium for which they compete.

The appointment of Judges to award premiums, is left entirely to the exhibitors, who will be requested to meet on the evening of the opening of the exhibition, for the purpose of arranging that matter among themselves. This, we hope, will obviate all ill feeling in the future.

We hope the enterprise will be a grand success, and we see nothing to prevent the Society from achieving a great triumph in their first attempt to hold an independent exhibition. We feel confident the affair will eclipse the Horticultural display of last year.

CATALOGUES RECEIVED.

Brigg's Illustrated Catalogue of flowers and vegetable seeds, bulbs and plants for 1872, came to hand. It is a magnificent work and should be in the hands of every lover of flowers.

Post Office address, Briggs & Bros. Rochester, N. Y. See notice elsewhere.

C. L. Allen & Co's illustrated Catalogue of seeds, bulbs and plants for 1872. This firm is one of the largest bulb dealers on this Continent. Post Office address, Brooklyn, N. Y.

Dreer's Garden Calendar, for 1872 contains much useful information, a descriptive catalogue of all kinds of seeds, plants and bulbs,

rustic work, horticultural implement etc., address Henry A. Dreer, Philadelphia, Pa. See advertisement in another column.

Descriptive Catalogue of Ornamental trees, shrubs, roses, flowering plants etc., for sale by Ellwanger & Barry, Mount Hope Nurseries, Rochester, N. Y. The stock which these gentlemen have supplied to California has always given satisfaction and we recommend them as reliable. See advertisement.

Also wholesale catalogue of the same firm.

Also *Descriptive Catalogue of fruits for sale* by Ellwanger & Barry of Rochester, N. Y., comprising a very large and superior assortment of trees, vines and bushes.

Wholesale price list of the Bloomington Nursery, Bloomington, McLean County, Illinois. F. K. Phoenix, proprietor.

Wando Almanac, published in the interest of the "Wando," fertilizer by Wm. Dukes & Co., general agents, Charleston, S. C.

Trade List of Strawberry Plants for sale by D. S. Myer, Bridgeville, Delaware,

Wholesale Catalogue of the Waukegan Nursery of evergreen and ornamental tree seedlings, for sale by Robert Douglass and Sons, Waukegan, Lake Co., Illinois.

Olm Brothers annual plant catalogue of new and desirable plants; also descriptive catalogue Floricultural Gardens, Springfield Mass.

Wholesale Price List of the Germantown Nurseries, Philadelphia: Thomas Meehan, proprietor; also Thomas Meehan's price list of tree seeds.

Wm. J. Hesser's illustrated Spring Catalogue of select, new, rare and beautiful plants. for sale at Plattsmouth, Nebraska.

Semiannual trade list of Hoopes Brother and Thomas, Cherry Hill Nurseries, Westchester, Pa.

Semiannual trade list of Heikes Nurseries; W. F. Heikes proprietor, Dayton Ohio.

Phoenix's Floral Guide, garden directory, and descriptive catalogue of greenhouse, garden and bedding plants etc.; by F. K. Phoenix, Bloomington, Illinois.

Henry A. Dreer's directions for growing pansies.

Annual Spring catalogue of vegetable and flower seeds, bedding plants, bulbs etc., for 1872 by W. B. Dimon, Jr. & Co., Seedsman and Florists, Brooklyn, N. Y.

Gould Bros. Wholesale Catalogue or Trade List of fruit and ornamental trees, shrubs, roses, etc., for Spring of 1872, Rochester, New York.

Descriptive Catalogue of plants, arranged in classes, with illustrations, by Ellwanger & Barry, Rochester, N. Y.

Descriptive Catalogue of ornamental trees, shrubs, roses, etc., beautifully illustrated, by Ellwanger & Barry, Rochester, N. Y.

Descriptive Catalogue of fruit, by the same publishers.

NEW AND RARE PLANTS.

Mazel's Hybrid Begonia.—This is a Hybrid Begonia obtained by M. Marzel a French nurseryman, from Begonia Pearcei, fertilized by the pollen of B. Boliviensis and presents some of the characteristics of both species, with some features, proper to itself. The plant is a more free flowerer than either of its parents, the flowers are usually of a vermillion color tinted with carmine and with a dash of yellow. Full description in No. 4, of the *Gardener's Chronicle* of this year.

New Coleus.—During the late year a new form of Coleus was produced and exhibited under the name of Tryoni, one half of the leaves being of a rich glowing crimson, and the other half of a bright golden yellow; this character is established as we learn from the "*Gardener's Chronicle*" and will be perpetuated by the ordinary methods of propagation.

NEW FRUITS.

Brier's Sweet Crab.—is said to be not only a very ornamental tree in fruit, but the fruit is luscious to eat from the hand, nearly equaling the pear.

Preserved it equals the peach both in richness and fine flavor, and wherever the peach and cultivated plum cannot be grown with

success, it will prove a good substitute and of very great value.

The President of the Wisconsin State Horticultural Society says of it; the samples of Brier's Sweet crab that I have at several different times seen and tasted, and also preserves of the same, were certainly very excellent. For a delicate and delicious preserving apple nothing nicer could be desired. Also what knowledge I have of the habit of growth and hardness of the tree is all in its favor.—*Gardener's Monthly*.

New seedling pears by Messrs. Clapps of Massachusetts.

Clapp's No. 73 Pear is of full medium size, in general shape and form resembling the Bartlett; greenish yellow, with many rough dots and patches of russet, and a common cheek when exposed to the sun; stem stout, set angular; calyx in a compressed furrowed, shallow basin: flesh fine whitish, half buttery moderately juicy, and as a late variety, of great promise.

Clapp's No. 72 Pear, size medium to large; form oblong, obtuse pyriform; skin rough, surface uneven; color deep rich yellow, with many small minute grey or russet dots: stem short, stocky, set with a fleshy, abrupt depression; calyx with short irregular segments in a deep abrupt basin, slightly furrowed; flesh whitish, coarse, granular, half melting, juicy, half vinous, sweet and pleasant.

Moore's Rural New Yorker.

FAVORS RECEIVED.—We have received from Henry A. Dreer, Seedsman and florist, Philadelphia a fine collection of choice vegetable and flower seeds. The varieties are all very desirable. Thanks to Mr. Dreer.

Eighteenth Annual Report of the Young Men's Christian Association of San Francisco.

Address to the Agricultural Organizations in the United States, prepared by a Committee, in obedience to a resolution by the National Agricultural Society, together with Constitution and proceedings.

A GRAND WORK.

We have before us Briggs & Brother's catalogue of flowers and vegetable seeds, for 1872. The outside appearance of the work, with its highly embellished cover and tint-edged leaves would seem to indicate that the book comes before us for notice from some extensive lithographic printing establishment, or illustrated monthly printing house. Neither guess would be correct. The publishers are seedsmen, said to be the most extensive in world; who raise and sell flowers and vegetable seeds, sending them in large or small quantities to all parts of the country. They own no end of gardens and farms, both in and out of New York State—having a 260 acre farm at Clinton, Iowa, devoted expressly to seed, and their establishment at Rochester, has upwards of 60,000 feet of flooring, devoted exclusively to packing and shipping seeds.

But to revert to the catalogue before us, we must say, that it is more than was promised in the advertizements of the firm. Its typography is perfect. Its illustrated plates are models of pictorial beauty. Its contents embrace useful hints upon the growth and raising of flowers and vegetables, and are the results of years of practical experience. The purchaser of a catalogue (an order to Briggs & Brother for one dollar's worth of seeds, secures it free,) also receives an insight into what he may obtain on certain conditions, in the way of one or two chromo lithographs of flower bouquets, representing bouquets of choice natural flowers, raised by Briggs & Brother. These chromos are fully equal to the highest priced chromos sold, and are a fit ornament for parlor or sitting room. The catalogue also contains two representative engravings of the chromos, and parties ordering only one, which, without an order for seeds, requires an enclosure of seventy-five cents, can select which they prefer.

There is no person interested in flowers, house or garden plants, or engaged in the raising of vegetables or market cereals, who cannot be benefitted by the possession of

this valuable and beautiful illustrated catalogue. An enclosure of twenty-five cents, secures it prepaid, and the amount in seeds is returned; if an order follows the purchase of a catalogue.

Editorial Cleanings.

From the *Monthly Report* of the Department of Agriculture we clip the following items:—

DEPTH TO PLANT SEEDS.—The proper depth to plant seeds, is a question of considerable importance, and one which, like many other similar questions relating to plant growth, cannot receive a definite answer that would be of general or universal application. In dry, sandy soils, situated in dry climates, a deeper covering will be required than would be judicious where both soil and climate indicate the reverse of these conditions. For instance, it has been shown that peas continue longer in bearing condition, on sandy soils, when sown at a depth of six inches, than they do when placed nearer the surface; and it is said that the Indians upon the tablelands of the Colorado plant corn ten to twelve inches below the surface with the best results; but if planted with only one or two inches of covering, the crop fails. Seeds also vary in their ability to penetrate depths of soil in germinating. Leguminous seeds, and some of the largest seeding gramineæ, can be planted deeper than those of a lighter character. It has been given as a general rule that all seeds germinate most speedily when covered with a depth of soil equal to their own thickness, and where the constant presence of sufficient moisture for germination can be maintained; this rule, is, perhaps, as nearly correct as any that can be given.

A BERLIN PROJECT.—A “dendro-pomological garden” is about to be established at Berlin. This garden is to be planted with a collection of fruit-trees, and to comprise an arboretum, where all hardy ligneous plants will be systematically arranged. Hedges of various plants, capable of being used for the

purpose of live fences, will be introduced. The idea, and the botanical arrangement, emanates from Professor Karl Koch; the plan for laying out the garden being perfected by Mr. Meyer, landscape gardener of Sans Souci.

Several years ago, a similar project was proposed by Mr. William Saunders, of this Department, who prepared plans for the botanical arrangement, and for the laying out of the grounds. The work was not commenced until the spring of 1868; since that time operations have been gradually progressing; the ground-plans are nearly completed, and the collections yearly increasing in value and interest. The plan of the Department embraces various important details not included in the published plan of the Berlin project.

ASPHALT WALKS.—An economical asphaltting of walks is suggested in England, as, and upon trial, is said to have cost only 3*d.* per yard. The materials used, were merely tar and burned turf ashes. The ashes were burned in large heaps in the course of converting old pastures into arable lands. The cost of burning twenty cubic yards, was rather under 2*d.* per yard after the ground was plowed; the tar cost 1*d.* per gallon. The ashes were procured from the middle of a heap of a bright red color. About four hundred and fifty square yards of walk were asphalted with three hundred and thirty-six gallons of tar, rather less than one gallon per yard. The walks were quite firm with fine gravel before being operated upon with tar and ashes: only ten cubic yards of ashes were required. The work was done by various systems. A strong stand, about a foot high, was placed against the ashes, shot down in cart-loads, and the barrels rolled upon the stand as wanted; a common pail was used to pour the tar upon the ashes; about a barrowful of ashes was mixed with the tar until saturated, so that, when patted with the back of a shovel, the mixture did not adhere to it; the mixture was then wheeled to the spot where required, laid upon the walk about an

inch thick, patted down smooth, and sprinkled with dry ashes. The work was done in June and July, so that the surface generally became dry enough to roll, in about half a day. The rolling cannot be overdone, and may be continued day after day for a week. The other methods were merely to hoe the walks, pour tar on them, and then to throw the ashes over the tar, rolling as in the former process; or, by picking up the surface about two inches, smoothing down, applying the tar to soak the gravel, then adding dry ashes on the surface and rolling. The hoeing or picking of the walks is a much quicker process than by mixing the tar and ashes together first, but the latter makes the most finished job. A man may asphalt about forty square yards per day.

THE SUNFLOWER.—The cultivation of the sunflower is likely to become popular in India. An Indian authority says:

“The oil extracted from the seed is said to be superior to both almond and olive oil for table use, and to be employed in manufacturing woolen goods, soap, and candles, as well as for lighting purposes. The leaves have been manufactured into cigars, having pectoral qualities, and might perhaps be found more efficacious than stramonium. The blossoms furnish a bright yellow dye, which stands well. Each acre will contain from 15,000 to 20,000 plants, and the average quantity of seed will be fifty bushels, each of which will give a gallon of oil. The quantity of seed is much increased by dwarfing the plants, the best manure for which is said to be old mortar broken up. The plants should be kept clean and free from weeds, and the quantity of seed required, is about six pounds per acre. They should have sufficient interval between them for exposure to the sun, as under such circumstances, they become larger and more fully stored with seed.”

TOBACCO GROWING IN CALIFORNIA.—“The adaptation of this valley to the growth of a superior article of tobacco has often been tested

with satisfactory results, and there is no doubt the situation is precisely what the plant requires. Being an annual plant, it will grow wherever the summers are moderately warm. It is grown in nearly all our Northern States, and nearly every country in Europe, but the crop is not found to be profitable, as the tobacco does not have the strength and superior flavor of that grown in warm and dry countries. The favorite and high-priced varieties of commerce are grown where the summers are long and warm, and the air is free and dry. These conditions of climate are found in this section in an eminent degree, and would seem to indicate its adaptation to the growth of those superior qualities which never fail of a remunerative market. Whenever any locality is found to manifest this peculiar adaptation, it is found to be the most valuable crop that can be grown. It is one of those articles which meet with the most universal consumption, and may be looked upon as one of the great leading agricultural staples. That mankind would be better off without it admits of no question. To discourage or put down its use has equally baffled legislators and moralists; and, in the words of Pope, on a higher subject, it may be said to be partaken of “by saint by savage, and by sage.” Such being the case, we submit to the inevitable, and are gratified to see the favorable opening now offered for its cultivation in this locality, as we believe it to be one in which it will meet with complete success. Mr. Jewett thinks that, for the purpose to which he intends to apply it, a ready and remunerative market for at least fifty thousand pounds, at the present time, will be afforded. Land, supplied with water for irrigation, will be furnished to persons desirous of engaging in the business, free of rent, within a mile of Bakersfield.”—*Kern County Courier*.

LOS ANGELES WALNUTS.—The first English walnuts were planted in Los Angeles county in 1857. They commenced bearing in three years, the crop increasing every year. In the year 1863 the crop amounted to 9,200

pounds. Previous to 1860, the walnuts used in California were all imported from China, to the amount of nearly 30,000 pounds annually.

The flavor of the walnuts raised in Los Angeles is finer than that of the imported nuts. Near San Gabriel, or the Gabriel Mission, the walnut tree is found of larger size and bearing the best of nuts. These trees were set out by the missionaries. Los Angeles county supplies a large demand for walnuts, and as Southern California becomes more settled, walnut trees will be grown more extensively, adding an increased resource of wealth to this delightful portion of our State.—*Rural Press*.

LA MARQUE ROSE.—We saw on the 30th day of January, on Turk Street, in the City of San Francisco, a La Marque Rose in the open ground, about six feet high, having ninety-one flowers, one-half of them half open, and the other half in full bloom, making a beautiful sight at this season of the year. The flowers of that rosebush would, we believe, have easily brought twenty dollars in New York.

GROWTH OF "ABIES DOUGLASSII."—This well known California Spruce was introduced into England in 1827. The *Gardener's Chronicle* says, that out of the first seeds sown in the winter of 1827, three had grown about one inch high in the March following. In October, 1871, one of these trees measured one hundred feet, six inches in height, and the girth, three feet from the ground, nine feet, seven inches. Its growth since 1844, was sixty feet, six inches. It is pronounced, according to the *Chronicle*, a rapid grower, and therefore important as a timber tree. Cuttings and layers have shot up five feet in one year. It is perfectly hardy in England, and is considered a most desirable tree for ornament as well as timber. The specimen at the International Exhibition, the *Chronicle* states, measured, when cut down, three hundred and nine feet.

THE JARRAH JARRAH, or Western Australian Mahogany, is becoming famous, and its value has been greatly enhanced by recent Government tests, showing that the durability of the wood is dependant not so much on its density as on a certain astringent vegetable acid, which appears to be so peculiarly disagreeable and even poisonous to insects, that they avoid the timber.—*News Letter*.

THE OLIVE TREE.—The planting of this tree is recommended, not alone for its fruit, but on account of the excellent shade it affords. The popular idea has been that it took the tree from eight to nine years to produce fruit. This, the *San Diego Union* shows to be an error, by citing two cases—one in that city, and the other at Santa Barbara—in in which trees bore fruit from cuttings in three years. The knowledge of this fact should serve greatly to popularize the tree.

A PECULIAR TREE.—Upon the ranch of Mr. Robert Finley, five miles south of town, there is a tree, or a collection of trees, remarkable in several respects. An old Bay tree, (the same as the California Laurel or the Pepper wood,) many years ago, sent forth from its stump no less than ten shoots. These shoots have "flourished like the green bay tree," and have become great in size. Their height is at least eighty feet, while their diameters range from eighteen to thirty-six inches; the diameter of the main trunk is four feet. The ten trees separate a few feet above the ground, and at the place of separation, form a natural couch, large enough to contain a man of ordinary size. It would afford an excellent retreat for the solitary hunter, on a wet night. Taken altogether, this is the most remarkable Laurel tree we have ever seen.

Russian River-Flag.

THE AQUARIUM OF THE LONDON CRYSTAL PALACE.—The Aquarium of the Crystal Palace, London, is one of the best attractions which have been provided of late years. You descend a stair to a handsome corridor, one side of which is bordered by sea-water tanks

with plate-glass fronts, that rival shop fronts in dimensions. Here you can lounge and watch the movements and habits of creatures that live at the bottom of the sea, and acquaint yourself with much that could not be seen in any other way. The domestic life of flounders, whiting, cod and many other kinds of fish may be studied with amusement as well as instruction; and the behavior of lobsters, crayfish, crabs, prawns, and cuttlefish, will perhaps astonish most beholders. And in witnessing all this, so ample is the space and supply of water, that the idea of the creatures being captives, scarcely enters your mind, and you come away with the conviction that a great deal of very interesting natural history may be learned in the new aquarium.

KEEPING APPLES.—M. J. N. Hoag, of Yolo County, stated at a recent meeting of the Farmers' Club, in Sacramento, that "many persons in this State pack their winter apples in clear sand and allow the boxes to stand open so that the rain runs through them, and take them from the sand as they want to use them. This mode of keeping, he said, was found very successful, the fruit retaining a fresh juicy condition and natural pleasant flavor.

CABBAGE LOUSE.—The American Agriculturist pronounces as the best remedy, Lime, slaked dry with water, in which carbolic acid has been dissolved, one part and dry air-slaked lime three parts; mix together and sprinkle on the leaves, while wet with dew. Where they are very numerous on a leaf, it is better to remove it and destroy the insects by burning.

A CALIFORNIA WINETANK.—At B. N. Bugbey's vineyard, on Tuesday last, a dance took place in one of his mammoth wine tanks. A party of ladies and gentlemen, invited to the dedicatory ceremony of dancing in one of the largest vats in the United States, were in attendance, and participated in the hospitality of one of the most enterprising vintners in California. The monster tank was lit up;

the musicians announced "take your partners for a quadrille," and dancing commenced after the old Bavarian style—while one set danced, there was plenty of room for 20 spectators and the musicians. The vats are able to contain 50,000 gallons of wine—*Folsom Telegraph.*

THE SUPPLY OF QUININE.—Cinchona has for many years been cultivated on Government plantations in Sikkim, a province on the northeast of British India, in the hope of being able to obtain a large and cheap supply of quinine. The success of the enterprise, it is stated, has been sufficiently encouraging to justify a continuance of the effort. Over twelve thousand pounds of dry bark were produced last year on the Rungbee plantation; of this quantity seven thousand pounds were boiled down on the plantation, and five thousand pounds were sent to London for sale. "*Cinchona Officinalis.*" is declared to be a failure in India, and the most successful variety is the "*chinchona succarrubra.*" Energetic efforts are making to grow the "*calisaya*" variety. The Government of British India, in reply to a memorial protesting against its interference with private companies engaged in raising cinchona, states that it cannot leave solely to individual enterprise the further prosecution of measures necessary to secure to the people abundant and cheap supplies of quinine, which is the only efficient specific for the most deadly of all maladies in India. In 1869 it appears that out of 1,855,634 deaths in British India, nearly half or 824,256 were due to bilious fever.

PARTRIDGES vs. CHINCH BUGS.—Illinois farmers find that the partridge is a great destroyer of the chinch bug, which is so injurious to wheat fields, and are beginning to protect them from the fowler. One farmer says he has hundreds of tame partridges about his place, and his wheat crops are unusually abundant, while in places not far away the chinch bug commits great ravages. He feeds the birds in winter.

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DEUTZIA.

There are several varieties of *Deutzias* under cultivation in California, but they are not as popular as their merits warrant, and we do not know any hardy deciduous flowering shrubs more deserving of extensive nurture than the *Deutzias*. There are, doubtless, other flowering shrubs which are clothed with more elegant foliage, and others again which bear more brilliant flowers; but when we see a *Deutzia gracilis* or *Deutzia scabra*, covered with its thousands of little bells of pure white, in early spring, we always find words of admiration and praise. These flowers adorn the little bushes for some time and are particularly well adapted for bouquets and cut-flowers, for which purpose florists cultivate them extensively in the East and in Europe.

We can also recommend the *Deutzias* highly as house-plants, their management being very easy. They prefer a light, sandy soil, and may, after flowering, be kept anywhere out in the open air until December or January, when they should be removed to the greenhouse or parlor window for forcing. During their time of rest only enough water should be given to keep them in healthy condition, but immediately before and during their time of flowering, they should be watered regularly every two days, and aired whenever the weather will permit it.

The object of cultivating them in pots and under the cover of glass, is to bring them earlier into bloom, when other flowers are scarce.

The most popular varieties are natives of China and Japan, but within the last two or three years other new and superior ones have been produced by the art of floriculture. Of the old and well known varieties, the following are the best:

Deutzia gracilis (slender branched), native of China and Japan; flowers freely, and is exceedingly well adapted for pot culture.

Deutzia scabra, native of Japan, is of a more robust growth and spreading habit than the former, growing from four to six feet high; its flowers are similar to those of the *Philadelphus*, but smaller, and it comes into bloom later. For forcing, we cannot recommend this variety so well as the former, but for open air cultivation it is more showy.

Deutzia crenata, is in habit similar to the *D. gracilis*, only more robust.

The art of floriculture, however, has of late added two remarkable varieties; these we have not yet seen under cultivation here, but they are highly spoken of by our Eastern friends, and, we have no doubt, will soon find their way into our nurseries and floral establishments. They are—

Deutzia crenata flore pleno (double flowering *Deutzia*). It is described as similar in habit

to the *D. crenata*, but the flowers are a double white, tinged with rose, and are said to be of large size.

Deutzia gracilis variegata, is a new variety of the *D. gracilis*, with variegated foliage, of which we know but little as to its floral value, and take for granted that, as far as its variegated foliage is concerned, it will fail to become popular.

As for the treatment of Deutzias in the open ground, we advise great care in pruning, their habit requiring that the knife should not be used except for cutting away superfluous wood and suckers; to give the plant shape, it is better to pinch off the young shoots, while in a growing state.

They may be propagated without difficulty by cuttings, layers or division of the root.

Certain florists of Germany have been very successful in grafting the Deutzias (particularly *D. gracilis*) upon the Philadelphus, by which method they have produced fine specimens of tree-like appearance, the effect of which is very striking and remarkable.

In forcing Deutzias or treating them as house plants, the temperature should not be any higher than that required for roses, and a moist atmosphere is not very acceptable; we mention this fact as a good reason why its cultivation as a house plant is so easy.

PRESERVING GRASSES.

BY ANNA G. HALE.

“Grass-flowers should be plucked—the longer the stems the better—before their spikelets are fully spread. Care must be taken in gathering, and afterward, that the finer blossoms do not get entangled with the coarser. Dry them like everlasting.

The seeds of the cultivated grasses—a large number of species and varieties—are for sale at the flower stores. The wild grasses here mentioned, and many others which the limits of this article forbid noticing, can be found almost anywhere.

No matter if unacquainted with its botanical name, wherever a tuft of grass lifts a stalk of inflorescence accept its offering of beauty. June, July and August are grass months.

If grasses are green in color when gathered, or purple, or red—as some are—they soon fade to a pale buff. But even then they are agreeable to many eyes; especially if the rich browns of the sedges add their contrasts, and the orange and scarlet seed vessels of *Celastrus scandens*—the climbing bitter-sweet, the coral-like berries of *Ilex verticillata*—the black alder, the dark blue berries of *Ampelopsis quinquefolia*—the woodbine or Virginia creeper, or even the shining black ink-berries and the red hips of the wild roses are mingled tastefully with them, while bright autumn leaves—sumach, maple, oak, elm, beech—lending their presence, make up a gorgeous assemblage.

Yet some persons prefer to dye them, and they are often seen of all the colors of the rainbow. They will absorb any liquid dye, the dye being heated to scalding. If large quantities of any one shade are desired, the family dyes now obtainable at drug stores are most suitable. In using these for grasses, proceed as if dyeing cotton goods, following the directions for so doing which accompany the dyes; except that in dyeing grasses the stalks should be suspended head downward within a deep jar or pitcher, and the dye poured over them. Tied to cords which are stretched across the brim, they will be in good position to receive the dye without injury to their form. When the right shade has been attained—easily seen, if the vessel be of glass—the cords, still bearing the newly dyed grasses, must be hung across a dark closed room, till the blossoms are all dry; then they are ready to be arranged in vases, or bouquets, or to be used in decorating the hair.

* When a few grasses only are to be dyed, sufficient coloring may frequently be made of some familiar substance to stain them handsomely. Thus, good blues are made by

the use of the azurine or liquid blue,—(all dyes for grasses are needed hot)—which is green by the addition of a few drops of the muriate of iron-tincture; the iron alone giving to the scalding water different shades of yellow, which are permanent; and soda added to this making it orange, or brown, according to the quantity used. A very little—a few drachms—of cochineal, tied in a bit of muslin, and steeped in water a few minutes, gives different shades of rose and red according to the amount of water used, which are quickly changed to purple, if desired, by dipping in the blue. Thus one may have a gaily-colored assortment with little trouble.

Dried grasses, especially those of waving or drooping habit, can be very handsomely disposed in baskets; in hanging baskets particularly, with dried eternal flowers and crystallized grasses, we have a decoration dazzlingly beautiful,—either in sun or gas-light,—for an arched doorway or an alcoved window. Crystallization enhances the beauty of dried grasses as well as that of the natural-hued; but dyed grasses should be used alone for decorations, or with only a few of the undyed. It is poor taste to mix eternal flowers, bright winter berries, or autumn leaves with dyed grasses, as is sometimes done. Baskets of light wickerwork, lined with silver paper, and filled with dry sand, are suitable for crystallized grasses. A hanging basket covered with a net-work of white glass beads or bugles, and suspended by slender chains of the same, is very elegant for this purpose; or the basket itself may be crystallized as well as the grasses.

The lighter and feathery species of grass are the prettiest crystallized. When the grass is to be used for ornamenting the hair, or for arranging with eternal flowers, the spikelets should be crystallized singly. A bouquet of grasses entirely is best made up before crystallization, as the crystals are liable to be shaken off if the grass is handled much. The crystallizing liquid is a

solution of alum. One pound of alum will make sufficient liquid for a large bouquet.

When you wish to crystallize grasses begin the work in the morning, because it will take two days and a night, at least, to complete it. Use a perfectly clean porcelain-lined kettle or pan, and put in this the alum, that has been pounded fine as dust. Add to it a quart of cold water—rain or spring water is best. Set it on the back of the stove or range, and keep it there till it is scalding hot, stirring it till the alum is dissolved. When it is hot pour it through a clean muslin stretched over a bowl, in order to strain out all impurities;—the beauty of the crystals depends upon their clearness, hence all this care to have the solution perfectly clean. Let it cool till you can hold your finger in it comfortably. Then, get a deep jar or pitcher—glass is best; you can then see that the grasses are not bent nor crowded—which would mar their beauty. Within this suspend the bouquet, by tying it to a stick laid across the jar's brim, and from a small-nosed pitcher pour the solution over it, slowly, till the liquid rises to the stems of the bouquet. Let it remain thus, submerged, till the next morning, in a cool room. Take it out carefully then, and hang it half an hour, head downward in an empty jar (by means of the stick across the top of the jar) to drip. It is then ready to place in the vase which it is to occupy. Set it in the sun and air—*not in the wind*—till night, and at that time remove the vase to its niche in the parlor.

When grasses are crystallized singly, suspend the larger panaced stalks as you would a bouquet, and manage them in the same manner. The lighter kinds, and the feathery sorts, may be placed head downward within the edge of a deep bowl, spreading as thinly as possible, and a few can be suspended in the center, by means of a short string and the stick across. When they have been in the solution (it was poured over them, of course, as for a bouquet) a day and a night, stretch the string in front of a window, and

lay the others on a dish to dry. If, after drying, the crystals are not large enough, heat the solution and go through the process again. The solution may be colored, by adding a few drops of dye, when it is cool enough to pour over the grasses. What remains after crystallizing the grasses may be again heated, half a pound more of alum added, and a crystal basket made.

To make a crystal basket, procure slender canes or whalebones, such as are used in the manufacture of shirred bonnets. Form, from these two rings, by tying securely together the ends of a strip fifteen inches long and of one thirty three inches long. Then tie seven strips, twenty inches long, at equal distances, to the small ring; then, also, at the height of six inches, to the larger ring, at equal distances; and, bending them, to form a scallop two inches high, tie them again to the rim; and, latticing the strips, between the rim and the base, tie the other end to the base. Wind all the fastenings strongly, and cross four strips within the base-ring to fill the vacancy, and the basket is formed. Strips of coarse cotton cloth, two thirds of an inch wide, must then be ravelled on both their edges till only threads enough remain in the center to prevent falling apart at handling. Wind these strips over the canes that compose the basket-frame, covering all parts carefully, till the whole seems hung with a fringe. Set it in a deep dish, pour the warm—not hot—solution of alum over it; cover the dish, and let it remain thus twenty four hours. Then take the basket out carefully; place it in an empty dish to dry in an airy, sunny room. Do not move it till the next day. This, too, should be covered again with the solution, if not thickly hung with crystals. If properly managed, the threads of the fringed cloth will be bristling in every direction and tipped with resplendent jewels. A white silk cord should be attached to hang it by, or handles made of canes covered with the fringed cotton and then crystallized like the basket. It will need a lining of silvered

paper, and should be filled with dry sand to receive the stems of the grasses and eternal flowers; some of them being first made into small bunches for the centre of the group.

A very elegant pyramid bouquet may be arranged for a vase by making up a number of small bunches of crystallized grasses with everlasting and other dried flowers as centers of each; these groups of flowers should then be adjusted around a stick by means of a slender cord, to the required form, binding in with them a sufficiency of moss to separate the different colored blossoms from each other. The crystals have a very fine effect among the green moss and bright flowers. But a China vase is less suitable to hold such a bouquet than a rustic one would be. One made to resemble an old forked branch of a tree may be easily fabricated from birch bark—lichens and grey-beard moss gummed upon it at intervals, and also the red-cup moss. If this last cannot be procured, touch the lichens here and there with hot sealing-wax. The grasses and eternal flowers should be arranged in spreading form; the drooping grasses are very beautiful for this. Suspend the branch from the ceiling, in the corner of a room. A vase made in the form of a cornucopia and covered entirely with lichens and mosses and filled with grasses, is a very handsome ornament for the mantel or a corner bracket. A very large cornucopia filled with pampas-grass, crystallized, would be a magnificent figure for a niche in a hall or a reception room.

The dried flowers of the garden and the conservatory are often grouped with dried everlastings and some of the smaller grasses, the crystals of the grasses gleaming like dew-drops among them. A basket of dark-colored wicker-work brings out their colors in strong relief.

A very pretty basket, in imitation of coral, may be made by fabricating a frame of this form from canes and tying upon it with stout thread in a careless lattice-work, the stems of

bunch raisins—probably grape stems would answer. Two ounces of white wax should be melted and half its measure, when liquid, added of olive oil or lard. Simmer these together, then stir in an ounce of vermilion, bought at the paint shop; and when the mixture has cooled to the consistence of mucilage, drop it with a camel's hair pencil upon and over the stems till all is a brilliant scarlet. Care must be taken not to break the small stems (from which the raisins have been plucked), as these, when tastefully covered with the vermilioned wax, have the appearance of thickly branching coral. This is a beautiful basket for displaying crystallized grasses of natural hue.—*N. Y. Horticulturist.*

THE "MAJETIN," vs. APPLE BLIGHT.

(Continued from page 102 of last number.)

The following is the Analytical Chemist's "Report on the Wood of the Majetin and the Crab":—

"GOVERNMENT ANALYTICAL LABORATORY, }
MELBOURNE, 29th May, 1871. }

Dear Sir: I have made an examination of the young apple trees sent by yourself; the one being a Crab apple, and much infested with a species of white woolly blight; the second one, the Majetin, being quite free from blight. Both were digested in water, and the infusion concentrated by evaporation. The total amount of extractive matter was as follows:—From 2½ oz. weight of dried plants each—No. 1, Crab, 86·7 grains; No. 2, Majetin, 108· grains. The Majetin was more astringent to the palate than the Crab, but was otherwise very similar. The residues left, after exhaustion with water, were then ignited in order to ascertain the nature of the ash left. Weight of ash—Crab, 33·3 grains; Majetin, 33· grains. The total amount of ash was, therefore, nearly the same. Upon being analyzed, the following results were obtained:—

	Crab	Majetin
Carbonate of lime,	7·5	16·3
Alumina and iron, soluble in weak hydrochloric acid,	6·1	4·0
Siliceous and clayey matters insoluble in acid,	16·6	9·6
Other earthy matters and loss,	3·1	3·1
	33·3	33·0

These results show that the Majetin apple tree, which is free from blight, is a much larger consumer of LIME, and it is most probably to the presence of this substance that such immunity from blight is due. The Crab, on the contrary, seems to have absorbed a much greater quantity of clayey matters, which have not been able to protect it from the attack of these insects. The total amount of ashes in each was remarkably close.

WM. JOHNSON, *Gov't Analyst.*
To W. H. TREEN, *F. R. H. S.*, Brighton."

From the above analysis it will be seen, that the ash of the Majetin contains very nearly 50 per cent. of lime in its constituent parts, while the Crab exhibits not quite 23 per cent. of lime, the difference being very great in two plants otherwise so similar. The scientific analysis of the wood of both the Crab and the Majetin, finally and satisfactorily places the value of the Majetin beyond all doubt. In fact, this proves it to be of national value as a stock upon which the apple should in future be worked. But as a consequence concerning this matter, there have been a few (although, I am happy to say, very few) envious detractors with regard to the Majetin being really an "*Aphis lanigera* resister." It was wisely remarked by a writer in the *Australasian* of May 27th, 1871, in speaking of Prof. Halford's beneficent discovery and the disingenuous attempts which had been made to rob him, as follows: "One of the evil consequences of that spirit of provincialism which afflicts colonial communities is perceptible in the jealous disparagement of remarkable merit or ability which occasionally exhibits itself amongst us." So that notwithstanding the few would-be de-

tractors relative to this Majetin matter, it is very satisfactory to find that the majority of horticulturists, cultivators, market gardeners and others, had, even previous to the conclusive proof of the analysis, been open to conviction concerning the great value of this discovery; and although the pleasure I experience is not mixed with any particular profit as far as I myself am concerned, yet in one sense I gain a prize in the high gratification I reap daily on meeting with any of the genuine and progressive horticulturists of Victoria, by having the satisfaction of knowing that I am coöperating with them, though in a small degree, in the widening and improving by these means cultivation in this colony.

With regard to the best quality of soil, and one least likely to encourage blight, in which to plant the various varieties of the apple, a great difference of opinion has always prevailed. Some prefer a very poor, and others a very rich soil. In a rich loam, or one that has been highly manured, the growth of young apple trees in this colony is exceedingly rapid, and their appearance during the first few years generally indicates the utmost health and vigor. These are not, however, always good signs as to their future well-being, as an inspection of their roots frequently proves. On the other hand, plants in very poor soil often become stunted, and then quickly become subject to blight, and do not readily acquire a vigorous and fruitful habit. Where it can be obtained in this colony, choose for the cultivation and perfecting of the apple a site without too much shelter nor yet too much exposure, and a loam of only moderate strength, of a limy nature, with considerable depth, in preference to all other soils.

The result of the analysis clearly shows the great importance of a "limey soil" for the thorough cultivation of the apple; and when such a soil cannot be obtained, it is more than ever evident that the addition of lime to all those soils containing very little should receive the cultivator's immediate and energetic attention.

TENDER VINES.

[Continued from page 102 of last number.]

We shall now speak of the well-known Jasmine, which furnishes most delicious flowers for bouquets, and well deserves most extensive cultivation. We will remark here, that the name of *Jasmine* is applied to plants which we cannot consider under the head of this article; some of our European friends even apply it to the varieties of *Philadelphus* (Bastard Jasmine), which is a hardy shrub, extensively cultivated in Europe. However, we shall soon give our readers an article on all plants which, whether properly or improperly, are called Jasmynes, while at this time we must confine ourselves to those varieties which are cultivated as greenhouse plants and have a climbing habit.

Jasminum grandiflorum (Spanish Jasmine), sometimes called *Jasminum Catalonica*. (We should say here, that we fail to see any difference between *J. grandiflorum* and *J. Catalonica*, notwithstanding the opinion of some that there is a difference, and we think that the name of *J. Catalonica* might be dropped entirely.) The *J. grandiflorum* has become the most popular of the family, which is due principally to the fact that it is a very abundant bloomer and vigorous grower. It is well adapted for window-culture and comparatively easily managed.

Plants as yet command a high price, and this again is due to the difficulty of propagating them. Although we have frequently met with success in rooting cuttings, this operation seems not very satisfactory to our nurserymen, who now graft upon the stock of the *Jasminum officinale* and produce within six months very good and strong plants. The operation is not difficult, but there is generally a scarcity of stocks of the latter, suitable for grafting. We do not advise to abandon the method of propagation by cuttings, and think that in a well-shaded place, close under glass and with moderate bottom heat, cuttings of well ripened wood will strike roots readily. We should also judge,

that it would be advantageous to water the cuttings well after planting, so that early and frequent watering may be dispensed with as much as possible.

The flowers of the *Jasminum grandiflorum* are white with a purple tint on the outside, and a fine bouquet is hardly complete without some of its flowers, which find always a good market.

Jasmines require a nourishing soil, and a mixture of equal parts of leaf mould and peat or some other porous soil, suits them best.

There are a few specimens on this coast growing well in the open air, and we have had frequently occasion to admire one on Sutter Street, in the garden of Mr. Caduc, which thrives well and produces an abundance of flowers throughout the entire year. However, they flower more abundantly under glass, and the flowers have a purer and more delicate appearance.

Jasminum Sambac (Arabian Jasmine), like the former, a native of the East Indies, has been, we believe, under cultivation longer than *grandiflorum*, but has been less popular, until some double flowering varieties have been produced; one of the best is *Duchesse d'Orleans*, producing most beautiful and large double flowers, and which should be in every greenhouse or conservatory. Propagation the same as the previous variety.

Jasminum revolutum (Yellow Jasmine), is a native of China, and is treated sometimes as a greenhouse plant, but it is perfectly hardy with us, and should be treated as such. It propagates easily from cuttings; the flowers are of a beautiful delicate yellow and slightly fragrant. As an evergreen climber, it has few superiors.

There are other varieties under cultivation, but they are rarely met with, such as *J. gracile*, *J. odoratissimum*, *J. Lindleyana*, etc.

It is said that Jasmines are difficult to transplant—we do not think so; all that is necessary is, to cut back well, remove some of the old roots, and do not plant too deep. It must be borne in mind that the roots of

the Jasmine do not run deep, but draw their nourishment from the surface soil. The best time for transplanting is early spring.

Thunbergia is the name given to a greenhouse vine, which, we suppose, is not very familiar to our readers; but we should like to see the most prominent varieties more extensively cultivated. It is true that they require a warm and moist atmosphere, which is not easily obtained in California, yet they may be expected to do very well in the atmosphere which we give Camellias or flowering Begonias. We saw a very good little specimen the other day in Woodward's Gardens, flowering spontaneously. The flowers are of a somewhat delicate structure and very distinct—properties which should encourage the amateur.

Thunbergia alata is one of the oldest and best; flowers golden yellow, shaded with dark brown towards the center.

A new variety of this was produced in Germany some time since—the *Alata fl. albo*, with pure white flowers, dark violet shade towards the center.

Thunbergia grandiflora is a beautiful species, native of the East Indies; flowers large and of a pale blue color.

The *Thunbergias* are readily propagated from cuttings, if planted close under glass in a close, warm and moist atmosphere. They may also be raised from seed. A light, porous soil is best suited for their cultivation.

Bignonias (or *Tecomas*) are treated here and there as greenhouse plants on this coast, but they seem to grow entirely too rank under glass. The plants thrive well in the open air and may be cultivated there, but should be protected from heavy winds, otherwise they will not flower very freely.

The *Bignonia* is not a florist's flower, that is to say, the flowers wither very quickly after being cut off; however, they are very ornamental, and their light colors form an effective contrast with the dark green foliage of the plant. At present they are not cultivated to any extent, as the demand for them seems to be very limited.

ON THE PROPAGATION OF AUSTRALIAN EVERGREEN TREES AND SHRUBS.

[Continued from page 26, No. 1, Vol. II.]

Editors California Horticulturist :

GENTLEMEN—In the first number of the present volume of your highly-appreciated Journal, I addressed you on the mode and advantages of propagating Australian evergreen trees and shrubs by cuttings. With your permission, I will again take up the subject.

I will now state why I prefer cuttings to seedlings. It is well known to every practical gardener that cuttings taken from flowering evergreen trees and plants, and rooted, will produce flowers the first year, provided that those plants have been flowering or have shown signs of being about to flower; whereas, it will take seedlings of these classes of plants from two to eight years, and even more, before they will bear flowers. *Calistemon*, for instance, raised from seeds, will take many years before they will bloom, as also *Melaleucas*, *Corynocarpus*, very many of the best varieties of *Acacias*, *Banksias*, *Podalyrias*, *Ericas*, and a great many others indigenous to Australia. The *Hakeas* are a beautiful class of plants, but the seedlings will not produce flowers before they are from four to eight years old, whereas cuttings will bloom the first year. It is difficult to grow this tribe by this process, but by perseverance and marked attention I have succeeded in striking the *Hakea* from cuttings.

Acacia linearis, which is one of the best, will strike freely, if properly attended to. This *Acacia* is of graceful habit, and bears beautiful racemes of bright, yellow flowers; it should be cultivated and planted far more extensively in California; when grown from cuttings it will bloom the first year, but seedlings will sport more or less, and will not flower before five or six years old.

Acacia rubra, another beautiful variety, having reddish wood and narrow, leathery, dark-green foliage; is hardy even in locali-

ties where severe frosts prevail, is of dense growth, good habitus, and well adapted for lawns and grass plots, and will stand our severe winds well; will also grow from cuttings freely.

Acacia armata, will make a beautiful tree, if grown properly, and will be an ornament to any garden; the only method to keep this *Acacia* true is to raise it from cuttings. I have seen it in some of our nurseries grown from seeds, where it lost its original character and peculiar beauty.

Acacia conspicua, is a very old but favorite variety. I have seen some very beautiful specimens grown to perfection in our gardens. It is a fine variety, will recommend itself, and should have a place in every garden; it should be grown from cuttings, as when raised from seed it will not keep its original habit.

Acacia pulchella spinosa, is a beautiful evergreen, of dwarfish habit; it is easily raised from cuttings; with proper attention it will produce a most striking effect. This *Acacia*, when planted out in the ground, will, by very little training, form into umbrella shape; the flowers are of a clear, golden yellow, and with these it is literally covered throughout the spring.

Acacia verticillata, is also an old but favorite variety; it is of graceful habit, and will grow from fifteen to twenty feet in height; it is a very desirable variety, and will strike freely from cuttings.

Acacia grandis, is a fine variety for pot-culture, naturally forming a beautiful pyramid; it is of rapid growth, and very delicate foliage.

Acacia imbricata, is of dwarfish habit, the foliage resembling *Taxus baccata*, but more delicate and smaller.

Acacia melanoxylon, is one of our best trees of this class in cultivation; it is perfectly hardy, and will attain a very large size; it is of good habit, and will make a very respectable shade-tree.

Acacia decipiens is a beautiful variety, and should not fail in any collection.

Acacia floribunda, is a fine tree, resembling in habit *A. linearis*, but the foliage is larger. There are very few of this kind to be found in our nurseries; it seems to have degenerated by being raised from seeds; to keep it true it should be grown from cuttings, by which means all the above-named Acacias may be grown freely; but seed being so easily obtained here, very few will take the trouble to propagate by any other means. I, for my part, think the little extra labor well repaid by the advantage of seeing the little plants so raised, in bloom the first year; this alone is worthy of consideration. There are very many other Acacias, which I have not mentioned, which are as easy of propagation by cuttings as the above, but I will leave them, as I wish to furnish a few hints on the growth of *Heaths* or *Ericas*.

Erica, Order, *Octandria*, *Monogynia*. The *Ericas* also can be successfully grown from cuttings, but require to be kept close under bell-glasses until they have rooted. If bell-glasses are not to be had, a flower-pot or box may be taken and filled with sand, which must be pressed firmly and smoothed down, leaving room enough in the pot or box for the cuttings, so that they may be covered with a pane of glass. The cuttings should never be taken any longer than an inch, and half-ripe wood is preferable. Cut the leaves from the part you put into the sand with a sharp knife, then plant them with a small, pointed stick, watering them with a very fine rose or sprinkler, so that they may not be washed out of the sand. Keep them closely covered with glass, which, however, should be wiped every morning; in about three months the little plants will be sufficiently rooted to be planted into two-inch pots. They require leaf-mould, and no animal matter should be mixed through it. Keep the little plants in a close frame, under glass, and well shaded until they begin to grow, then air them daily; by following this rule it will be easy, in a short time, to raise a large stock of *Ericas*.

In the next number I will give a few hints on the further treatment of this very interesting tribe of plants. E. L. REIMER.

WINE MAKING IN CALIFORNIA.

Processes and Varieties.

(Continued from page 106 of last number.)

During the first few years of grape culture in California, considerable quantities of wine were made and put upon the market; and, as it did not find an immediate sale, the producers became almost disheartened. They had serious cause for fear, as the California wines had not yet been extensively introduced, and the consumption was still very limited. The wine merchants would gladly have purchased, but the limited means they possessed were already invested, the banks refused them credit, and capitalists were unwilling to invest their money in what they considered a hazardous business. Little did either the bankers or capitalists imagine to what an extent this enterprise would be carried in a few short years. Neither did they know that wine was one of the best and safest securities upon which money could be loaned; for, instead of decreasing in value, it improves, becoming more and more valuable as it grows older, and in greater proportion than the cost of care, storage and interest. But bankers and capitalists begin to understand the real value of such security, and but little difficulty is now experienced by wine-merchants in obtaining all needed accommodation.

The dealers of San Francisco, after receiving and storing the wines until they attain the age they desire them to acquire, clarify them, and then offer them to the trade. This is done either in bottles, in demijohns, or in small barrels, according to the respective classes of trade they are engaged in. Very large quantities of wine are shipped to the Eastern States, *via* Cape Horn and the Isthmus of Panama. A great deal is also sent overland, by railroad, to the Territories, and the States in the Mississippi Valley. The business with these latter has increased in the most encour-

aging manner, ever since the railroad began to carry freight.

The reputation of California wines in the Eastern States is at this moment undergoing one of the severest trials that can be put upon the product of any country: that of palming off upon the confiding public, spurious, inferior, and barefaced imitations of the same, which never saw the soil of our State, nor resemble our wines in any particular. This unscrupulous traffic is carried on openly throughout the Eastern States, and millions of gallons of these compounds over and above the actual product of this State are probably sold. It is of the greatest importance to our wine-makers to ascertain by what means this evil can be stopped, or at least mitigated, else it will soon become difficult to retain the fair reputation we have already gained. This imposition can only be practiced upon those who are not accustomed to our wines; and it is so unskilfully manufactured that it is a matter of surprise how any wine-drinker can be deceived by it. The basis is generally cider, while the other ingredients are alum, cream-tartar, sulphuric acid, catechu, sugar, water, alcohol and logwood, and the resulting liquid is flavored and called wine. It is labeled German Hock, Château-Yquem, or California White Wine, according to that which is most in vogue at the time of manufacture.

Another circumstance, much to be regretted, is the universal custom of Eastern houses who deal in California wines, to purchase the cheapest, not the best of our wines; and these are, of course, offered to their customers as having been selected by themselves from the finest products of our State. It seems as if these houses aim more at the extent of their immediate sales than the foundation of a future reputation—striving to outdo each other in the decreased prices, and not in the superiority of the wines offered; every year sending out their agents, who purchase the lowest-priced wine that can be found. It will be necessary for some of our own houses of known reputation, in pure self-defense, to

establish depots of their own in the principal cities of the East. This is constantly urged by Eastern men of influence, who are all loud in their praise of the wines they find here, but equally loud in their denunciations of those which are sold as California wines throughout the Atlantic States.

It was once thought that New York would be the future central distributing point of all our wines, but the potent influence of the railroad has already made itself felt, and it now becomes more and more evident that San Francisco is destined to occupy that important position. The orders which formerly were filled in New York, are now being filled in San Francisco; and this extends not only to the States of the Mississippi Valley, but even to those bordering on the Atlantic. These direct orders would be more frequent and to a larger extent, if our rates of interest were lower and a more extended credit were given, as is customary with Eastern Houses. The difference in currency also acts as a drawback. But even in the face of these inequalities, the change is being rapidly effected.

The value of our wine from any particular district, or from the whole State, has not yet been definitely determined, and we are therefore without a positive wine market. The preferences of the consumers can alone establish true values, and these will be ascertained by time and experience. The vineyards which rank as the very best, one year, may have to recede from that position the next season, and give the palm to a new vineyard, which is bearing for the first time, or whose superiority remains unknown till the comparison has been made.

Our wines are generally considered cheap, as some of them should be, and not as high-priced as a few will surely become. It is of the greatest importance that we have wines that can be used instead of tea or coffee, and at a reduced price they can take the places of both these articles. That wine is healthier and contains more nourishment than either, is a fact upheld by the most reliable chemists

and physicians. Growers should not receive less than their present profits; and hence we suggest the necessity of planting varieties which, at the same cost in cultivation, will produce more to the acre; that they secure casks at a less cost, money at lower rates of interest, cheaper labor, and more perfect machinery. The wine-merchant must also practice economy—secure low interest and increase the amount of his sales, so that his profits on each gallon shall be less, but in the aggregate more. It is by such united efforts that wine can be sold cheaper to the consumer; and when this has been accomplished, this industry will attain that firm and important position that it is destined to occupy in our commerce. The higher prices for certain wines will be established by known preferences, and limited by the ability to supply the demand. Heretofore our wines have reached the consumer under the too general and too sweeping denomination of "California Wine." This, however, is now fast being done away with, and each district is being recognized as producing certain characteristics of its own, and receiving such reputation as its merit entitles it to. Thus, we have Sonoma, Anaheim, Los Angeles, Napa, and El Dorado Wines, each bearing its peculiar characteristics, and purchased on that account. Gradually the classification will advance, and the distinction made be greater among the vineyards in each district. Even now this distinction is made by several of the prominent wine-houses in San Francisco, who are willing to pay an increased percentage for wines from certain vineyards in the same district.

We are now enabled to point out with great precision the character of wine which our best-known districts are capable of producing, and there are probably but few wines made in any part of the globe whose general characteristics cannot be reproduced very closely, in some portion of our State. For instance, Sonoma is best adapted to produce white wines, resembling those of Germany; the upper part of Napa Valley and certain

portions of Santa Clara County will make excellent clarets; the Sacramento Valley, near the foot of the inclosing hills, is destined to produce our future sweet muscats: El Dorado County is best adapted to the production of a wine resembling the far-famed Burgundy; Solano County produces a wine which is a natural port; San Joaquin and Stanislaus Counties give wines which closely resemble, both in flavor and taste, the best Madeira, but they have to attain an age of from five to six years before this taste is sufficiently developed; Anaheim and certain portions of Los Angeles County produce light white wines, which very closely resemble those of Chablis, in France, and they, too, must be some four years old before this peculiarity shows itself distinctly, and the last two years should be in bottle. Many other districts will, in time, manifest their characteristics and be classified.

HOUSE PLANTS.

We have heard many complaints of unsuccessful attempts to cultivate plants in the house, but in almost every case this could be traced to causes which might easily have been removed with a very little attention on the part of the amateurs. Taste for Window Gardening is steadily on the increase, and to the lovers of flowers, who have not the space for gardens, the successful growth of flowering and foliage plants in the window must certainly be both gratifying and acceptable.

The most essential requisites for flowering plants are light, air, and warmth, and to these agents we must add moisture, drainage, and cleanliness. Light, plants *must* have, yet there are some, such as ferns, which thrive best under partial shade. Light from above is to be preferred, but when this cannot be had, from the front or the sides must suffice. When plants receive their light from the side or front, they will naturally grow in that direction, and it will become necessary to turn them from time to time, in order to

keep them in a good and symmetrical shape. Plants must also necessarily have fresh air, which should be given whenever the weather is warm and pleasant. The atmosphere pervading the rooms of our residences is known to be dry; and some plants thrive well in such atmosphere, while others must have a moist one; it is, therefore, necessary to select plants for house culture which are known to be satisfied with a dry medium. The most dangerous things for plants are the gases evolved by the combustion of gas and coal, and wherever these articles of light and fuel are used, it is impossible to have plants growing in a healthy condition. Where this cannot be avoided, we should advise to partition off the window by a glass frame, and then provide, in some way, for ventilation. In an enclosure of this kind many varieties of the most desirable flowering and foliage plants may be very successfully grown in the house.

But there are other points which must be attended to. The plants should be kept clean from dust and insects; frequent syringing and occasional sponging of the foliage will have the desired effect. If, nevertheless, the common plant lice are encroaching, we would recommend tobacco smoke, which will stupefy the insects so that they drop on the ground, where they may be scraped together and burned (the safest way to destroy them).

The watering of plants should also be done with some care. In the first place, the water should not be very cold, in fact warm water is highly beneficial; and it should not be given, unless there is a necessity for it; whenever you water, do it thoroughly; frequent watering does not work well. During winter, water should be used sparingly; in summer and while plants are developing their new growth and their flowers, the supply should be liberal, yet you should never keep your plants wet. In regard to the time of watering, we would say, give it when the plant requires it, but as a general rule we would suggest the earlier part of the forenoon.

If you can give your plants the morning sun, it is desirable to do so; and if it shines

very warm the plants may be slightly shaded by a very thin curtain or blind, or the glass may be slightly frosted or painted, so as to break the direct rays of the sun.

As for proper soil, it is difficult to obtain exactly what is wanted, but a mixture of sandy loam, with one third old rotten cow manure will do very well for most house plants. As it is necessary to add strength to the soil, and, at the same time, preserve neatness, this may be effected by the occasional application of manure in a liquid form. Of this we will speak some other time.

We will now give a list of such plants as are well adapted for house culture with us. There may be others which can be grown satisfactorily, but for general use we consider the following the best:

Zonale Geraniums (both single and double), Cactus, Camellia Japonica, Ferns, Heliotrope, Ivy, Hoya (Waxplant), Saxifraga, Azalea, Auricula, Begonia, Cuphea, Diosma, Lobelia, Lantana, Myrtle, Oleander, Chinese Primrose, (*Primula sinensis*), Aphelandra, Bouvardia, Caladiums, Hibiscus, Salvia, Poinsettia, Orange, Gesneria, Gloxinia, Euphorbia, Daphne, Cyclamen, Cinerarias, Calceolaria, Clerodendron, Chorizema, Stephanotis (climber), Myssiphillum (climbing or trailing), Coleus, Palms, etc.

At some other time we shall name the best varieties of each of the above-named plants, as regards an abundance of flowers and desirable foliage.

A CORRESPONDENT inquires if there is any mode to cure hens of the habit of eating their eggs? Yes. Remove the eggs as soon as possible after the hen has laid them. If the habit is of old standing, catch the hen, and fasten her up without food for some hours. Then boil an egg hard, remove a portion of the shell, and offer it to her. The result will be a burned throat and a future repugnance to eggs. If fowls are supplied with plenty of bone dust and old mortar to peck at, they will not eat their eggs.

TROUT FISHING.

Of all the pleasant pastimes that exist, not one, I think, is more conducive to enjoyment, not one more engrossing, and certainly not one more harmless than trout fishing. Then again, in no sport is one so entirely independent, nor less burdened with incumbrances. How truly enjoyable is the feeling experienced when starting out on some spring morning, with a gentle southwest breeze blowing, and the sun peeping out, now and again, from a cloudy sky; with no other incumbrance than a light, single-handed rod, cased up with the handle of the landing-net, fly-book, net, and creel. How confidently, how energetically does *Piscator* trudge along over many a mile, if need be, to reach the field of his enterprise—the gentle, rippling stream, or the rushing torrent, among whose rocks lurk his prey, and where his hopes are centered! But the purpose of this article is not to go minutely into every detail of the *modus operandi*, as this has already been treated of in the last two numbers of this Magazine. My purpose is rather to make a few general remarks on the subject, descriptive of certain incidents, which, in my fly-fishing experience, have occurred. My adventures, then, among these beautiful fish have been in the west and southwest parts of the “Emerald Isle,” and latterly in Sonoma and Lake counties of California. First, with regard to Ireland: The country around the west and southwest is, as is well known, mountainous throughout, and abounds in lakes, rivers, and streams, well stocked with trout, as though Nature, in her wisdom, had formed them expressly for the angler’s use. In June, 1869, in company with my brother, I proceeded on a fishing expedition from England to Ireland, commencing our operations first in County Kerry, in the neighborhood of the far-famed Lakes of Killarney. This beautiful group of lakes, from its notoriety, attracts great numbers of tourists, in consequence of which the waters are too

much fished to afford much sport. About thirty miles to the north of these lakes lie several smaller ones and streams, amongst which we enjoyed excellent sport. Trout can be caught in considerable numbers by fishing from the shore, but the better plan is, if possible, to procure a boat. In our case, our host of the solitary inn where we lodged, possessed a boat, which we sent before us to whichever lake we determined upon. In this way, with quick-witted Patrick to paddle us about, we were repaid for the trouble by good sport. Our total capture in seven days amounted to 559 trout, averaging from six to seven inches in length. The first day procured 192; second day, 108; third day, 57; fourth day, 67; fifth day, from some unaccountable cause, but 5; sixth day, 106; seventh day, 24: Total—559. Further north, in a lake in County Donegal, we succeeded in taking some larger trout, many weighing from three-fourths of a pound to one pound. During this expedition, we almost invariably used three flies on our casting-lines, often taking two, and, more than once, three fish at a cast. We killed many in a manner which will by many be termed unsportsman-like. When rowing rapidly from one point to another, we trailed the flies from the stern of the boat, and by this means killed many. Strange to say, during a dead calm, without a ripple on the water, or a cloud in the sky, we often enjoyed good sport. We would row into deep water, then remain stationary till we saw the smooth surface of the water disturbed by a ring, so familiar and so welcome to all fly-fishermen. Then a judicious cast over the spot where he rose; another ring, a gentle strike, and we were “in him”! While fishing one of these lakes, a singular incident occurred, which goes far to prove that even in large and deep bodies of water fish remain long in the same small space. In the morning, my brother hooked a trout, which broke away with his fly. In the evening of the same day we crossed precisely the same spot where he had hooked, and this time he landed the very fish he lost in the morn-

ing, recovering, at the same time, his lost fly. This I saw with my own eyes.

Of course, this lake fishing is a very simple operation when compared with trout fishing in the creeks of California. To this more difficult art let us now, for a few moments, turn our attention. Deeply wooded, as are almost all the creeks in this State, the difficulties in casting the fly are numerous. I have not unfrequently walked two hundred yards without finding an available opening. Many, with a very short rod and line (without a reel) are in the habit of creeping in among the densest bushes, and "dibbling," as it is termed. In such places, I maintain, if a good-sized fish is hooked, he almost invariably escapes. The branches preclude the rod from being raised, and from insufficiency of line the fish either becomes unhooked or breaks away. I follow the gentle craft exclusively for the sport it affords, preferring quality to quantity.

I have enjoyed very fair sport in Sonoma and Lake counties amongst these creeks. Certainly, no better test of a fly-fisherman's skill can be exercised than in these California streams. To insure success, not only must a man possess the ability to throw a fly with precision, but he must, in addition to the experienced wrist, possess a spirit of indomitable perseverance and the best of tempers, prepared to meet with calm resignation, the most disheartening occurrences and the most irritating disappointments. I do not pride myself on being the possessor of a model temper: often has it given way at the same time as my line, which, irretrievably fixed up in the lofty branches of an inaccessible tree, has become, amid its leaves, a heap of inextricable confusion! In most of these creeks I have met with the best success towards the cool of the day. The trout run small, averaging, perhaps, six inches in length. In a creek near Healdsburg, in Sonoma county, however, I killed some fine trout, several of which weighed half a pound each, and two of eleven ounces each. This was late in the season, when the water was very

low, leaving the fish, in many instances, confined to pools, from which they were unable to make their escape till the rainy season. In consequence, I found that in places the fish were often ravenous. In one pool or puddle, no more than four feet square, I killed three trout in quick succession, and so hungry were they that fear was apparently forgotten. While playing my largest fish in a long and narrow pool, another (evidently the companion fish) followed him to the surface, and, strange to say, sympathetically imitated his motions of distress in a most singular manner, thereby carrying out to the letter her marriage-vow, of following her better-half "in sickness and in health; for better and for worse." I landed my fish, and the very next cast hooked his wife, though I must confess the lady was too much for me, and effected her escape.

Here, if I may be allowed, I would, in conclusion, remark, that there are one or two points in your last number on "Trout Fishing" which I do not hold as conclusive. The writer maintains that the prey averages larger which rises to the fly than that which is taken in bottom fishing. In my opinion, no line can be drawn. Trout, large and small, feed alike on the surface and at the bottom. The writer further contends that, in fishing down stream "there is less noise and disturbance" and "less chance of being seen." Of the first, I will simply remark, that the risk appears the same when fishing up or down stream. From the latter I beg leave to differ. I maintain, that as fish swim against stream, or remain stationary in that position, there is, on the contrary, less chance of being seen in fishing up stream. For my part, I have but little preference, either one way or the other.

P. F. H.

SAN FRANCISCO, March, 1872.

In our experience we have noted (and for years we kept most religiously a tabulated diary of all noteworthy fish, with date, locality, weight, girth, and bait,) that our largest fish were taken with spinning tackle; while, with some exceptions, the average fish took the

fly. Bottom-fishing is a vile, grab-all process, and the artful, cat-like fisher can clean a pool from the "monarch" to the yearling fry; the only reason why in this country—where the word "unsportsman-like" is laughed at—the trout are not exterminated, is, that the really inaccessible portions of the streams serve as preserves, and that the fish-hunters exhibit themselves without stint, use very coarse tackle, and disgust many fish with the bait. With regard to fishing up or down stream, the question is one open to argument. We take either course, according to circumstances, but, other matters favoring, prefer fishing down, as it is generally easier traveling, leaving us more at liberty to attend to and enjoy our sport, and allowing us, from our superior elevation, a juster estimate of depth of water and probable haunts of fish; of course, availing ourselves of every possible screen from the vision of the fish, which we believe, from the position of the eye, more lateral than directly forward. Another advantage is, that the line, if at all slack, is immediately straightened by the current, and the fish sees only the fly; whereas, in fishing upstream, the trout are continually scared by the line, which we must unavoidably throw over them. We have, on many occasions, when "fishing up" come to some tempting-looking pool, on which we have exhausted our fancied skill in selecting and casting, and not getting even a "rise," have passed it, and looking down on it from above have discovered, to our disgust, that it was scarcely deep enough to float a minnow.—Ed.

EXTENSIVE POPPY CULTURE.—The cultivation of the Poppy in France is steadily increasing, and it now occupies about fifty thousand acres, of the value of 4,500,000 francs, yielding opium to the value of 2,000,000 francs per year. Different samples of opium raised in various parts of Europe yielded from 8 to 13 per cent. of morphine.

Two hundred years ago tea was first introduced into the British Isles.

CALIFORNIA VINE GROWERS

And Wine and Brandy Manufacturers' Association.

In answer to a call made by the Committee of the Assembly on the Wine Interests of California, many prominent viniculturists assembled in Sacramento on the first day of February last, and organized an Association in the above interest.

A constitution was adopted, which requires that each member shall pay as an initiation fee the sum of \$2 50, and an annual contribution of \$1.

The following officers were elected: B. D. Wilson, of Los Angeles, President; B. N. Bugbee, of Sacramento, and A. Schell, of Stanislaus, Vice-Presidents; J. N. Hoag, of Yolo, Secretary; and John H. Carroll, of Sacramento, Treasurer.

Various Standing Committees were appointed on the Best Varieties of Grape Vines; on the Cultivation of the Grape; on Wine and Brandy Making, etc.; and these committees were to report at future meetings.

At the meeting on the 21st day of February last, several reports were read and discussed, some of which contain much valuable information, and we hope that the interest taken in these reports will steadily increase. We have the reports upon our table, and shall make good use of them; they form a much-needed basis for future discussion.

The first report was made by Mr. J. N. Hoag, of Yolo, on the *Cultivation of the Grape and Pruning*, as under:

"LOCATION AS TO CLIMATE.

"The vine does so well in all portions of the State, when on proper soil, that your committee feel called upon to say but little on the subject of climate. From the northern to the southern extremity of the State, and from the sea coast counties almost to the summit of the Sierras, the vine is at home and flourishes well, bearing an abundance of luscious fruit. The rule of success is general, and the exceptions are local. The damp and foggy atmosphere of the immediate sea coast is to be avoided as not congenial to the grape,

and any locality where the cold winds direct from the ocean prevail to a considerable extent, must be set down as unfavorable to the success of the vineyard. With this single exception your committee can recommend the climate of California as universally favorable to the cultivation of the grape for all the purposes for which that delicious fruit is used, and would only recommend different locations for different varieties and for different uses. For instance: late-ripening grapes and rapid wood-producing vines should be planted on a southern exposure, while those that ripen early and produce but a small growth of wood, would do better when less exposed to the direct rays of the sun."

[We cannot accept the last proposition as entirely correct, although the rule may hold good with many varieties. We are of opinion that early grapes should be cultivated on this coast more for the fruit than for wine, and that the greatest importance should be attached to the earliness of the fruit, in order to command a better price in the market; by planting them in a northern exposure, this object will not be attained, as the grapes will certainly ripen later than if cultivated under a southern aspect; and, again, it is desirable that early grapes should mature their wood early, and this object would be missed, if they were placed in a northern situation. As to planting grapes of slow growth in a northern aspect, we fail to see the point. For instance, the Risling is a very slow grower, and it would never amount to much in a northern exposure. Slow-growing varieties will always retain that nature, and we do not see how they can be improved in that respect by planting them in a northern exposure.—Ed.]

“SOIL.

“In selecting soil for the vineyard, California presents an abundance of varieties, so that there is no necessity of planting the vine in soil not adapted to its growth and perfection of fruit. Avoid the stiff, impervious clay, and the loams too rich in vegetable matter, as unsuitable to give healthy vines, or

fruit of a high degree of delicate flavor and the proper quantities of saccharine matter. The earthy taste, so perceptible in some of our California wines, has its origin to a great extent, if not entirely, in the too great predominance of decayed vegetable matter in the soil on which the vine is grown. No vineyard should be planted on the rich, alluvial soil of our river bottoms, with the expectation of producing good wine, nor are the small valleys in the foothills as favorable for this purpose as the less fertile soil of the surrounding elevations. A subsoil of broken, decomposed lime or sandstone, slate or granite, with evidences of volcanic debris, is undoubtedly the best. The vast quantities of red lands of the second elevation from our river bottoms, and extending back to the foothills in all portions of the State, are well adapted to the growth of the grape for the table, for raisins and for wines and brandies, but for the light table wines a more elevated location is deemed preferable.

“PREPARATION OF THE SOIL.

“Having selected the location, the next step is to prepare the soil to receive the vine. Whether the land has been previously cultivated or not, it should be thoroughly cleaned of all roots, trees or stumps, and well plowed and subsoiled to a depth of from fourteen to eighteen inches the Spring previous to planting. Before planting, let it be well plowed again, and harrowed and cultivated until thoroughly pulverized, and then when rolled it is ready for marking off for the rows of vines. This process is done by different cultivators of experience by entirely different modes, and the great question in marking off the land and preparing the proper holes for the vines and planting them in straight rows for convenience in after-cultivation is, after all, one of economy—the performance of a mechanical operation rather than one of principle, as affecting the future growth and production of the vine. Especially so since all argue as to the necessity of care and thoroughness in the performance of every part of

the work. All agree that the vines should be planted about six to eight feet apart each way. All agree that the holes should be dug from eighteen to twenty inches deep, and should be at least that number of inches in diameter. All agree that they should be filled with well-pulverized surface soil, and that the soil taken from the bottom of the hole in digging should not be returned to the hole for the young vines to start in. All agree that but one bud of the vine or cutting planted should be left above the surface, while some maintain that in case cuttings are planted instead of rooted vines, it is better to cover the top end of the cutting slightly with soil, so as to protect it from the drying winds and hot rays of the sun, while making its first efforts at separate and independent life.

“DIFFERENT MODES OF PLANTING.

“Of the several members of your Committee, Snyder, of Sonoma, Strentzel, of Contra Costa, Bugbey, of Sacramento, and Chalmers, of El Dorado, lay off the land by any convenient methods as a small plow in squares of eight feet each way, and dig the holes at the intersections of these lines to receive the vines or cuttings. Swezy, of Yuba, and Nickerson, of Placer, on the other hand, make trenches eight feet apart, across the field one way, by running the plow back and forth, say three times, turning the furrow out, thus making the team do the greater part of the labor of digging the holes. This being done, they use a long, light pole, marked off at intervals of eight feet each, to locate the hills in the other direction, and complete the work of making the hole with the shovel. Having planted the vine and leveled up the land immediately around the same, they, with one horse and small plow, turn the dirt back and fill the trench.

“CUTTINGS AND ROOTED VINES.

“There seems to be a considerable difference of opinion and practice between the different members of your Committee as to

whether it is the better plan to plant cuttings in the vineyard where they will not again be disturbed by transplanting, or to plant them in beds, for rooting, to be lifted carefully at one year of age, and transplanted permanently in the vineyard.

“Messrs. Snyder, Bugbey and Swezy practice the former course, with some exceptions, while Messrs. Chalmers and Nickerson practice the latter and urge strong reasons for it. Bugbey takes the precaution to plant two cuttings in each hole to insure a growing vine, placing the bottoms in opposite sides of the hole, so as not to interfere with the roots of the one while lifting the other the following Spring, in case both grow.

“Dr. Strentzel, speaking of this particular branch of the subject, says: ‘If the growth of a cutting could always be secured, it would be preferred, as the first roots strike out regularly, the root end of the cutting heals over smoothly, and it makes a healthier and thriftier vine. But some soils are naturally too dry; some years the rainfall is scanty, in others the ground cannot be put in condition until late in the season, and under such circumstances one-year rooted cuttings carefully lifted and set, insure a better stand.’

“On the same subject Nickerson says: ‘Plant good-rooted vines by all means. Upon this depends all your future prospects. For if you plant cuttings to remain in the vineyard the results will be unfavorable, and you will always regret it. Plant cuttings and they will strike out root at the bottom that will go down to the water, if possible, and never throw out any surface feeders, which is necessary to get heat, light and air, that will produce good feed for the fruit. The natural tendency of a cutting thus planted and rooted is to make abundance of wood, but not fruit. What fruit it does produce will be inferior in bunch and berry, and destitute of saccharine matter that is necessary to make good wine. I think the reason why we have so much poor, acid wine in California, is attributable to planting cuttings instead of rooted vines. Nor is there any economy in

planting cuttings. The percentage in loss and the trouble and time in resetting, and loss of time in securing a bearing vineyard, makes this method of starting a vineyard cost more than to plant good-rooted vines at first.' This distinction is entitled to more consideration than is generally conceded to it. To insure good, well-developed grapes of good quality, and a plenty of them, we want to encourage side and surface roots, and planting rooted vines one year old, is the best way to make success certain."

[We certainly are in favor of planting one-year-old, rooted vines, for the same reasons so well advanced by Mr. Strentzel and Mr. Nickerson.—ED.]

(To be continued.)

INSECTS.

The study of Entomology is a most important aid to the pomologist and viniculturist, and although California is at present, compared with most of the other States, but little troubled with these pests, yet it is more than probable that the time will arrive when this will not be the case, as many of the injurious insects of other countries as well as of the Eastern States, will be imported in grain, seeds, and on plants etc. We have already some of them, and more than we want, especially connected with the grape vine. We should study their habits, and thus learn how best we may obviate their injuries or ravages, and then carry on against them a continual war of extermination. Books on this subject are much needed. There are some published in the East, and also one or two periodicals on this department of natural history. These might assist us here to some extent, but what we chiefly require are reports emanating from our own agriculturists and horticulturists, as the insects which trouble us most are generally those which are peculiar to our own fruits, soil, climate etc.; such reports, if suitably prepared, and in a popular style, divested as much as possible of the perplexing language of the science, would undoubtedly be of great service to the agricultural community.

E. J. H.

SAN FRANCISCO, March, 1872.

Editorial Portfolio.

We have, during the past four months, devoted much space in the HORTICULTURIST to the subject of Forest Tree Culture. We hope, however, that there are not many of our readers who have become impatient over this protracted treatment of this much needed measure; although some may think, perhaps, that other and more important matters in the field of Horticulture and particularly of Floriculture, have been crowded out on that account. But we conscientiously believe forest tree culture to be a horticultural subject, and one which should form a sound and healthy basis for, as well as a stimulant to, the better development of our horticultural and floricultural resources. We were seriously impressed with the conviction, that the importance and practicability of tree culture should be extensively argued in order to induce the members of our Legislature to view favorably the enactment of a law, which should inaugurate a proper system of tree culture in California, where the absence of timber trees is beginning to be severely felt; and we are confident that those of our readers who do not feel a direct interest in the cultivation of forest trees, will approve the course we have taken, when they learn that our efforts to advance the interests of Horticulture and Agriculture have met with considerable success.

Our Legislature has passed a law which has for its object the encouragement of forest and timber tree culture (a synopsis of which law we append to this article;) and we sincerely hope, and believe, that it will meet with the approval of our Governor, who is an earnest friend of progress and internal improvements.

The appropriations made to carry out the provisions of this law are small in amount, but enough can be done with them to demonstrate the practicability of forest culture, and fairly to inaugurate this comparatively new industry.

It is the duty and should be the object of the State Forester, in the first place, to impress upon the farmers and settlers the importance and necessity of tree culture as effecting climatic changes; protecting crops; furnishing fuel and timber for building, fencing and manufacturing purposes; forming shelter for stock; adding comfort and embellishment to rural homes, and providing for the wants and prosperity of future generations. This, properly demonstrated, will induce our people to lay aside their existing indifference in regard to tree planting.

His next work should be, to demonstrate that tree planting is practicable, and that it can be done successfully and without much expense or labor. We have no doubt in our mind that there is scarcely a locality within the State of California, where some species of trees could not be grown, but the same variety of trees will certainly not be appropriate for every tract. The State of California should be divided into districts as far as climate and soil are concerned. Trees which do well in the Coast-range and particularly those growing near the Ocean, will certainly not be appropriate to cultivate in the dry and hot valleys of the interior; and again trees indigenous to the Sierra Nevadas, say four thousand feet above the level of the sea, are not likely to thrive well in the Sacramento or San Joaquin Valleys, with the exception, perhaps, of five or six varieties, as, for instance, the *Libocedrus decurrens*, which will flourish in any portion of the State.

If the State Forester does his duty, which we hope he will, whoever he may be, we may derive from him most valuable information regarding the varieties of trees advisable to plant in the different localities. If he gathers, stores, and carefully digests all the information which will be at his command during his term of office, and intelligently compiles therefrom an annual report, it will throw more light upon the subject of Tree Planting, than we have ever before had at our disposal.

Having once succeeded in impressing our

farmers and settlers with the importance and the practicability of tree planting, and being at the same time prepared to furnish them with the necessary seeds and young trees, they will undoubtedly avail themselves of the benefits of such provision and will plant willingly and cheerfully under proper instructions, which he must also furnish them.

The benefits which will be derived, if the measure is carried out satisfactorily, cannot be over-estimated. By it we will do more to promote immigration than can be effected otherwise; by it we will certainly create a taste for beautifying the homes of the settlers and cultivators throughout the land, and it will at the same time inaugurate a system of permanent improvements.

We sincerely hope to see this measure heartily and energetically prosecuted to a successful issue.

SYNOPSIS OF AN ACT

Passed by the Legislature of California, to create the office and define the duties of the State Board of Forest Commissioners, and to encourage the culture of forest and timber trees.

SECTION 1 provides that the Governor shall appoint three Forest Commissioners, who are to appoint a State Forester, at a salary of \$175 per month.

SECTION 2 requires of the State Forester to gather, exchange, grow and import seeds and seedlings of timber and forest trees, which he shall distribute free of charge, provided that not more than one thousand seedlings shall be furnished to any one individual during one year. He is authorized to expend the sum of \$3,000 per annum for that purpose.

SECTION 3 provides that the Supervisors of every county shall form a Forest Board to assist in a proper distribution of seeds and plants.

SECTION 4 provides for the printing and distribution of proper circulars in the interest of tree culture at an expense not exceeding \$500 per annum.

SECTION 5 provides for the establishment of a nursery or nurseries for the rearing of trees and the acclimatization of foreign plants and trees, and stipulates that grown-up trees shall be furnished for the planting of public grounds, and roads belonging to the State, Counties, and Cities. The Forester is authorized to expend upon such grounds the sum of \$3000 for the first year, and \$2,000 for every subsequent year.

SECTION 6 makes it the duty of the State Forester to gather and obtain all the information and facts pertaining to Forest Tree Culture.

SECTION 7 provides that every Agricultural and Horticultural Society which receives aid in money from the State, shall be required to award special premiums amounting to 10 per cent. of the money appropriated, for the largest and best plantations of forest or timber trees planted and grown in five years after the passage of this Act.

SECTIONS 8, 9, 10 and 11 have reference to routine only.

WORK FOR APRIL.

The month of April is, as a general rule, considered the last of the rainy season on our Northern Pacific Coast, although we may expect light showers, even during the first two weeks of May. It is, we believe, well understood that newly-planted *trees and vines* should have the benefit of these late and warm rains; first, in order to settle the soil more closely around their roots, and, secondly, to supply the necessary moisture in the soil and the atmosphere, wherefrom these newly-planted trees or vines may draw their subsistence, until newly-formed roots will have established their future growth. Nevertheless, planting is delayed very frequently, not for good and sufficient reason, but from sheer neglect. It is true that the winter of 1871 to 1872 has been unusually wet, and planting has had to be delayed until fair weather prevailed, but we have observed this same error

exist when no such excuse could be reasonably advanced. Some may say that their grounds are too wet to plant during the winter season, but we hold that wherever such condition exists, the locality is not adapted for fruit-bearing trees or grape vines.

That trees and vines may be planted with good success during the month of April, we have no doubt, but we maintain that more care in planting and more effectual means of irrigating or mulching must be resorted to than is requisite where planting has been done in good season.

In planting trees and vines during the month of April the roots should be carefully examined, and all dead or damaged portions of them removed with a sharp knife. The branches and leader should be cut back well to good, strong leaf-buds. The ground should be well prepared, and if manure is used about the roots, it should be old and well-decayed, and thoroughly mixed with the soil; after planting, a good watering should be given, so as to settle the soil well around the roots, inasmuch as Nature cannot be relied upon to provide for this at this season of the year. It will also prove highly beneficial to stake the trees properly and protect them against strong winds; but this is to be recommended more particularly for the grape vines, the growing and tender shoots are very apt to be broken off by the wind; and it is also desirable to obtain an upright growth of the vine, which needs support until the stock is strong enough to support the weight of fruit and young growth. Having complied with all these requirements, nothing will conduce more to success than mulching the surface around the newly-planted trees or vines. This will retain the moisture for some time, keep the ground in a more porous condition, and at the same time will protect the roots from extreme heat during summer, and from the chilly atmosphere during Spring and Autumn.

In the *Kitchen or Vegetable Garden* the work is fast accumulating. Hardy vegetables, which have been planted in February and March, need a good hoeing and weeding, the

severe and heavy rains, succeeded by the dry winds during March having formed a hard crust upon the surface, which necessarily retards the growth of the vegetables. Peas should be provided with proper supports of stakes, wire, or bush; later varieties may now be sown, to succeed in bearing, after the first planting is exhausted; the same may be said with regard to radishes and lettuce.

All kinds of vegetables which could not be properly sown during the winter months, may now be planted at once, as—beans, cucumbers, corn, melons, peppers, etc. These are all very desirable for the kitchen, and are easily cultivated. Cabbage, cauliflower, and tomatoes may be transplanted from the frame into the open ground, when a cloudy day can be selected for that operation; if such does not occur, it will be necessary to shade the tomato plants at least, from the hot sun, and to water them well after planting. The best time for transplanting is from three o'clock in the afternoon until sundown.

The Flower Garden begins to look more cheerful; while hyacinths, tulips, and other bulbous-rooted plants have formed the principal attractions in the month of March; roses, verbenas, and pinks, with a host of others, now give brilliancy to the border, which the ever-welcome Spring only has the power to bring forth.

It is now good time to plant half-hardy and tender bulbs, such as *Dahlias*, *Tuberoses*, *Gladiolus*, *Amaryllis*, etc. Plant dahlias so as to cover the crown or top of the root, from four to six inches beneath the soil, and place stakes alongside of them while planting. The best soil for dahlias is a deep, light, sandy loam. Our common drift sands, well manured and mulched with litter or straw of some kind, produce very good flowers, as Mr. Upton has shown in his exhibition of dahlias during the Horticultural Exhibition of 1871. *Gladiolus* and *tuberoses* may be covered with soil to the depth of two to three inches, while the bulb of the *amaryllis* may be permitted to show its crown or head through the surface of the soil after planting.

Hyacinths and narcissus, in pots, which have been in bloom already, should now be placed in a partially-shady, but airy locality, where the bulbs may perfect their growth and the foliage be permitted to decay, after which they should be stored away in a cool, dry place for the next planting.

The seeds of desirable annuals and herbaceous perennials may now be safely planted in the open ground. The culture of annuals is as yet very limited on this Coast, and ought to be encouraged. Many of the varieties at present under cultivation in the East and in Europe are not known here at all, but we hope that a better taste for them will grow up from year to year. Many of the annuals flower with us from Midsummer until Christmas; in fact, we have had *Phlox Drummondii* sown in June last, in constant bloom ever since, up to this present time. The beautifully-illustrated and instructive Seed Catalogues published by some of our most eminent florists of the East and Europe deserve much credit for the manner in which they have initiated a desire for cultivating annuals. To them is more particularly due our partial success in creating a taste for these plants. We have no space to recommend and enumerate even the most desirable varieties of annuals, but the following have been cultivated here with perfect success:

Phlox Drummondii, *Delphinium* (Larkspur), *Asters*, *Nemophila*, *Cacalia*, *Centaurea*, *Candytuft*, *Sweet Peas*, *Tropæolum*, *Zinnia*, *Viscaria*, *Stocks*, *Portulacca*, *Petunia*, *Mimulus*, *Mignonette*, *Lobelia*, *Linum*, *Sweet Alyssum*, etc.

We have heard many complaints that the seed sown never came up, and this has discouraged many. But this failure must be attributed more to careless planting and ill-treatment than to any other cause. Much of the seed is planted too deep; no seed of annuals should be planted over half an inch deep, and all the finer seeds not more than one eighth of an inch below the surface; during dry weather it becomes necessary to sprinkle the seed beds slightly, but not with such force

as to entirely wash the seeds out, which is frequently done; Asters are better raised in a frame or pot, and should be transplanted when the young plants have made three or four strong leaves. The same may be said in regard to Petunias.

Greenhouse plants have had a hard time of it during our unusually wet winter; however, the pleasant weather in March has pushed things forward, and many of the delicate varieties of house plants are fast recovering from their doubtful condition.

All rooted cuttings should be potted at once into two or three-inch pots and all pot-bound plants must be shifted into larger pots. Where shoots grow tall and slender, pinch off the ends so as to procure a more compact and uniform growth. A good-shaped, or well-grown plant has always a more pleasing effect, and readily finds an admirer, and if grown for sale, will bring a better price and quicker sale. To this cultivating of plants our amateurs and florists should pay much more attention than they have heretofore done.

This is the best time to plant the seeds of greenhouse plants, evergreen trees, and flowering shrubs, which must be started under glass. The seeds of choice, greenhouse plants ought to be covered with an additional pane of glass, which will keep the temperature more equal, the atmosphere moist, and will dispense with frequent watering, which is injurious to the delicate seedlings when they begin to make their appearance.

As greenhouse plants show a more active growth, it will be necessary to give more water. Frequent airing should be continued, in order to keep the plants in healthy condition.

FLORIDA ORANGES have lost, according to the *Rural Carolinian*, the high character they held a few years since. The cause is, that they are rusty, small, and liable to decay. This deterioration is due, as the editor of the *Rural* thinks, to the unsuitable soil and to improper cultivation.

GOLDEN GATE PARK.

At the time of writing this, it is impossible to foresee what provisions will be made by the Legislature for the continuance of the work in the Golden Gate Park. That something should be done to improve the grounds, is the desire of the people of San Francisco, but there ought to be some guarantee that the money should be expended to the best advantage. This has not been the case up to the present time, for reasons not generally understood, and somewhat difficult to comprehend. The great detriment to the Park affairs has been, from the beginning, the unparalleled indifference of the people of San Francisco in permitting the Board of Supervisors to select a site which has no merits for park purposes, and in submitting unconditionally to the expenditure of the money by the Board of Park Commissioners, just as they saw fit. A few public meetings on the subject, and a proper discussion through the Press might have had a beneficial effect.

Good-natured people may feel disposed, after reading the last report of the Park Commissioners, to credit them with good deeds, and place confidence in their promises of future action, but practical and scientific men must necessarily look upon the present system of improving the Park as a failure.

It is, however, gratifying that the Board of Commissioners, as now constituted, may be looked upon with more confidence than the old Board. Mr. Sullivan has seen the world, and may be regarded as a gentleman of taste and judgment; and Mr. Alexander, who, as we understand, has been elected lately, has the reputation of being a skillful engineer.

The greatest difficulty in making a Park here is the absence of vegetation, of trees, and of shrubs; and it should have been the principal work from the beginning to have reclaimed the drift sands, and to have established the growth of trees. Our practical landscape gardeners and nurserymen should have been invited to give their opinions

as to the best course to pursue in accomplishing this object. What possible good could it do to lay out drives and walks through wastes of sand? It is impossible to keep the sand from drifting into them; and even if the drives could be kept clear, it was a piece of folly for the Park Commissioners to entertain the idea that the people would avail themselves of drives and walks over barren sand hills. A sod had been formed of decayed vegetable matter over a good portion of the Park grounds, but, unfortunately, this has been to a great extent destroyed by injudicious grading, which makes the work of reclamation still more difficult and expensive.

Furthermore, we are led to believe that of the trees planted out during this winter, hardly fifty out of one hundred will survive, and many of the varieties are not adapted to the locality. We advise the Commissioners to employ a practical landscape gardener who thoroughly understands his business; and let it be his principal duty to reclaim the sand wastes and to establish a growth of suitable trees and shrubs, without which San Francisco can have no park. If the Commissioners would offer a small premium for essays on reclaiming the drift sands and on establishing a suitable growth of trees and shrubs, they would come into possession of practical information which may assist them in their undertakings.

San Francisco ought to have a park, and the people are willing to pay for it; but it is unquestionably necessary that practical men should be consulted in the matter.

WOODWARD'S GARDENS.

These highly-popular Gardens are attracting as usual, and most deservedly, a large concourse of visitors. Various improvements and additions are in progress; many new specimens in Zoology add to the interest, while the conservatories are keeping pace with the rapid progress of the external arrangements. The promised Aquarium is seriously in hand, and will be an exceedingly attractive and instructive feature.

A NATIONAL PARK.

The bill to set apart the region of wonders in Montana as a National Park, has passed both branches of Congress. It is claimed that no region in the world contains an equal wealth of natural curiosities. The Helena (Montana) *Herald* says, that the idea of a park was first conceived by a party from that place, who visited the wonder-land in 1868, and gave to the world the first reliable reports concerning it. Descriptive letters were published by members of this party, and were widely circulated by the Press of the country. These excited not merely a passing curiosity, but created a living, general interest that has since received strength and larger proportions by the publication of Lieut. Doane's official report to the War Department of the same expedition; followed, as it was, by the expedition of Professor Hayden, during the last Summer, under the patronage of the Smithsonian Institute, with its fully appointed corps of scientific gentlemen and distinguished artists, whose reports have more than confirmed all descriptions of former parties. Such, in brief, has been the origin and progress of this project, now about to receive definite and permanent shape in the establishment of a National Park. It will be a park worthy of the great Republic. It will embrace about 2,500 square miles, and include the canyon, the falls and lake of the Yellowstone, with a score of other magnificent lakes, the great Geyser basin of the Madison and thousands of the mineral and boiling springs. Should the whole surface of the earth be gleaned, another spot of equal dimensions could not be found that contains on such a magnificent scale one-half of the attractions here grouped together. Without a doubt the Northern Pacific Railroad will have a branch track penetrating this Plutonian region, and few seasons will pass before excursion trains will daily be sweeping into this great park thousands of the curious from all parts of the world. A steamboat will be plying upon the crystal waters of the

Yellowstone Lake, and excited sportsmen will be decoying the speckled beauties from its depths, or aiming for the swans, geese, ducks or gulls that heretofore have floated undisturbed upon its surface. The *Herald* advises those who would look upon this scene in its wild, primitive beauty, before art has practiced any of its tricks upon nature, to go soon.—*Willamette Farmer*.

REPORT ON THE FRUIT MARKET.

Although within a few years many persons have entered, some moderately, some largely, into the cultivation of fruit, and in consequence the price has been considerably lessened to what it formerly was, and more particularly at its commencement, about 1844-5; yet, owing to the increase of cities and towns, and their requirements, there is still fair encouragement for the cultivation of all the various kinds of Pomona's precious gifts and largesses to man and beast. All the common kinds of fruits, as well as the finest, meet with a ready sale in our markets at some price, generally remunerating both to the wholesale and the retail vendor. It is now a pretty-well accepted truth that fruit well-ripened and fresh, as well as the best and most wholesome vegetables, if used in moderation, are very conducive to general good health, and are advantageous in warding off dysenteries, and all the diseases arising from constipation, and even epidemics. And the considerably-reformed spirit of the age is now favoring the use of fruits, vegetables, and farinaceous diet, in preference to so much flesh of animals—which is, after all, only a second-hand medium (often a diseased one, and always an inflamer of the animal passions), through which we derive vegetable nourishment.

The day is not far distant, I trust, when California, with her many and good public and private facilities for irrigation (which must be considered an absolute necessity to her generally dry climate and soil, to ensure complete success in fruit and forest-tree cul-

ture), will be fully one fourth covered with fruit, timber, and shade trees, and that fruit will constitute at least one fourth of the diet of her citizens; it will undoubtedly be a great change for the better. The clothing of the surface with trees will tend also, as has been satisfactorily proven in other countries, to promote rain and general moisture, and thus in a measure remedy by natural means the prevailing and most calamitous droughts. For these and many other good reasons, I hope that the forest-tree bill will meet with success before our legislative bodies. Another measure which will greatly conduce to the culture of all kinds of trees will be that system of land sales which shall bring about the division of large farms into small ones of about forty or fifty acres each—which is a size of course the most likely to prove advantageous to the proprietors, if convenient to flourishing towns and railroads.

I am happy to observe that agricultural and vinicultural societies are beginning to pay closer attention to the selection of those fruits which have by experience been found best adapted to certain soils and localities, and that some gentlemen have presented at their meetings reports giving the names of those varieties. This is one of the most difficult points to determine. At the last meeting of the wine growers in council at Sacramento, Mr. George West, of Stockton, presented a paper to this effect regarding grapes, both for table use and for wine—also for raisins. It is hoped these Societies will embody the recommendations in their proceedings, and publish them in a pamphlet form.

In the last fruit and vegetable market report, allusion was made to the noble and plentiful display of that most wholesome, delicate, and delicious vegetable, the Cauliflower. Since then we observed at the Pacific Fruit Market a magnificent specimen raised at the Six-Mile House, on the San Bruno road, which weighed twenty-five pounds.

Asparagus, which of late has been rather scarce, is now coming in greater plenty, and,

possibly, more than it generally does when it first appears, a greater length of green—a very desirable quality, as it is not often allowed to make a good growth from the surface before it is cut.

Green Peas are in moderate supply, but owing to the late cold weather they are rather less succulent, have less flavor, and are less tender than they usually are when the early Spring is milder and warmer. Indeed, the whole vegetable kingdom has been more or less affected injuriously by the rather sharp frosts and the rawness in the atmosphere.

Strawberries have made their appearance—and that is nearly all that can be said—but if we have a milder spell of weather soon, they will be plentiful enough to gratify the expectants of that fruit, of which Sydney Smith said: “Doubtless God could have made a more delicious fruit, but it did not please Him to do so, and who can be dissatisfied?”

Oregon Apples—good recruits at this season—have been frequent in their arrivals of late. Our foothills, though in many places rivaling the Oregon apple regions, have not yet been extensively enough planted with this popular fruit to furnish sufficient for our markets in Winter and in early Spring.

Los Angeles Oranges still keep up a generous supply, but their sweetness is not as perfect as could be wished, even now.

Bananas and Pine Apples come in as usual, by spasmodic arrivals, and it would be well if the former most healthy and nutritious fruit could be furnished so plentifully as to suit the pockets of the multitude, but at present they have to be brought from a long distance. It is to be hoped that their cultivation will be more attended to in the southern portions of our State.

26th March.—Since writing the above notice of the fruit market, I may add that strawberries are now coming in daily at one dollar per lb., and the prospects are that they will soon be plentiful. Los Angeles Oranges—the choicest and sweetest of the season—are fast arriving. There are plenty of apples

and some pears in market. Green peas are now appearing in quantity, also the pie-plant or rhubarb, with tomatoes from Los Angeles. Plenty of new potatoes can now be had, but cucumbers have but just made their appearance. The rains and frosts have retarded nearly everything, particularly strawberries, but there is no danger from present appearances but that the crop will be as large an one as last year's. E. J. H.

SAN FRANCISCO, March, 1872.

FAVORS RECEIVED.

A Circular on the “Practical Use of Meteorological Reports,” accompanied by Weather Maps, has been received from the Department of Washington. The Report is very interesting, and we have no doubt that much good will be produced from the persevering efforts of the Chief Signal Officer.

We received an “Address to the Agricultural Organizations in the United States;” prepared by a committee, in obedience to a resolution of the National Agricultural Association.

Whittaker's Milwaukee Monthly Magazine, for March, is to hand. It is well illustrated, and contains a great deal of very interesting reading matter. Published by T. J. Gilmore, Milwaukee, Wis. Price \$1 per annum.

The Prospects of Vallejo; or, Evidence that Vallejo will become a great city.

A Pamphlet, entitled “Reasons for Abandoning the Theory of Free Trade and Adopting the Principle of Protection to American Industry;” by William D. Kelley, M. C.

Bulletin of the “California Vine Growers and Wine and Brandy Manufacturers' Association,” containing a number of valuable reports from Standing Committees.

The Industrial Motor is a new monthly, issued from the Iowa Patent Office, Des Moines, Iowa. Subscription price, fifty cents per year.

Monthly Report of the Department of Agriculture for February.

Official Organ of the Order of the "Patrons of Husbandry," a secret organization devoted to the interests of Agriculturists.

Biennial Report of the Colorado Agricultural Society. We are glad to notice that the above Society is in a very prosperous condition.

CATALOGUES RECEIVED.

Descriptive Catalogue of the Reading Nursery; J. W. Manning, Proprietor.

Wholesale Price List of Nursery Stock for sale by Herendeen & Van Dusen, of Geneva, N. Y.

W. C. Hampton's Catalogue of Trees, Shrubs, Evergreens, and Greenhouse Plants, Mount Victory, Ohio.

Spring Catalogue of New Plants, Pelargoniums, Roses, Verbenas, Fuchsias, Dahlias, etc., grown and for sale by Bennett & Davidson, in Flatbush, Long Island, Brooklyn, N. Y.

Descriptive Catalogue of Live Stock, Imported and Home-bred, for sale by A. B. Allen & Co., New York.

O. Burra's Catalogue of Garden and Field Seed's and Seed Potatoes; Norwalk, Ohio.

Descriptive Catalogue of new, rare, and beautiful Plants, Dahlias, Chrysanthemums, Geraniums, etc., cultivated and for sale by John Saul, Washington, D. C.

BEAUTIFUL CHROMO.

We have received from Briggs & Brothers, Seedsmen, of Rochester, N. Y., a beautiful Chromo of a collection of Lilies, comprising the most popular and desirable varieties. It is quite an ornament, and should be obtained by all lovers of flowers. Price only 75 cents each.

NEW AND RARE PLANTS.

Adiantum Furleyense.—An outline sketch of this fern appears in the *Gardener's Monthly*, which says in regard to it: "This, perhaps most beautiful of all the *Maiden Hair* ferns, attracted much attention at the Horticultural Society, when exhibited by Mr. Buist last fall."

Hydrangea paniculata.—The large flowered *Hydrangea paniculata* is particularly worthy of notice, and is the finest flowering shrub of recent introduction, growing from eight to ten feet high, and bearing large pyramidal panicles from twelve to eighteen inches long. Its flowers are white, and it continues a long time in bloom. It is still scarce and very little known.—*Gardeners' Monthly.*

Celosia Huttoni, sp. n. This very beautiful plant was introduced by Mr. Hutton, from Java, through the mediation of the Messrs. Veitch, who gave it the name of *Amaranthus Huttoni*. As, however, its floral structure is precisely that of *Celosia*, we publish it under its proper generic name. For garden purposes, its bushy, well-furnished, pyramidal habit, and crimson or claret-colored leaves, will render it very attractive. In any case its rich color, something resembling that of *Iresine Herbstii*, when well colored, will insure it a welcome.—*Gardeners' Chronicle.*

PEARS SENT EAST.

The Honorable Marshall P. Wilder writes, January 14th, of this year, to E. J. Hooper, of San Francisco, "that California pears are constantly in their markets at Boston." Mr. Reed, of Sacramento, had been there, and made arrangements which work well. Six car loads of Eastern Beurré Pears had been sent, some of which Mr. Wilder had had for his table, and there were only two damaged pears in a bushel. Many thousand bushels of pears had been sent over the railroad to Boston during the past season, generally in fine weather.

HOW THE SOUTH AMERICANS MAKE FRUIT TREES.

Darwin, in his "Naturalist's Voyage" (1871), says: "In Chiloe, the inhabitants possess a marvellously short method of making an orchard. At the lower part of almost every branch, small, conical, brown, wrinkled points project; these are always ready to change into roots, as may sometimes be seen, where any mud has been accidentally splashed against a tree. A branch as thick as a man's thigh is chosen in the early Spring, and is cut off just beneath a group of these points; all the smaller branches are lopped off, and it is then placed about two feet deep in the ground. During the ensuing Summer the stump throws out long shoots, and sometimes even bears fruit. I was shown one which had produced as many as twenty-three apples, but which was thought very unusual. In the third season the stump is changed (as I have myself seen, into a well-wooded tree, loaded with fruit.—*Rural New Yorker*.

HOW TO KEEP CANARY BIRDS.

Many persons have difficulty in keeping their canary birds in good health. One who is experienced in their care, says: "Place the cage so that no draft of air can strike the bird; give nothing to healthy birds but canary and rape seed, mixed with water, cuttlefish bone, and gravel on the floor of the cage; also, occasionally, a little water for bathing; the room should not be overheated; when moulting (shedding feathers), avoid drafts of air, give plenty of rape seed, slightly moistened; a little hard-boiled egg and cracker grated fine, is excellent. By observing these simple directions, birds may be kept in fine condition for years. Bad seed kills most of the birds that die; to which might have been added, that canary birds are not only very fond of, but benefited by having often a leaf of cabbage, pieces of apples, or other green food, which serves to keep down the tendency to fever and prevents constipa-

tion. Our birds usually bathe each day, as regularly as any one washes the face, and with apparent benefit, too. When birds are sick, and inclined not to eat well, remove all the food for a day, and then give only soaked bread, from which most of the moisture has been squeezed.—*Journal of the Farm*.

Editorial Cleanings.

SEA-WEED.—*The Vast Meadows of the Ocean—A Beautiful Picture*.—Among the most remarkable homes of the marine flora, sailors have noticed some, the importance of which is out of all proportion with what is seen in other seas. These banks of fucæ spread over the surface of the water like meadows, on the greensward of which, the foot might seem safely to tread, so thick and solidly-bound together are they. Every sailor knows the one which is situated between the Azores, the Canary Islands, and Cape de Verd. Had Columbus listened to the murmurs of his crews when sailing in this strange sea which hindered his advance, he would have turned back to Spain, and the New World would not then have been discovered, so alarmed were they at so strange a phenomenon. Another mass nearly as considerable—that is, about six times the size of France—extends itself in the Pacific Ocean, not far from the Californian coast. The sea-weeds come from all parts. Torn from the shores of many lands, and carried by marine currents or the action of the waves, they form enormous vegetable banks, which float upon the surface of the waters, carrying from one hemisphere to the other myriads of every kind of insects, and when settled down in calm waters, become centers of life and reproduction, unsurpassed by the immense forests of the tropics. Nor is it only on the surface of the waters that sea-weeds are found in every latitude. The submarine flora has many representatives of this rich family, which, from the little ectocarpus which carpets the ground, to the gigantic fucus, many hundreds of yards in

length, live in marshes, rivers, lakes, and oceans. There is scarcely any shore where these are not to be found; but it is more particularly on the coasts of the Pacific Ocean that the diver can contemplate this undergrowth in all its magnificence, equalling in richness the landscapes of the tropical zones. Their forms, colors, and undulations are without parallel. Myriads of the little confervæ are pressed together in immense prairies, like a velvet-pile carpet, shaded with every imaginable green, set off here and there by the ample leaves of the sea lettuce, or dyed with scarlet light thrown by the floating iridæ. Then come the great thalassiphytes, with their fans of red, green, or yellow leaves; above are the supple ribbons of the laminariæ, and the tall stem of another, which is garnished by a collar of fringe, and ends in one immense leaf, fifteen yards in length. Last of all, rises, from the midst of smaller growth, like the palm tree in the forest, the nereocystus, whose immense stem swells gradually into a club, and is crowned by a tuft of ribbon leaves, exciting admiration by their soft and graceful undulations. It is not difficult to imagine the effect which the least agitation of the waves must produce on these long and supple plants, but almost impossible to describe the fugitive tints which adorn this moving picture, when the rays of the sun, breaking through the waves, vivify the different colors which mingle and harmonize in the deep waters. Then all the living creatures must be depicted which animate those submarine landscapes; a thousand crabs traveling amidst the green ulva; shoals of sea-dogs, or columns of silver herring gliding through the madrepores; the brilliant sea anemone flourishing on the reefs, or the blue bell of some medusa drawing his tentacles among the long ribbons of the laminariæ. In the economy of Nature sea-weeds play no unimportant part. If we look back to the distant period of the world's history, when the scarcely-cold crust of the earth was covered with water, we find the remains of the primordial protococcus in the

lukewarm waters, the simple globules of which were preparing to cover the whole of the world. As the higher summits emerged into the light of day, they were covered with the first layer of earth or mud, arising from decomposed sea-weeds. To the present time, they continue to lay the foundation, at the bottom of oceans, lakes, and rivers, of that fruitful detritus which successive generations of vegetable matter utilize so successfully. Independently of this, they have also an immediate and practical use. No poisonous sea-weeds are known; there are many kinds which furnish abundant alimentary resources, and others which are used on a vast scale in manufactures.

AN IMPORTANT DISCOVERY IN TANNING.—It appears, from investigation, that Western Texas has, in inexhaustible quantity, two of the best tanning materials known to the world. The wood, as well as the bark of the mesquite, a species of timber that abounds in great quantity, is found to be rich in tannic acid, but live oak is even better, yielding by chemical demonstration fifty per cent. of tan, while mesquite yields but thirty per cent. A remarkable and important quality of the tan of the mesquite, however, is, that instead of beginning on the surface, it strikes through and through, incising into the hide, revealing the fact that the process of tanning goes on in the center equal with the surface. The experiments made by practical gentlemen are said to have been demonstrated that the wood of the mesquite is fully equal to black-jack, which stands among the richest barks we use, while the live oak is much richer than either. A letter from Texas on the subject says the discovery will have a very important effect in the supply of our country and the world with the necessary article of leather, the demand for which is constantly on the increase. The interest in this discovery and its value increases from the fact of the rapid exhaustion of the materials for tanning in our country, and in many other parts of the world.

FINENESS OF INDIA COTTONS.—Of the cotton fabrics produced in India, an English writer says, that the marvellous delicacy of touch possessed by the Indian women counterbalances the inferiority of Indian cotton in weaving the fine and delicate muslins, to which the names of "Webs of Woven Air," "Dew of Night," "Running Waters," etc., are given by the natives. They now use the spinning wheel generally for the ordinary fabrics, but the spindle still holds its place in the hands of the Hindoo women, when employed in spinning thread for the finer muslins. For these the Hindoo woman first cards her cotton with the jawbone of the *boalee* fish; she then separates the seeds by means of a small iron roller, worked backwards and forwards upon a flat board. An equally small bow is used for bringing it to the state of a downy fleece, which is made up into small rolls, to hold in the hand during the process of spinning. The apparatus required for this consists of a delicate iron spindle, having a small ball of clay attached to it, in order to give it sufficient weight in turning; and imbedded in a little clay there is a piece of hard shell, on which the spindle turns with the least degree of friction. Very great attention is paid to the temperature of the air during the process of spinning, and the spinners in the dry climate of the northwest of India actually work under ground to secure a moist and uniform atmosphere. The cheapness of English manufactured goods seems to have greatly depressed the cotton fabrics of India, but the fine muslins of the latter country yet maintain undisputed celebrity, and are valued as highly as ever. The *Dacca* muslins are the very finest of all. One of the best pieces which found its way to England was ten yards long by one yard wide, weighed only three ounces two penny weights, and could be passed through a very small ring.

WHEN TEA was first introduced into England it was a costly article, being sold at the modest sum of \$15 per pound.

CUT FLOWERS.—The first thing to be considered in arranging cut flowers, is the vase. If it is scarlet, blue, or many-colored, it must necessarily conflict with some hue in your bouquet. Choose rather pure white, green, or transparent glass, which allows the delicate stems to be seen. Brown Swiss-wood, silver, bronze or yellow straw conflict with nothing. The vase must be subordinate to what it holds. A bowl for roses. Tall-spreading vases for gladiolus, fern, white lilies, and the like. Cups for violets and tiny wood flowers. Baskets for vines and gay garden blossoms. A flower-lover will in time collect shapes and sizes to suit each group. Colors should be blended together with neutral tints, of which there are abundance—whites, grays, purples, tender greens—and which harmonize the pink, crimsons, and brilliant red into soft unison. The water should be warm for a winter vase—cool, but not iced, for a summer one. A little salt or a bit of charcoal should be added in hot weather, to obviate vegetable decay, and the vase filled anew each morning. With these precautions your flowers, if set beside an open window at night, will keep their freshness for many hours even in July, and reward by their beautiful presence the kind hand which arranged and tended them.

Scribner's Monthly.

BORERS IN FRUIT TREES.—Mr. M. Gillett writes to us from Lebanon, Oregon, as follows: "Excuse me if interest in the welfare of the agricultural and horticultural department of Oregon may lead a stranger to err in addressing a few lines to you. Having traversed the length and breadth of your incomparable State, I find on every hand, and in every place, orchards in ruins, and a general feeling prevails that they cannot be sustained. On inquiring as to the cause or source of their destruction, some say the disease is in the root, which the numerous and thrifty sprouts surrounding most of the old trunks deny. Let any person take a long knife, go into an orchard, choose one of those

black trunks, not dead, but decaying, and cut into the bark flat-wise, and see what you will see—worms, borers, little white fellows; but don't be scared nor discouraged; try another, and go from tree to tree, until you are satisfied that those little fellows are ruining the fruit interest of the best State of the Pacific."—*Willamette (Or.) Farmer.*

THE USE OF CAMPHOR.—When the mucous membrane of the nose, frontal sinuses, etc., is affected by catarrh, a strong solution of camphor frequently and for some hours snuffed up the nose, and five or six drops taken internally on a lump of sugar, at first for every ten minutes, then every hour, will usually put a stop to the affection. Ordinary cold and even influenza, if treated in this manner at the *very beginning* of the attack, are generally controlled by the same treatment. Attacks of incessant sneezing and profuse running at the eyes and nose, will generally yield to a strong solution of camphor diligently sniffed up the nose. In summer diarrhœa no remedy is so efficacious as camphor, if applied at the very commencement of the disease; later it is without effect. Its influence over cholera is very remarkable. Dose: six drops of a strong alcoholic solution of camphor, given at first every ten minutes; afterward, as the symptoms abate, less frequently.

USE FOR FIGS.—On most of the older farms of the State, and in the yards and gardens of many private residences, fig trees are found, where the climatic conditions are favorable. The fruit is rarely preserved, but is suffered to fall to the ground and go to waste. A gentleman in one of the Southern counties has discovered that it is excellent food for fattening swine, and is about to set out a large fig-tree orchard and devote the fruit especially to this object. A hint may be taken from his experience.

THE CULTIVATION OF ALFALFA, on the sage lands of Nevada, is reported a success.

GLADIOLUS SEEDLINGS.—How do you raise Gladiolus from seeds? Answer: Seed gathered last Fall should be sown next Spring in frames or in the open ground, covering them not more than a half inch deep. If the seeds are soaked for a few hours in warm water before sowing, they will germinate in less time than if this operation is omitted. To obtain a good strong growth, the first season, requires considerable care and attention. The soil in which the seeds are sown should be light and friable, because, if it is a clay, there is danger of its becoming so hard that the young seedlings will fail to break through. The surface of the bed should also be kept constantly moist, in order to assist germination, besides keeping up a continual growth in the young seedlings. The two principal reasons why so many persons fail in growing such plants from seed are: They either cover the seed too deeply, or, if shallow, they allow the soil above them to become so dry that the seed or plants cannot grow. As a rule, cover the seeds very lightly, then give plenty of water. If these conditions were always secured, we should have less complaining about poor seed and failures. It requires two or three years under ordinary circumstances to produce blooming bulbs of gladioli from seed; and although it is a tedious process, much pleasure may be derived from their culture. New varieties are certain to be produced; but whether they will be improvements upon old and well-known sorts, in a matter of chance.

THE VALUE OF SOOT.—Although, almost ever since agriculture has been practiced, soot has been known to be a valuable manure, in the nineteenth century there are hundreds of farmers who cannot be persuaded to believe it. It is really as valuable as guano. Take a hogshead of water, and dissolve in it twelve quarts of soot, and you will have a splendid liquid manure for plants. Apply it to the roots, of course, and then watch the result.—*Journal of the Farm.*

A NEW USE FOR LEAVES.—We clip the following from an Eastern exchange. It would do no harm to try the experiment here, though the item gives no intimation as to whether the leaves are green or dry. We presume oak leaves are the ones used, though we believe other forest leaves contain a large amount of tannin. As it will not cost much and take but little time, we would like to have some of our tanners try it, and forward the result to us: "A Vermonter has recently tanned several sides of leather, with lye leached from forest leaves. He has been experimenting with leaves for two months, with satisfactory results. One ton of leaves, it is asserted, will tan as much leather as five cords of bark, and will complete the process in half the time. When leaves and bark are mixed in equal proportions, one fourth of the time is saved. The leather tanned by this process, it is claimed, is more flexible and smoother than that tanned by bark, while the strength of the raw hide is retained in a greater degree."

SHADE TREES.—The Trustees of the town of Healdsburg have undertaken the removal of native shade trees from the public streets. Clearing the streets and placing them in a good condition for travel, is a praiseworthy object. Would not the same law allowing them to destroy shade trees also permit them to plant them? For every shade tree destroyed the Trustees should authorize the planting of one hundred, if necessary, in such places as would not interfere with travel. Now is the time to plant shade trees, and no time should be lost in doing so. Would not the Trustees be supported by the people in passing an ordinance that each real estate owner in the town should plant in front of his property suitable shade trees, which should be set, say six feet into the street, and at appropriate distances apart? Every owner of real estate, except where it is located in the business portion of town, should take enough pride in the beauty of the place to plant trees; and when they fail

to do so, the Trustees should have the trees planted and have the cost taxed to the lot in front of which the work is done.

Russian River Flag.

REMARKABLE PLANT.—At a late meeting of the Academy of Sciences in this city, a specimen of *Septosyne Maritima* was presented by Mr. Hartford. This was found growing on San Miguel Island, off the Southern Coast, and is very peculiar on account of its large size and robust habit, when compared with the same species growing in Santa Barbara County. The one found growing in the latter locality bears a flower of a fine golden yellow color and about three inches in diameter, while that found upon the San Miguel Island is much larger and otherwise so peculiar that the identity existing between them can hardly be recognized. Dr. Kellogg considers this circumstance a marked and peculiar example of the fact that plants will adapt themselves to the surrounding conditions of Nature. The section of the body of this plant was from three to five inches in diameter, with concentric rings of annual growth. This plant was generally considered as one of more than ordinary interest. Dr. Hewston asked if Dr. Kellogg thought this plant gained additional strength by reason of its growing in an exposed position where it was subjected to heavy winds. He called attention to the fact that, as a rule, the heaviest vegetation grows on the sheltered sides of hills. Dr. Kellogg thought that observation did not apply to all vegetation, but that this species and several others which he named, were not affected unfavorably by hard winds. He thought that, as a rule, the vegetable as well as the animal kingdom adapted itself to climate and other circumstances.

WOOD ASHES FOR WHEAT.—A subscriber sends us the following as his experience in using wood ashes, viz: that in quantities of only eight bushels per acre, they have a

marked effect: that they push the wheat forward several days, thus getting it ahead of that critical period when it is so apt to be attacked by rust, that they strengthen the stem and increase its solidity. All of which and much more, we can readily indorse. In fact, ashes are an excellent application for an orchard.—*American Agriculturist*.

GRASSHOPPERS.—The plague of grasshoppers has somewhat abated at Echuca, but, according to the local journal, incalculable mischief has been done to the standing crops in the districts by these pests. "It may be useful to agriculturists to learn that the larkspur is exceedingly fatal to these insects. They may be seen lying dead in heaps in gardens where this plant is cultivated."—*Melbourne Herald*.

TREATMENT OF HOUSE PLANTS.—Ladies who cultivate flowers in the house will find great benefit to the plants by spreading moss over the earth in flower-pots. This keeps the water from evaporating and the temperature more uniform. Tea-grounds are often used for the same purpose. Where a flower-pot sets in a saucer, with a hole in the bottom of the pot, put a little sand in the saucer, and cover it with moss, and you have a simple and admirable arrangement.

WEIGHT OF A BUSHEL OF OATS.—A correspondent at Tomales says: "There is a bet pending on the question of what the legal standard weight of a bushel of oats is, and wants us to answer.

It varies in different States from 30 to 36 lbs., but in California the legal weight is 32 lbs. As a matter of reference we will give the legal weights of grain in California: Wheat, 60 lbs.; Rye, 54 lbs.; Shelled Corn, 52 lbs.; Buckwheat, 40 lbs., and Barley, 50 lbs."

THE TULIP mania is again to be revived in Holland.

PROFIT OF NUT-BEARING TREES.—The price of edible nuts is steadily improving. In the East native chestnuts are worth from \$10 to \$12 per bushel, hickory nuts \$4, and Spanish chestnuts from \$15 to \$18. The lumber from these trees is worth from 10 to 20 cts. a foot board measure. We can grow such trees faster here in California than they can in the East. The cultivation of nut-bearing trees should receive our immediate attention.

GLADIOLUS AT A STAND-STILL.—A contributor to the *Gardeners' Chronicle* says: "The past year seems, on the whole, not to have advanced the *Gladiolus* a single stage in any respect. New varieties we find barely holding their own with the best sorts of the three or four previous years; and as regards constitution, I greatly fear that we are losing ground.

MANURING TREES.—It is a mistaken notion that many have of applying all the manure and water close around the foot of their trees. The roots run off a distance in search of nourishment; and moreover, the roots near the body of the tree have much less facility for taking nourishment than those at a considerable distance.

MASSACHUSETTS HORTICULTURAL SOCIETY.—The total receipts of this Society for the past year have been \$24,597, the total expense \$24,335. The Society numbers 534 life members and 502 annual members. The valuation of real estate and personal property amounts to \$268,285, on which the Society owes \$82,500.

THERE ARE sixty millions of acres of wheat lands in California, of which only two millions six hundred thousand are under cultivation.

A FARM with shade and fruit trees set around the house, will sell for two hundred to one thousand dollars more than if there were none.

T H E

CALIFORNIA HORTICULTURIST

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ANNUALS.

The cultivation of annual flowering plants is in its infancy in California, but we sincerely hope that our amateur gardeners will award, in the future, a better and more extensive trial to this interesting class. There are many varieties of annuals which produce abundance of exquisite flowers; throughout the summer season these enliven and enrich the borders of the flower garden in a most acceptable manner; their blossoms are of every imaginable form and color, and give a brilliancy to the garden which cannot be obtained without them. It is true, they require a little more care than hardy, perennial-flowering shrubs, on account of our long, dry seasons, but such care should be considered a pleasant occupation by every one who loves flowers. Some object to cultivate annuals, because the seeds must be preserved or procured, and planted every year; those who raise this objection cannot be true lovers of flowers; in all probability they merely cultivate them because it is fashionable to have them around the house; others have probably met with disappointment, the seed having failed to grow; this may have been due to poor quality of seed, or to injudicious treatment; while others again have, unfortunately, selected such varieties as are not well adapted to their localities. We will endeavor to give some information on these

points, and hope that our readers will avail themselves of our experience, and devote some space and attention to the more popular varieties of annuals, which cannot fail to give them satisfaction.

Spring is the proper season for planting annuals, but it seems rather difficult now-a-days to determine when Spring makes its appearance on this coast. With some of us Spring commences in February, while with others it does not arrive until May. San Francisco is rather uncertain on this point; we have experienced some very genial weather in January and February, and again Spring time has not come until May; in fact we think we are nearly correct in saying that Spring may come to us at almost any period of the year. However, even in San Francisco at the present season, Nature seems to exhibit more activity and life, although we cannot perceive any material climatic changes or differences from other seasons of the year, excepting in a few rare cases. Notwithstanding all this, April, May and June are the most favorable months for planting the seeds of annuals in the open ground.

The soil should be enriched with old, rotten manure, which should be thoroughly incorporated with the soil by trenching it spade deep; after which the beds should be raked smooth, and put into the desired shape. The annuals should then be sown either broadcast, in drills, or in patches;

but the seed should neither be covered too deep nor left too shallow. If planted too deep, the seeds are apt to rot; if too shallow, it will be difficult to keep them sufficiently moist during dry weather, and if artificial irrigation is resorted to, the seeds will suffer from direct contact with the water, or from the force employed. It is difficult to give a general rule as to how deep they should be planted, but we advise to plant fine seeds from one eighth to one quarter inch deep, and coarser seeds from one fourth to three fourth inch deep; if sown in groups or in patches, the best and most convenient way is to sift light soil over them, the coarser seeds may be planted in trenches or drills.

The more delicate varieties should be sown in boxes and covered with glass; they should be afterwards transplanted. After the seeds have come up, it is important to keep the ground loose and clear of weeds.

We shall now enumerate some of the most popular varieties of annuals which have proved hardy in this neighborhood:

The well-known *Asters* are old favorites, and the varieties are too numerous to mention; the German, the Pyramid, the Truffauts, the Bouquet, the Needle or Hedgehog and the Chrysanthemum flowered, are among the best. The seed can be sown in the open ground in April or May, or in pots or boxes, covered with glass, from which they must be transplanted; they should not be allowed to grow nearer than from ten to twelve inches of each other, and when they are about to form their flower buds, they should have proper stakes for support.

Balsam is also a very popular and favorite annual, but not so well adapted to San Francisco on account of our heavy and cold winds.

Petunia is a very desirable plant, which holds out here for several years, but flowers also during the first season. The seed may be sown in the open ground, but we prefer to plant in boxes under glass, and transplant into small pots, from which we again transplant into the border. The finest of the

single varieties are *Petunia hybrida grandiflora*, blotched and striped and fringed. The double *Petunias* are generally raised from cuttings; although some seed may be obtained which will give a fair percentage of double-flowering plants.

The *Zinnia* is a very remarkable and showy annual, producing flowers of various shades and colors, single and double. They should be planted where they are expected to develop themselves. The flowers will remain for a month or two in good condition.

Phlox Drummondii is worthy of very extensive cultivation, producing an abundance of brilliant flowers. We planted some in June last, and they have flowered well with us from September to February. *Phlox* should be planted in groups, patches or rows, during the month of May. The seed comes in mixed colors generally. *Phloxes* are also well adapted for pot-culture.

Stock (*Mathiola*) is a well-known annual or biennial. The so-called Ten-week Stocks produce their fragrant spikes of white, rose, crimson, lilac, purple and violet flowers, both single and double, during the latter part of Summer and remain in bloom until Winter. The double varieties are much more desirable than the single ones; they are very hardy with us, and the seed may be planted in the open ground or under glass to be transplanted.

In addition to these, we can also highly recommend the following, but for want of space cannot give any description at this time:

Candytuft; white, lilac and purple.

Celosia; (Cockscob) not well adapted for San Francisco, but thrives well in the interior.

Delphinium (Larkspur); very desirable.

Lobelia; beautiful for borders.

Linum (Flax).

Marigold (*Tagetes*).

Mignonette (*Reseda*); a good acquisition is the Parson's New White, of good habit, and of a lighter color than the old *Mignonette*.

Marvel of Peru (*Mirabilis Jalapa*), by some called also "Four O'Clock."

Nemophila; beautiful blue flowers, native of California, exceedingly well adapted for this vicinity.

Portulacca is very good for a border, but better adapted for the interior than for this vicinity.

Tropaeolum (*Nasturtium*); grows admirably well with us here, but we cannot consider it an annual, as it has continued to flourish, to our knowledge, for three consecutive years, improving in every respect from year to year.

The *Sweet Pea* is well known, and has the same habit with us as the *Nasturtium*, and therefore very desirable. Of late some very beautiful and much-improved varieties are under cultivation.

The *Morning Glory*, we must not omit, it being the best and most popular of annual climbers.

There are many other varieties which we have grown here with very good success, but for a comparatively new country, as we must consider California, the above list will answer our purpose for the present.

THE CHRYSANTHEMUM.

[From the Melbourne Times.]

Some very handsome new varieties of this charming autumn flower have already been received into this colony. The Chrysanthemum is a herbaceous evergreen, growing to four feet in height. Its leaves are bluish-green, deeply and sharply serrated, and its flowers in general consist of large, matty, circular adjustments of ligulate florets, these in the numerous varieties being of almost every color, with the exception of blue, and frequently containing in one variety a showy and imposing admixture of colors. The attention of many florists has been of late years devoted to this plant, and at the present time it occupies no mean place in all good collections of flowering plants; blooming as it does

in the dull months of the year, when bright flowers are often scarce, it is doubtless more valued than it would otherwise be. At the same time, it has the additional claim upon our support from the fact, that it is emphatically the citizen's flower, growing well in large towns, and in the small back gardens of city residences, and even in such situations flowering freely, and attaining the highest state of perfection when surrounded by a smoky and dusty atmosphere. Many of the kinds now under cultivation, and of late imported into this colony, are of great merit. The plants being of free habit and blooming abundantly, they quickly make handsome specimens for garden decoration. The blooms are also well adapted for display as cut flowers, being many of them incurved and well filled up, with their outer florets frequently of one color, whilst their inner face and central florets are of distinct, varied and pleasing tints. Some sorts have the petals more or less naturally incurved. These attain the spherical and symmetrical form, recognized as the model of perfection, and chiefly cultivated for the purpose of furnishing fine cut flowers. Other kinds have a graceful habit and persistent green foliage, and bear a profusion of flowers—some with florets incurved, and others relaxed. These can easily be grown to a large size, and when covered with numbers of blooms are elegant and striking objects. Their flowers are also extremely useful for bouquets.

The best soil in which to grow the Chrysanthemum is a mixture of turfy loam and peat, or ordinary loam and thoroughly decomposed manure. When they have advanced in growth considerably, and become lanky before they show bloom, the top three joints should be taken off. These tops readily strike as cuttings in any cool, shady border, and it induces the plant to become more compact and bushy, and they also then push numerous side shoots. When cultivated in pots, the pots should be plunged in ashes on a good solid bottom, to prevent worms from getting into the pots, and there left to grow

themselves up to blooming point, receiving copious waterings as they require it. They will then generally be found very dwarf, and as they fill the pots with roots they may be shifted from their first to second pots to perfect their flowers. After blooming, the plants may be cut down completely, when they will shoot from the bottom, and can then be parted, if wished.

To ensure success in growing fine blooms, the nature of the variety should be understood. Some Chrysanthemums produce the best flowers from the crown or centre buds, while others require that these should be removed. As a general rule, all the varieties which have very double flowers made up of coarse or confused florets should have the centre bud taken away, and the second or side bud allowed to remain. On the contrary, those which are of more delicate growth should have the buds from the side removed, and the centre buds alone should be allowed to develop. By this means it will be found that many kinds generally considered poor may be made to produce fine, well-formed blooms:

Amongst new ones of great beauty are *Globosa* and *Beauty of Stoke*. These were raised by Mr. J. Salter, of London, the veteran grower, who has introduced and raised so many valuable varieties. Of the Chinese section there are now ten handsome additions, as follows:

Duke of Edinburgh.—A large incurved flower, rosy lilac, with white centre.

Marginata.—Large anemone flower, lilac blush, edged with rose, and rose centre.

Miss Hope.—Delicate lilac, shading off to white in the centre; finely incurved.

Mrs. Wreford Major.—Dark rose, very close and compact; fine flower.

Meyerbeer.—Rose purple, and light back; finely incurved.

Norma.—Ivory white, short, stiff petal; very dwarf habit.

Ondine.—Cream-tipped, rosy lilac; fine incurved flower.

Princess Louise.—Anemone flowered, delicate, rosy blush, fine high centre, and those previously mentioned, viz., *Globosa*, a fine flower, Indian red, dwarf in habit, of peculiarly globular form, somewhat the shape of that well-known variety, Little Harry; this is, indeed, a great acquisition.

Beauty of Stoke is a large orange yellow flower, finely incurved and well up in the centre; very noble.

Opinions are still very much divided as to the value of the Japanese Chrysanthemums. "How can you possibly see anything to admire in such loose, ragged flowers?" is frequently the question asked, while on the other hand there are many who appreciate them for their showy character, and also for their coming into bloom sooner, and continuing later than the ordinary kinds. Having had an opportunity of seeing some of the best of these, we are enabled to decide as to their character, and the following are undoubtedly among the best:

Dr. Masters.—A most distinct and showy flower; it changes considerably from the period of its opening, the centre being then yellow, but afterwards becoming red, and the petals, which are at first red, being then tipped with yellow.

James Salter.—A flower of immense size, of a clear lilac or mauve color, the petals being twisted about in a most extraordinary manner. As a decorative plant this has no equal.

Hero of Magdala.—A very remarkable flower, the petals red, and orange buff on the reverse, and from the manner in which the petals twist about, the flowers have the appearance of being two-colored.

Sol is a bright golden yellow, with tolerably broad petals, which have an upward tendency.

Sultan is a curiously twisted flower, of a light lilac color, the reverse of petals being darker, and thus giving a shading to the flower.

Amongst other kinds particularly worthy of cultivation are Alfred Salter, Antoinette,

Boule Rose, Caractacus, Canary Bird, Cassandra, Emperor of India, Jardin des Plantes, Lady Hardinge, Othello, Novelty, Rifleman, Queen of Lilacs, Prince Alfred, Empress, Favorite, Golden Autumn, Annie Salter, Madame Vatry, and Madame Guerin.

There are few flowers blooming at the particular season that can urge more powerful claims upon our attention, or that will more amply repay cultivators for the care bestowed than this gay autumnal beauty; the extensive variety of color and form, the long period it remains in bloom, its adaptability either for the shrubbery, flower beds, town or cottage garden, make it alike desirable to every class of our floricultural public.

THE "MAJETIN," vs. APPLE BLIGHT.

(Concluded from page 134 of last number.)

One of the most particular points requiring attention by large growers, is the keeping of apples. This has, I am aware, already provoked much attention, caused the exercise of some ingenuity, and educed a certain amount of invention; but still it continues to be far from well or properly understood. The last few years, with the annual increase of American blight, it has been found by many large growers of apples to be a matter of necessity to force large quantities of apples upon the market in a given space of time. This blight, as it becomes more and more confirmed upon the trees, in both roots and branches, causes numerous varieties to prematurely ripen, so large a quantity of nourishment being devoured by the *Aphis lanigera*; hence the necessity of turning the fruit quickly into whatever it will fetch, or otherwise losing it altogether. There can be no doubt that as the cultivation of the apple upon the Majetin becomes more general, and also greater care used in selecting those kinds only that exhibit the least inclination to become blighty, it will be far easier for the cultivator to fence against this admitted great difficulty.

Many varieties of apples usually grow together in one garden or orchard. These

varieties generally differ very widely from one another in their dates of complete ripeness; even apples of one variety growing upon the same tree are not all ripe at one period; and, therefore, the apples of an orchard ought to be gathered in a series of harvestings corresponding to their successive periods of ripening. Some kinds are quite ready for gathering very early in the autumn; other kinds are usually not ready till the end of autumn, and the varieties which yield the great bulk of crop for preservation through the winter months, extend their periods of ripening through a range of several weeks. When the fruit begins to drop freely, but not a day earlier, the harvesting of an apple garden ought to commence. None but the ripest fruits of each tree, or those which, when raised to the level of the foot-stalk, part freely from the tree, should be taken. Only a process like this is wise, economical, and finally profitable, and it ought to be repeated every third or fourth day till the whole crop of the apple garden or the orchard is gathered.

The practice, so generally prevalent, of making what is called a "clean sweep" of an orchard or an apple garden is monstrously unphilosophical, and constitutes the first origin of probably three fourths of all the tendencies of a crop to premature decay. Judgment is exercised in other harvestings, and why not in this? Excepting the simple and easy conditions of keeping them dry, clean, and inaccessible to damp, all the really effective art of protecting apples from early decay, in these colonies, consist in a careful and judicious gathering of them at the period of their being ripe.

By these means the apple can be made not only a most useful, but also a much more profitable crop than heretofore in these colonies.

Having now shown the effects of the eight years' practical trials and crucial tests carried out with the Majetin by Messrs. T. Lang & Co., at Mount Warrenheip, also how the theoretical notes and remarks have been brought to proof, and, finally, the great success of

the elaborate analysis of the wood of both the Majetin and the Crab, it leaves me little else to say, with the exception of tendering my most sincere thanks to W. Johnson, Esq., Government Analyst, for the great care and attention he has devoted to this matter on my behalf; to Messrs. T. Lang & Co., for their great courtesy in furnishing all the information in their power, and for the facilities afforded by them for my thoroughly examining into this great and valuable discovery, with all the experiments carried out in connection therewith. To you, my readers, I tender my thanks for your kind attention, and I trust that for many years to come you will have cause to value my friend the Majetin, and that in a short time your apple trees will refresh your hearts by being comparatively free from that great pest, *Aphis lanigera*, or American woolly blight. And now, farewell. "*Tempus est optimus judex rerum omnium.*"

TENDER VINES.

[Concluded from page 135 of last number.]

Myrsiphyllum asperagoidis is one of the prettiest greenhouse climbers in cultivation; its waxy, dark-green and very graceful foliage is very decorative. It may be trained over or permitted to hang from rockwork or from baskets. The *Myrsiphyllum* (sometimes called *Smilax*) is a bulbous-rooted plant, belonging to the order of Liliaceæ, and thrives well under ordinary treatment. Unlike the many bulbous plants, the *Myrsiphyllum* retains its foliage for a number of years; however, we advise giving it a season of rest every two years, by withholding from the plant its usual supply of water. It is propagated without difficulty by dividing the roots, which are formed in abundance, and this should be done during its season of rest. The *Myrsiphyllum* is a native of the Cape of Good Hope; its flowers are insignificant, of a white color, and produced on nodding pedicles at the base of the leaves. It bears a fruit in

the shape of a berry. We have no greenhouse plant of a more graceful and ornamental nature.

Rhyncospermum jasminoides (more correctly *Parechites Thunbergii*) is a greenhouse climber, cultivated for its sweet-scented flowers, of a pure white color. It is a native of China and Japan, and is grown in our climate with considerable success. It flowers spontaneously, and continues in bloom for several months. Its foliage is also ornamental, being somewhat similar in size and form to the myrtle. As a plant for the parlor window or house culture we can highly recommend it, its flowers being graceful, and affording a most delightful perfume. It succeeds well under ordinary treatment, but the soil should be nourishing and enriched by the addition of old, rotten manure and leaf-mould. The *Rhyncospermum* is propagated by cuttings, which strike root readily under glass.

Tropæolum tri-color, a native of Chili and Peru, is a delicate greenhouse climber, of exquisite beauty. It is very little known here, but we have seen a very fine specimen in the conservatory of E. B. Crocker, Esq., of Sacramento. The *Trop. tri-color* is, like the *Myrsiphyllum*, a bulbous-rooted plant; its stem is thread-like, its foliage very small and delicate; the flowers also are delicate, and of a very bright scarlet, edged with black; the calyx is yellow. The only mode of propagation known to us is by seed, which germinates readily in a warm temperature; the propagation, by dividing the roots, is a slow one. The stem should be trained over a wire-frame of a globular or cylindrical form. It thrives well in light loam, mixed with well-rotted manure.

Chorizema is not usually considered a climbing plant, but with us in California it may be treated as such, although it seldom grows more than six or eight feet in height. We do not experience any difficulty in growing it out of doors, but it does not flower well under such treatment. The variety under

cultivation here is, we believe, *Chorizema ilicifolia*, with pretty, pea-shaped flowers, of golden yellow, with purple lips. It is a profuse bloomer almost throughout the year, and its flowers are very ornamental for bouquets. Our florists used to cultivate it very extensively, but at present we see but few plants of it. Their culture is easy, and they are readily propagated by cuttings of the young wood. Like many Australian plants, it is admirably well adapted to our climate, and deserves extensive cultivation. To make bushy, specimen plants, they should be cut back frequently while in a growing condition.

Lantana, like the former, is generally considered more of a shrub than a climber, but its growth is so robust here that it may be treated very successfully as a climber, although it may be cultivated as a shrub by cutting back and pinching off the young shoots. By permitting it to grow *ad libitum*, it will certainly, within a year or two, reach the top of a greenhouse, while we have seen it covering trellis-work in a protected situation, out of doors, ten to fifteen feet high. There are a number of good varieties under cultivation, producing flowers of white, yellow, purple and orange color. The varieties producing yellow and orange flowers vary the shade of color in a remarkable degree. They are not great favorites with our friends on this side of the Continent, but why, we are unable to explain; the *Lantanas* thrive well here, bloom profusely, and are effective; they are readily propagated by cuttings.

We might continue our enumeration of greenhouse climbers through several numbers, but we have given the most deserving varieties, and enough of them to enable our readers to make a good selection. Climbing plants add much to the appearance and effect of a greenhouse or conservatory, and many of them are profitable to the florist, yet they should not be allowed to grow too rank, and to deprive other plants of their necessary space and light; if they are kept in proper shape, they will be a source of constant gratification.

DORMANT VITALITY OF SEEDS.

In an article, last week, on the curious and interesting subject of dormant vitality in certain classes of animated beings, a subject which has not received the attention among scientific men which it claims, and which has also important practical bearings, we alluded to the fact that seeds which have the germs of vegetable life within them are much more generally subject to the same phenomenon. When a seed is perfected, it does not at once spring up into a plant or tree. The life that is in the seed may remain dormant for an indefinite length of time. In temperate and cold regions, all seeds continue in this state during the cold season. Every granary is a storehouse of seeds which seem perfectly inert, lifeless, and they will remain so until heat and moisture revive them. How long seeds will remain in this state without losing their vitality, has been a question. It has been asserted that wheat enclosed in sarcophagi with Egyptian mummies for thousands of years, has vegetated. Wheat said to have been reproduced from such seed, has been sold in the market.

There is nothing in this inconsistent with the analogy of other facts. Dr. Lindley, the eminent English botanist, says: "I have before me three plants of raspberries, which have been raised in the gardens of the Horticultural Society, from seeds taken from the stomach of a man whose skeleton was found thirty feet below the surface of the earth, at the bottom of a barrow that was opened near Dorchester. He had been buried with some coins of the Emperor Hadrian, and it is probable, therefore, that the seeds were 1,600 or 1,700 years old."

Numerous cases are recorded in which earth thrown up from a considerable depth has become covered with a vegetation foreign to the neighborhood in which it appears, and the germs of which must have remained dormant for a great length of time. The fact that seeds retain their vitality from year to year, when exposed to atmospheric influences,

makes it appear highly probable that they will retain it for a much longer period, how long no one can say, when light, heat and moisture are withdrawn.

It is a fact with which the agriculturist is perfectly aware, that seeds are not so apt to germinate on being kept over from year to year. This is owing to the effect of exposure to atmosphere and other influences, and every farmer or gardener should be particular to obtain the freshest seed for planting. Sometimes a crop is lost or greatly diminished, by the age of the seed.

This whole subject is of scientific and practical interest, and as such we commend it to the attention and investigation of our readers.

Merced People.

CLERODENDRON.

The *Clerodendron* is a greenhouse shrub, and deserves as such a place in every collection, and we cannot assign any reason why it is so rarely met with. The variety first known to exist, was, we believe, found by Thornberg in Japan, and is known under the name of *Clerodendron fragrans*; of this again several varieties, single and double-flowering, exist. The flowers are white or pinkish white, very fragrant, and are produced at various seasons of the year, if properly treated. During the winter months the *Clerodendrons* should have their rest, and be kept rather dry; when Spring approaches, they should be cut back and receive a liberal supply of water; it is of importance to keep them during their time of growth and flowering, in a warm and moist atmosphere, an occasional sprinkling of the plant is therefore very beneficial. The soil should not be pulverized very fine; leaf-mould and light loam is an excellent mixture for them. They may be propagated by root cuttings, or the cuttings made from strong, ripened wood, which should receive bottom heat, if convenient.

In our climate the *Clerodendron fragrans* will do moderately well with the same treat-

ment as we give *Camellias*, and cuttings of this particular variety strike root here without any difficulty by being placed close under glass in an ordinary greenhouse.

But of late several varieties have been introduced, which, in our estimation, are far superior to the above-named as greenhouse plants, of which we will mention in particular the *Clerodendron Balfouri*, a very good specimen of which Mr. Reimer had on exhibition during the Horticultural Exhibition of last year. There was much to admire in the peculiar and very handsome blossoms. We are very sorry to learn that Mr. Reimer has not succeeded very well in the propagation of this plant, and he is persuaded that the *Balfouri* must be kept in a dry and rather warm atmosphere during our winter months. We are of the same opinion, but we are in hope that this plant will be brought under trial, wherever a little attention can be given to a few pet plants. We shall certainly give it a trial, and communicate the result in due time.

CALIFORNIA VINE GROWERS

And Wine and Brandy Manufacturers' Association.

Choice of Vines for Wine Making.

BY JOHN A. LOCKWOOD.

(Continued from page 146 of last number.)

These remarks will be confined to the consideration of the best varieties of wine grapes. The market demand for table grapes and raisin grapes will readily determine any questions that may arise respecting individual merits. It is already known with sufficient accuracy what grapes keep best, look best and dry best. We know that the Muscat of Alexandria and Flame Tokay are conspicuous in the category of grapes notable for splendid appearance and safe carriage, that the Muscat is in prominent place for raisin-making, and with the White Malaga extensively used for the raisin of commerce. That the Feher Zagos possesses qualities for raisin grape in having a delicate skin, few seed and a natu-

ral tendency to dry early, that has commended it for raisin making, but that the superior size of its competitors has given them the preference. The Muscats, Tokays, Chasselas, Hamburgs and other fine varieties of table grapes now in successful culture among us, leave nothing to be desired in this department of wine culture.

But the question as to the best varieties of grapes for wine making presents more difficulties. In choosing vines to grow wine grapes, regard should be had to their adaptability to soil and climate, as well as to the description of wine which it is intended to produce. In Europe this choice is less difficult than in California, where we cannot profit by lessons of long experience. In Europe, however, circumstances require them to calculate whether the quality of the product is more profitable than the quantity. Here we cannot afford to sacrifice quantity to quality. If there are favored spots in California, like certain spots on the Rhine, in Burgundy and elsewhere, where 200 gallons of a choice wine brings more money than 1,000 gallons of a wine in less repute, they remain to be discovered. Our object should be to ascertain what varieties of grape will yield the largest amount of wine having berries which contain in suitable proportions the elements best adapted to the manufacture of fine wines. This is the more important, because of the rule that quality and quantity rarely go together. Du Brueil lays it down as an axiom, that quality exclusively should not be thought of, except in those favored localities where the high price of the product will compensate for the smallness of the yield; everywhere else quantity must have the preference.

In this early stage of California vine culture, we do not require an extensive list of varieties. Our long, dry summers give a uniformity to our climate unknown in Europe. And there is, probably, less difference in the quality of such soil as should properly be selected for vineyards or its adaptation for grape growing, as in consequence of their

volcanic origin the elements of true nutrition are more constantly present. In France, 1,200 or more varieties of vines are cultivated. It certainly would simplify our operations, if we could designate those to be planted by units instead of thousands. Yet, it is not probable that we shall ever find a grape to unite with productiveness all the requisites of a desirable wine grape, if we aim to manufacture a wine above the ordinary kind. We require varieties to mix with each other. The wine of our Mission is improved by mixing with almost any variety having less sugar and more tartaric acid; nor are our best varieties so perfect that they may not be made better by commingling the must with the must of other varieties, having constituent qualities adapted to such a union; the quality of the wine is not only improved, but the success of manufacture is rendered more secure. Thus certain musts are liable to remain sweet for the want of ferment. These are corrected by adding must of different characteristics. This principle may be applied in various ways, as when sugar, tannin, acid or water may be in too large or too small proportions, and it is particularly demanded to impart flavor when required.

It is convenient to have varieties with diverse epochs of maturity, in order to prolong the vintage, and have the harvesting done gradually, so as to avoid being pressed with an unwieldy force of laborers at one time. This can be effected by planting such variety as will ripen at different periods. In Languedoc, whose climate more nearly resembles that of California than the more notable wine districts of France, this plan is systematically pursued. By planting one third which ripen in September, one third ripening a fortnight later, and another third which ripen still later. And here it may be remarked, *en passant*, that California might have derived lessons of more practical value in vineculture from Languedoc than she has from Germany and Northern France, from whence we have chiefly derived our example

and reproof, and it is not improbable that her favorite grapes may be those best adapted to our circumstances. Their vines, like ours, are planted comparatively far apart, and are trained as we train, with low stocks and short spurs. Their yield is reported as enormous, in fact, well nigh incredible—1,500, 2,000, and even 2,500 gallons to the acre. Flagg, in his work on European vineyards, mentions one proprietor (M. Mares) as making from 250 acres 375,000 gallons of wine. This would be at the rate of 1,500 gallons to the acre.

The names of the varieties best known among us we propose to give, with a reference necessarily brief to their characteristics, and then select from those regarded as entitled to our confidence and adapted to circumstances now existing in California. The Mission, or California, claims the first notice as the earliest known and most widely cultivated. Many still think it the most profitable grape. This opinion is less common every year, and will probably soon cease to be entertained at all. It is claimed for the Mission that it is of hardy growth, exempt from disease and accidents; that it makes good, sound, well-keeping wine, and in consequence of its large supply of sugar yields abundantly of spirit. This may all be true, and yet there are other varieties possessing all these qualities, and with the exception of its spirit capacity, possess them in a more eminent degree. It will scarcely be denied that it has some positive objections. The proportion of sugar is too large to that of tartaric acid to make an entirely acceptable wine. This saccharine excess is liable to suspend fermentation at a slightly-reduced temperature. The absence of an agreeable flavor is conspicuous. Its red wine is not in popular favor, nor does its dry white wine ever allow an excellence to exalt our State in product to a level of France and Germany. Yet those having vineyards largely planted in Mission grapes need have no regret on that account. It is an admirable adjunct to other grapes, to commingle their merits. Possessing in large measure sugar, the most

essential ingredient in wine, we may get aroma from one and tartness from another to supply its deficiencies in these qualities.

Black Malvoisie, the grape known as Pino, and by other synonyms (for our vinicultural nomenclature is eminently confusing), is entitled to rank among the highest of our wine grapes. It possesses all the good qualities claimed for the Mission, some of them in a higher degree. Thus in some localities it is more certain and more prolific. It ripens earlier. Made into white wine it has thus far promised well, while its red wine is better colored and of more agreeable color. Mixed with Mission for red wine, the last named is decidedly improved.

Zinfindal—a black grape of heavy product, standing among the very first in this respect. The two prominent excellences of its wine are tartness and a peculiar and delightful flavor resembling the raspberry—a flavor which the palate persistently relishes. Mixed with the Mission it favors fermentation and improves its color and aroma. Even when mixed in moderate proportions in ferruginous soils it is, *par excellence*, our red wine grape, the one which we confidently hope to contend successfully for the place in public esteem now worthily occupied by the skilled vintages of France. Those planting vines on suitable sites in soils rich in iron, cannot go far astray in planting ever so largely of this variety, for its white wine is also of superior quality. What other grape have we uniting abundant product and abundant flavor? The color of its red wine, too, is striking, not unlike the famous Montepulchaine. One objection to it should not be omitted mention of: its liability to sun-blast in certain localities. It would not be safe to plant it too freely where the Hamburg cannot succeed; but even then there is a partial compensation in a generous second crop. The second crop of Zinfindals is, as a rule, large, and unlike the second crop of most other grapes, and well worth gathering. It makes a wine of lighter color and body, but the flavor is scarcely inferior to that of the first crop.

The Rose of Peru is of hardy growth, and prolific. Not so succulent as the preceding, the wine product is in less proportion. Its wine is not well known. Some assert that it has made port wine of best promise. The Black Hamburg was extensively planted a few years ago, but now neglected chiefly from its liability to sun-blast. It is probably an inferior wine grape to the Black Malvoisie, besides being more certain.

Of white grapes, the Golden Chasselas, with its multitudinous synonyms, is entitled to a conspicuous place. It has a hardy stock, bears abundantly and ripens early. The wine is smooth and rather light, without a characteristic flavor.

The Berger, called Caveilac by the French, is a white grape, ripening late and a very heavy bearer. Wine light and tart — an admirable adjunct to the Mission to promote its fermentation, reduce its body and communicate tartness. It is, perhaps, the latest bearer among our wine grapes, unless we include the Queen of Nice, or White Nice, which likewise makes a light, tart wine, resembling the white *vin ordinaire*, which the lowest on the Rhine has served to him in the wine shop.

The Feher Zagos, a certain and good bearer, with more sugar and less tartaric acid than the above. The wine is smooth and delicate.

The Chasselas family (not including the so-called Golden or German Chasselas), of which the Chasselas Fontainbleau, Rose Chasselas and Barbaroux are prominent members, ripen among the earliest and bear well. Wine smooth, light, and keeps well, without characteristic flavor. The vines sucker badly, and require pruning with long spurs.

We now approach varieties entitled to a first consideration, if we were in search of the quality of the product without regard to the cost of production. Prominent among these are the Rieslings. The wines made from them in California, though of less excellence than the famous Rhenish vintages, are, in some cases, of superior quality and of high

promise, but the Riesling wine has not, so far, been sufficiently profitable and certain to have encouraged its rapid extension. It is alleged that high training will insure a good crop, but it has not been proven other than on a large scale that vines can thus be trained with profit. It certainly will not do so, if by a few heavy crops we impair the vigor, or, perhaps, sacrifice the vitality of the plant. Wherever high training is practiced in the Mississippi Valley, it requires an amount of labor that differs so widely from our economical processes as would make it to us an unsafe enterprise. On the whole, the profitableness of cultivating the Riesling grape may, up to this time, be regarded as an open question. The De Shay, sometimes called the Gray Riesling, makes a wine with considerable bouquet, but the same objection applies to it. Moreover, it requires more time to mature than our rates of interest justify. These remarks, perhaps, in a great measure, apply to those varieties that are properly classed as Burgundy grapes, as well as some grown in Champagne and the Gironde, and to be found in some California vineyards.

Of the musk grapes, the most valuable variety of wine is the Muscatel, otherwise called the Muscat Frontignac, the German Muscat, and by other synonyms. It ripens early, is a shy or moderate bearer, and requires a warm and rather fertile soil. Its cultivation on a more extensive scale in California is desirable, where we have so few grapes of decided flavor. In the single province of L'Hirault, France, there are 5,000 acres devoted to its culture, and yet the product of wine from it, in many instances, does not exceed sixty gallons to the acre, but it is, in such cases, sweet wine made from partially dried grapes. The Muscat of Alexandria bears better, but the flavor is inferior to the Frontignac. Ripening about the time of the Mission's maturity, their musts may be advantageously mixed.

In our present scarcity of flavoring grapes it may be desirable to those with extensive vineyards to have in them a few of our Amer-

ican grape vines, *V. Lupina*. The Catawba is, perhaps, the preferable, on account of its color. A small quantity of the must of the Catawba and Muscatel, mixed with a much larger quantity of Mission must, has been known to make a sensible improvement. The subject is worthy of consideration.

To sum up in a few words the conclusions derived from the above imperfect descriptions from the best grapes to plant for wine making, where a very small number are to be selected, we enumerate the Black Malvoisie and Zinfindal among the colored grapes, and the Golden Chasselas, with the Berger, Feher Zagos and Chasselas Fontainebleau among the white grapes. Of musk grapes, the Muscatel is preferred. To owners of Mission vineyards, in search of suitable varieties of grapes, to mix with them at the press; or their must in the cask, the Malvoisie, and Zinfindal for red wine, and Berger, and Muscat for white are deemed preferable. When red wine only is intended to be made, and only one variety to be planted, the Zinfindal is esteemed the best, if the site is a proper one and the soil abounds in iron.

To conclude, it must be borne in mind that in the infancy of California viniculture, accuracy is unattainable on this subject. In the oldest and most enlightened wine countries of Europe they still want positive knowledge on points of interest that have elicited their attention for centuries; and yet it will not be without profit if we succeed at this early day in finding ever so few kinds, in our search for the best, that will give assurance to those planting new vineyards or extending old ones, that what they plant will not be of a variety altogether unsuited to surrounding circumstances. The losses sustained by propagating useless vines, whose qualities remained to be tested, has been very great, and continues to be. If hereafter those in doubt would limit their selections to the few we have named, these errors would greatly be avoided. In the meanwhile, it does not follow that we possess the very best kinds for our purpose. With the soil and climate of

California our vineyards should not be surpassed in productiveness by the vineyards of Languedoc, but we have reliable testimony that they are. If the variety cultivated contributes to this superiority, we should not delay in procuring those whose reputation for productiveness is best established.

The views here presented are not set forth authoritatively as the expression of the widest experience and best judgment. It is not probable that they will meet with an approach to general concurrence, but if they accomplish nothing more than to invite inquiry and promote investigation, they will serve a good purpose. It does not challenge criticism, but invokes investigation.

Selection of Varieties of Grapes for General Culture.

BY GEORGE WEST, OF STOCKTON.

The selection of varieties most profitable for planting in different localities, is one of the most difficult points to determine. I have selected the following, which are grown around here, and sufficiently tested for wine or market to warrant planting: For early market the Madeline Chasselas de Fontainebleau and Lady Sweetwater ripen the first of August and ship well. Black Malvoisie, Black Olive, Black Hamburg, last of August; bear well and fine flavor; Black Prince ripens from September 1st to 10th; strong grower, large bearer, ships well; one of the most profitable at present. Rein de Nice, good grower, bears well, fine color, last of September. White Muscat of Alexandria, fine flavor, sets poorly some seasons; last of September. Black Morocco, fine large grape, shy bearer, brings a high price; October. Black Ferrara, grows and bears well, ripens late and keeps longer than any grapes we have in cultivation. Mission, when grown for table use, is large-sized, fine color and flavor; pays well. For wine we are planting White Frontignac; will produce from three to four tons to the acre; considered one of the best of the musk grapes; ripe middle of

September. Riesling, White Tokay, Bergen, Chasselas de Fontainbleau, all bear well and ripen early. Zinfindal bears large crops, makes an excellent white or red wine. Black Malvoisie, fine white or red wine. Black Burgundy, good bearer, makes red wine of good body. Black Malaga; good bearer; fine musk flavor. Mission I find best for port, sherry and madeira. The last two will not develop their flavor until the fifth year. For raisins—White Malaga, good bearer; oval berry of good size; hard, pulpy grape, which dries well; ripens in September. White Muscat of Alexandria—makes a fine flavored raisin; ripens rather late some seasons for drying outside.

Planting and Pruning the Vine.

BY J. R. NICHERSON, PLACER.

To the Chairman of Committee on the Cultivation and Pruning of the Grape: I beg leave to report, first, on location. I prefer a granite formation, because it is better adapted to the growth of the grape, producing more saccharine matter, and is more easily cultivated. Next, I would prefer slate, with a high and dry location and perfect drainage, so that the roots will not enter into the perpetual water, and as level as I could get it, with as few outcropping rocks as possible. Next, gently-sloping hillsides. Remove the timber, stumps and roots; plow the land deep and well, say from fifteen to eighteen inches deep; harrow, roll and pulverize well; then lay off the rows eight feet apart both ways and plant good rooted vines, by all means. Upon this depends all your future prospects, for if you plant cuttings to remain in vineyard form, the results will be unfavorable, and you will always regret it, for several reasons. Plant cuttings, and they will strike roots at the bottom that will go down to the water, if possible, and never throw out any surface-feeders, which are necessary to get heat, light and air that will produce good fruit. The effect of cuttings is to make wood in abundance and not fruit, and what fruit they

do produce, is inferior in bunch and berry and destitute of saccharine matter, which is so essential to make good wine. I think that is the reason why we have so much of poor, acid wines in California.

We do not economize when we set out cuttings. The percentage in loss, and the trouble, waste of time and labor make the cost more than to plant good roots at the start. I can tell by the kind and quality of the wood where I have set out a cutting. If good roots are planted they set two kinds of roots, a few deep feeders to get moisture in a dry time, but the most of them are surface-feeders, essential to the development of a perfect grape. This subject is entitled to more consideration than is generally conceded to it. Upon this proposition depends our future success. If I were going to plant cuttings I would select a hard bed-rock that the roots could not penetrate. I noticed in making an excavation eighteen feet deep, to build a wine-house, in the rotten granite, solid though not hard, that the roots from cuttings planted eight years before had penetrated to that depth half an inch in diameter, when rooted vines had not gone into the solid rock. I make mention of this fact, for it is a lesson in nature that we should notice.

After the land is ready, get a lot of stakes eight feet long for sight and measuring poles. Set these up at convenient distances to run a trench by. As the plow passes up the first turn, set the stakes for the next row. Turn three furrows in a trench, making it eighteen inches deep. Every tenth row leave ten feet for a wagon road. In this way the horses do the most of the work. Then prepare a long pole of light material, and mark it correctly every eight feet to dig holes by. Set up stakes across the end to start from. It is necessary to start from one end every time so as to have the rows straight both ways. Lay this pole by the side of the trench. Be sure and see that the end of the measure is straight with the end line; if so, there will be no trouble. Set

four or five men to digging holes. The holes should be dug in front of the mark on the pole, banking up dirt at the mark on the pole, so that the setters will have this guide to set by. When through this row return to the first end and start as before. One man will take roots in his arms and hold them in place, while another will with a shovel throw dirt around them to hold them. When a row is set take a one-horse plow and fill up the trench. In this way the holes need not be dug, except enough to get the roots fairly in and the vines straight. All the old wood should be put in the ground, leaving out but one eye.

In this way a vineyard can be planted quickly and cheaply, and much better than if the holes were dug by hand. If strong roots are planted they will make sufficient wood the first season to form a good, straight shoot for the vine. When the young shoot gets eighteen inches high cut it off at twelve inches high. Place a stake by it and tie the top of the vine to the stake. The two top eyes will start and make spurs for a head. Keep all undergrowth below cut off so as to make them strong and stocky. At the next pruning time cut these two limbs off to two eyes. At the second pruning, when there will be plenty of wood to form a head, leave three or four spurs, cutting back to three eyes.

At the third pruning cut back to the three eyes; this season they will bear considerable fruit. Pains should be taken in forming a good, well-balanced head, the wood equally distributed around the stake so as to give it a perfect equilibrium. In leaving three eyes on the spurs it does not induce so much non-bearing wood, as the first eye is a wood bud; the next two produce fruit. These second and third buds absorb the sap of the vine so as not to force the first. In this way there is less wood and more fruit and foliage to protect the fruit from the sun and admit plenty of heat, light and air for the development of the fruit. If pruned back to one bud the dormant buds will be forced, which will

make wood and very weak. At the fourth pruning select six or eight of the strongest and best limbs for your head, always cutting back to the nearest to the old wood. In this way the head of the vine does not increase in height. I think a vine trimmed one foot high is the best height for many reasons: First—It is more easily cultivated. In plowing the singletrees pass over the head and are less liable to break the shoots; the fruit is not so easily sunburnt; gets the benefit of the warmth of the earth at night; the fruit nearest to the end on the ground is less liable to mildew or any other disease. In fact, I have never seen a bunch of grapes lying on the ground mildewed, and generally they are larger and more perfect in bunch and berry. The ground should be well cultivated every year. I use a one-horse shovel-plow.

For breaking up ground use a small harrow made for that purpose. Plow both ways and harrow so as to pulverize, then level the ground, using the horse-hoe to keep the weeds down and the ground mellow through the Summer. The stakes used in supporting vines should be eighteen inches long, sharp at one end, driven in six inches by the side of the vine. They can be made of oak, red-wood or sugarpine cheaply. They can be removed the third year, as the vine will be able to stand alone. They can be used in young vineyards. Using stakes on a young vine is a great advantage in many ways. They keep the vines straight till they are able to hold up the fruit; they are more easily worked and bear more fruit."

CRAWFORD MARKETS, BOMBAY.

Among the many curious and interesting sights open to the stranger in Bombay, there is none more interesting than the Crawford Markets. These buildings enclose a large square, and are devoted to the sale of almost all that is necessary as food for man. Here the cooks and butlers throng, and of fish, flesh, fowl and fruits, a good supply is offered

them. The markets have all been erected within the last few years, and each has been designed for its particular trade; but the one on which most favor has been lavished, one may say, both by nature and art, is that which we are most interested in—the fruit and vegetable market. As we get down at the porch, we hear the busy hum of bargaining crowds, and as we enter, the picture that opens to us beggars description. We are in a large iron building, something like a metropolitan railway station. In front is a beautiful drinking fountain, and on either hand stretch the lines of stalls. To the right they are loaded with fruit and flowers; to the left with vegetables.

Let us turn to the right. Here are three lanes running lengthways down the building, with stalls on either side. The lanes are crowded with buyers of as varied race and appearance as the fruits that are offered. Here a Parsee butler is culling the finest for the table of some rich fire-worshipper; there a tall, ebony-faced African is haggling over the price of a dozen plantains. Here the “mild” Hindoo is buying the plantain leaves that will serve as plates at a feast; the Kutchee Bunia, who not only eschews animal food, but will eat nothing that grows under the soil; the British Jack Tar, the tall, grave Arab, the fair European lady and her sable sister are here—every one wants fruit. As we press through the motley crowd we are pressed, in a mixture of English and Hindostanee, to buy, but we don't buy much; we see what can be bought and learn the prices: Grapes, 6d. per lb.; they are a small, white grape, sweeter, but not so good-looking as we get at home for 10d. to 1s. per lb. Cabul grapes are generally plentiful, but are not to be seen now; they are a large, white, oblong berry, of delicious flavor; they come to market in little boxes, with the berries laid out separately in cotton wool, and usually sells at about 1s. 6d. a box of 100 berries. Oranges, 2s. a dozen; pineapples, 3d. each; bananas and plantains, 2d. to 6d. a dozen; peaches and strawberries are to be seen occasionally, but

are out just now. The stalls are about three feet high; underneath is a small store, and, above, the dealer sits squat among his wares, while behind, on a strong iron railing, hang the grand bunches of bananas, some of them half a hundred weight.

Here are the flowers. Roses, 6d. a hundred; they are gathered without stalks, and strung into garlands, that are worn on festive occasions; their fragrance is delightful. Bouquets of jasmine, white and red oleanders, hibiscus of sorts, a pretty poinciana, and allamanda flowers, made up in the showy bracts of *Poinsettia pulcherrima* and the leaves of *Croton longifolium*, rival, in brilliancy of color, at least, if not in tasteful arrangement, the products of Covent Garden; the best may be had for 3d.

Vegetables are in great force; they are almost all European sorts, and a great host of Eastern ones are to be had. Of European sorts, asparagus, broad beans and seakale, are absent; the two former can be grown, but don't pay.

Cabbage, cauliflower, kohl rabi, turnips, carrots, peas, vegetable marrows, etc., are plentiful, and sold at about the same price as in London. Here is the wonderful radish that created such a sensation in London a few years ago: the unripe pods are selling at 1½d. per lb.; and the dudia, with a striking resemblance to the “new species of cucumber from China,” that we see advertised at 3s. 6d. per seed; it is a delicious vegetable, and is offered at 3d. each. Cucurbitaceæ are in great variety, from the dudia, a fit load for a man, or the snake gourd, five feet long, to the gherkin, the size of his finger.

Cocoanuts are 1d. each, Betel-nuts, the fruit of the *Areca catechu*, 6d. per lb. Tarwara, the albumen from the fruit of *Borassus flabelliformis*, is a mawkish, tasteless fruit (at least, when uncooked), but it is in great demand. Seedlings of this stupendous palm are offered, and are said to be a delicate vegetable; these, with dates in the dried fruit department, are all which the palm tribe supplies here.

The division of labor seems perfect, for

here are the dealers in pot herbs and small salads; mint, thyme and parsley are plentiful, with mustard and cress in perfection. Then comes the herbalist; he has leaves of *Calotropis gigantea*, for sores, the flowers for affections of the eyes; *Euphorbias*, for cough mixtures; *Datura* leaves, for reducing swelled glands; lemon-grass, for fevers, and many others.

On the other side are the dried fruit stalls, with the same variety and prices as in London.
Melbourne Times.

PROTECTIVE DUTIES ON TREES AND PLANTS

Every year, about this time, there is much agitation about this subject. It is one which concerns every person who has any interest in gardening, but one which agricultural and horticultural papers almost ignore. It is a question so much mixed up with politics, and politics the *Gardener's Monthly*, at least, tries to avoid. People will reason on almost any subject; but on a political question they simply dispute, each party striving for a party victory.

But there are some facts in this matter which seem clear without risk of offending those who listen. A Massachusetts correspondent sends us a communication, in which he states that manufacturers there who are active in demanding a duty of fifty or more per cent. on their own goods, are yet working for a repeal of the plant duty. But if we understand the law right, plants are duty free now to all except nurserymen. Nurserymen and seedsmen pay duties, but not amateurs. The foreign nurseryman or seedsman can sell direct to the American gentleman, but the American nurseryman or seedsman must pay thirty per cent. in gold for the privilege of doing so. Why this spite against the American trader we never knew. We protested with all our ability to the Congressional Committee against this when proposed, a year ago, but it was of no avail.

Suppose the duties are repealed altogether, and the commercial man and what ought to

be his customer, be then put on an equal footing, will the American nurseryman or seed-grower be able to pay the same high wages he now does, and yet compete with the cheap labor of the seed farms of Europe? It was not easy for him to do so before the war, when labor was lower. The expense of working a nursery establishment is now just double what it was before that time, while the actual prices are just about the same. It is not to be expected that he can compete with them. He cannot do it. The question is then narrowed down to this: Is it for the interest of the nation to break up these nursery establishments, in order that the principle of buying in the cheapest market may be carried out? Here we suppose we encroach on the domain of politics, and we shall leave to politics the answering of this question.

One thing, however, remains: Though the interior nurseries may be crushed and broken by the free European competition, those of us who live near the seaboard will be benefited pecuniarily. If we cannot grow things ourselves, we can become agents and importers for European houses, in which the profits are as great as in home raising, as the business of the whole country thus passes through the hands of a few. It is a matter which concerns our large Eastern firms very little. They are safe either way. It is rather a question for the interior and the smaller firms, scattered all over the country, to decide.

There will always be some annoyance from tree duties, on account of the delay at the Custom House with these perishable goods. Generally, however, plants, if well packed, get through even with this delay. But even with this, it is still a question whether for this, a principle which in some measure prevents the great pressure of cheap foreign labor on our tree-raisers and seed-growers, should be abandoned. We do not pretend to decide this question, but merely to present the case as it appears to us.

Gardener's Monthly.

Editorial Portfolio.

DUTIES ON IMPORTED PLANTS AND TREES.

In order to carry on the affairs of a nation, revenues must be established to meet their current expenses, but the revenue system should be founded upon a proper basis, and should not be oppressive or detrimental to any particular branch of industry. An opinion seems to prevail, that the present system should undergo a very material change.

There is no disposition on our part to overstep the limits of our sphere, namely, Horticulture; but when our progress is stayed by a law which works injuriously, we feel called upon to contribute our share towards a remedy. One of the defects in our Custom House regulations, is, the duty on the import of plants. We have agitated this matter quietly among our nurserymen and florists for some time past, but up to the present time nothing has been done to remedy the evil but talk. We noticed a few days since that the *Gardener's Monthly*, of Philadelphia, has taken up the subject in an ably written article, which we publish in another column. We think that more energetic steps should be taken by the various Horticultural and Agricultural Societies throughout the land, and that the Horticultural and Agricultural publications could very ably assist in giving material aid to this effort, to have the obnoxious and injurious regulation making plants subject to Custom House duties, abolished.

There are various reasons why this tax should be removed. We call the attention of men in the business to the most important of them. First of all, it certainly is the true policy of our people to introduce new plants; these may be made useful in various ways, so that we may derive all the benefits which our varied climates and soils are able to afford us, and for this reason there should be no restrictions in the form of duties; nay, we will go beyond that, and assert, that the true policy is to encourage in every possible

way the introduction of foreign trees and plants.

Second, we hold that the vexatious delays in the Custom Houses are most injurious to plants which have already gone through long journeys and rough treatment on their way, especially when we consider what perishable articles plants are, and that a few days of additional delay often results in the total loss of the entire shipment. We know of instances where plants have been detained in the Custom House for weeks. This may have been due, to some extent, to the importer, who may not have made himself acquainted with the routine of business in our Custom Houses; but much blame must be attached to officials, who under our present rude system are not disposed to use proper exertions to facilitate business, and who frequently will not even condescend to answer a civil question or inquiry with ordinary politeness.

It may, on the other side be argued, that the duty on plants and trees protects our establishments at home, and while labor is cheaper in Europe, for instance, than in this country, that our nurserymen and florists could not compete with European establishments in the prices. We think this point is not well taken. Those who are in want of trees and plants will always be willing, and will find it to their advantage, to purchase of our home establishments at an advanced price. The risk and the uncertainty in importing plants from foreign countries will always cause a preference in favor of home growers, who are better judges of that which is best adapted to our country.

We shall at some future time have a little more to say in regard to this matter, but we will take the responsibility of declaring, that our nurserymen and florists are unanimously in favor of having the duties on the import of plants and trees abolished.

We hope that a move will be made throughout the country to lay this matter before our representatives in Washington, who may be willing to entertain such a proposition. Who will take hold and push this matter?

PLANT OUT MAPLES.

It is high time that the young maples you have intended to set out this season along the public highway through your farm, or around your house for shade, should be in the ground. The maple buds are springing fast, indicating an early Spring, and a delay of a week or ten days may seriously damage the prospect of success in the planting.

A few years ago, and scarcely a tree was planted for shade or ornament, while the native growth of trees was wholly, and as we think, barbarously cut down. But latterly the public taste has been improving, and we see, especially in the larger towns, a large annual increase in the planting of native trees, generally maples, for shade and ornament. There is the same reason to induce the people of the small towns and farmers to plant trees, as there is for such planting in the cities. Many of the small towns in the State have a desolate appearance, which would be wholly cured by lines of thrifty maples along the streets. Forest Grove is noted for its great natural beauty, and which is entirely attributable to its beautiful groves of oaks, and which would entirely disappear, leaving nothing but a rambling village in a great fern patch, if those oaks were destroyed.

The new railroad towns, like Gervais, Halsey, Junction, and Cornelius, ought to take this hint (and also take the *Farmer*), plant trees in front of every man's lot, and add to the beauty and attractiveness of the place, and thus add wealth and prosperity. It takes *years* to produce a handsome tree, while a handsome cottage can be erected and finished in three months. Many a homestead, suburban location, or location for the farmer's home, has been robbed of its greatest beauty and attraction by the barbarism that cut down the grand old trees which had been growing and expanding thereon for centuries. Let the oaks and a clump of beautiful evergreens stand. They will be a perpetual delight to the children, and bind their hearts to the old homestead through all after life.

Where you desire evergreens, and they are very desirable, adding cheerfulness to the landscape, and reminding you of Summer throughout the Winter, they can be secured by transplanting just as the buds begin to start in the Spring. But the transplanting must be done with care, selecting trees six to eight feet in height, growing in solid earth, where you can get them out with a large ball of earth attached. As large a ball of earth as it is possible to remove with them should be carefully taken up, and then the ground about the roots should be protected from the drouth the first season, with a couple of wheelbarrow loads of well-rotted manure, sawdust or chip manure spread around.

Every farm will look better and appear to be more thrifty and prosperous, and always sell for more money, if the public highway through it is lined with ornamental trees. It is no trouble to get small maples, topped ten feet up; and then set them in every alternate fence corner, and the work is done.

Willamette Farmer.

FOREIGN INDUSTRIES.

At the meeting of the Foreign Industries and Forests Commission, Tuesday, it was decided to commence the examination of witnesses next week. The gentlemen to be first invited to attend are from those countries in Europe most famous for the special industries deemed suitable for this colony—Italy, France, Spain, and Portugal—and, as experts in their industries, they will be able to speak positively as to the prospects of introducing them here with advantage. The members of the Commission are also to be summoned for the consideration of forest matters next week. Those present yesterday were the chairman (Judge Bindon), the Hon. Captain Cole, and Baron von Mueller.—*Melbourne Times.*

ALL WET LANDS, except cranberry marshes, should be thoroughly drained.

WORK FOR MAY.

The season for planting trees, shrubs and vines is now over. Except in a very few exceptional cases, their growth and development will depend chiefly upon a proper and judicious treatment hereafter. It is important that the soil around them should be constantly cultivated, in order to keep the surface in a porous condition; by stirring the soil frequently, the moisture will be retained for a longer period of time; and if, in addition to this, mulching is resorted to, very little trouble will be experienced in maintaining trees, shrubs and vines through our dry season.

The past season has been favorable for new plantations, but the dry and excessive winds which prevailed during the first part of April exercised a retarding influence over vegetation generally; however, warm weather will soon be with us, and, with the abundance of moisture which has been retained in the soil to this time, we have every reason to believe that our Horticultural operations will meet with bountiful success.

Unexpectedly for this Coast, we experienced some heavy frosts during April; these have damaged, in many localities, the fruits and vines; while we have no remedy for this, we would, nevertheless, recommend to our viniculturists to run over the vineyards and to remove the young shoots which have been seriously injured by frost, by cutting them off close to the bud, where they started from; this operation will stimulate the production of new wood, which will yet yield fruit during the approaching season, although less in quantity than might have been expected before the late frosts.

In the Orchard, in the Vineyard and in our Gardens we should not neglect to keep the ground clear of weeds, which should by all means be removed before their growth to seed. The weeds thus removed will furnish an excellent material for mulching, while in our gardens they may be piled up, allowed to ferment and to decompose, by which means

we will obtain an excellent manure, or a light, porous and nutritious material to be mixed up with loam and sand for pot-plants. Such soil is equal to leaf-mould, and to cart it away, in order to get rid of it, is a great error, which, however, is very often committed.

In the Kitchen Garden, cabbages, cauliflowers and tomatoes may yet be transplanted from the frame, but the young tomato plants in particular should be shaded for a few days.

The Flower Garden is now in its brightest glory, everything appearing in its fullest vigor. We would advise our readers to remove all flowers which exhibit decay, as the fading blossoms mar the effect of those which are in perfection, and give to the plants an untidy appearance; besides, they absorb much of the strength and nourishment which the succeeding flowers so much require.

All summer-flowering, bulbous-rooted plants are making their appearance, and they in particular require a careful loosening of the surrounding soil.

Of Paeonies, we may say from our own experience, that, if newly-planted roots should show signs of flower buds, it will be advisable to remove them. The large flowers of the Paeonies are apt to exhaust the root too much before they are thoroughly established. Paeonies will not bloom well unless they are permitted to remain undisturbed for several years in the ground.

In cultivating Dahlias we strongly recommend the removal of all shoots but one, so that the full strength of the plant may be directed to this one stock, which will produce flowers to a greater perfection than if several stocks were allowed to develop themselves. In this case, it becomes imperative that proper stakes should be planted, to which the young stocks should be tied.

In another column we have given some hints on the culture of Annuals, which may yet be very successfully planted during the month of May. The ground should be thoroughly worked up before planting, and, after sowing, a light sprinkling of well-rotted ma-

nure will keep the surface from forming a hard crust in case of watering, which may become necessary during May.

House Plants should receive frequent airing and a more liberal supply of water than has been awarded them during the wet season. In watering plants, too much attention cannot be paid to the temperature of the water, particularly during warm days; it is very important to let the water stand in the sun for a little while before it is applied to the pot-plants; cold water, such as we receive from the pipes of our water-works, should never be given to plants during hot, or even warm days; the chills which the roots of plants receive must necessarily be very injurious.

Insects will show themselves particularly active among greenhouse plants at this time, and we strongly urge the close examination of plants, from time to time, and to destroy, if possible, these intruders; their destruction is the surest remedy for many of the evils of plant life.

Pinch off the shoots of all slender-growing plants, so as to compel a more bushy and compact growth, as we have already took occasion to urge in our April number.

Give to established cuttings and seedlings a little more air, and whenever the young seedlings begin to crowd each other, transplant into pots or boxes wider apart, so as to give them a chance to grow stocky; frequent transplanting has always a most beneficial effect upon such plants as *Calceolarias*, *Cinerarias*, *Primulas*, *Lobelias*, etc. After transplanting, shade for a few days; place them also under glass, and give them gradually more air.

GROWING THE TEA PLANT FROM SEED.

Mr. Wm. Saunders, Sup't. of Experimental Gardens of the Department of Agriculture, recommends saving tea seeds in boxes filled with light soil, covering them to a depth of half an inch with the same. A sash-covered

frame will afford the most favorable conditions of growth; but when this convenience is not available, the boxes may be placed in a sheltered and somewhat shaded position, in the open air, and the soil maintained in a damp, although not a wet, state. After one year's growth, they may be transplanted to permanent locations. So says the *Rural Californian*, and we should like the experiment tried on this Coast, in place of importing the plants from Japan.

ORANGES AND THEIR CONGENERS.

A correspondent to the *Rural Carolinian* says, on this subject:

"I am surprised that, when so much attention has of late been bestowed upon the cultivation of the Sweet Orange, no notice whatever has been taken of the *Mandarin*, the very best of all the family. It is rather small, and the tree partakes of this peculiarity, that it never grows quite so large as the common orange; the skin of the fruit is so thin and tender that no knife is required in peeling it, and it is almost as fragrant as the *Bergamotte Lemon*. The flesh is of a delicate rose-color, and is so much pleasanter than that of the other varieties, that it is styled the '*Citrus nobilis*.' The wood is also small and so are the leaves, and when grown from grafts the tree has no thorns, and being naturally of dwarfish growth, is the best suited for growing in tubs or pots. One tree grown in a small tub will yield a peck or more of fruit. It is only a little more tender than other varieties. Two trees grown on the south side of a residence on Bay Street in Beaufort, escaped serious injury from the intense cold of Christmas, 1870, and have borne fruit since.

The *Shaddock* is another variety well worthy of cultivation. The fruit is of enormous size, and is the very best for preserving, especially when canned, and although not very sweet, yet when properly peeled, it is quite palatable. Its flowers are the most fragrant

of all the orange family, and the tree, like the Mandarin, is only a little more easily injured by cold than the sweet orange.

The Bergamotte Lemon is another interesting and valuable variety. The fruit is of full lemon size, filled with juice, and the peel is very thin and emits the Bergamotte flavor upon the slightest scratch.

REPORT ON THE FRUIT MARKET.

In an early number of this Magazine we spoke of the unhealthy pressure of the Commission Business on the fruit-growers. The following article, which we copy from the *Call*, corroborates what we then said, and we again ask, How can this reform be accomplished; and who will inaugurate a movement to deliver us from this deep-rooted evil?

THE FRUIT COMMISSION BUSINESS.

EDITOR MORNING CALL: I was in hopes that some one interested in growing fruit, or selling on commission, would have written something for the papers since my two former communications. I would like to see the matter thoroughly ventilated, to see if there cannot be a more healthy business established for the producer as well as the seller, and throw some protection around the jobber and retailer. The fruit-growing business has grown to be quite extensive in all its branches. I have no reliable statistics to make any calculation from; perhaps there is over a million of dollars invested, directly and indirectly, in some of its branches. We have to send the fruit to market consigned to some one to sell for us, and have to submit to what they say. They sit as judges and jurors, and from their verdict there is no appeal, only to change to some other house, *perhaps for the worse*. *Honorable commission business* is right in the hands of business men of some standing. The commission houses have increased *fifty per cent. faster* than the increase of fruit. They all want to make money; but live they must in some way. They start in the trade with a few consign-

ments and no business capacity whatever; not much money on hand, rents due; and what is to be done? Why, sacrifice the property that belongs to some one else. There may be several that live in the same place, all engaged in the same business, always friends that would not do his neighbor a wrong. No. 1 sends his fruit to A; No. 2 sends his to B; and so on through the entire list, all paying a premium to some one to run an opposition, when they would not do it at home. Unless there is a change for the better, some body will have to *draw out of the business*. It is rather an up-hill business to devote from ten to fifteen years to grow fruit trees (and with some their last dollar is in their orchards, besides several hundreds of borrowed money); then to have our fruit slaughtered, as it has been the past Winter, is rather rough. I think the best thing for our protection is to form associations, elect our Directors, choose some good business house that has a reputation for *fair dealing*, that will work for *our* interest as well as their own, concentrate the business in the hands of a *few houses*, and let the rest do a *jobbing business*, which, in my judgment, would be profitable to them and more so to us. I wish the papers in the country towns would take up the matter and sift it to the bottom. They owe it to their patrons. I hope to hear from those who are producing. Are we like a drove of sheep being driven to the slaughter-pen without a word of remonstrance?

J. W. CASSIDY.

In reference to our more immediate subject—Fruit and Vegetables—the lateness of the season and the prevalence of frosts has somewhat retarded the arrival of various produce.

Cherries have just made their appearance, but are high, from 75c. to \$1 per lb., retail.

Strawberries are very plentiful and very fine (averaging 12½c. per lb.), and there is every promise of continued abundance.

Gooseberries are looking well and are plentiful, but are small; it is a bad practice to

gather them so early—the crop is cleared off before they can attain either size or flavor; they average from 8c. to 12c. per lb.

Rhubarb is fair in quality, at 12½c.

Apples are nearly all out of season, and scarce; the only varieties now left are American and Red-Cheek Pippins and Virginia Greenings.

Pears are quite out.

The Nut season is over, although a few may still be obtained.

Oranges are plentiful, but other tropical fruits are out.

Of Vegetables — Peas are plentiful and good, at from 5c. to 8c. per lb.

Asparagus also good and plentiful, at from 6c. to 10c.

String Beans have just come in; small supply and good, at 25c. per lb.

Cauliflowers are rather scarce.

Cabbages plentiful; new Cabbages fine.

Spinach is also fine and plentiful.

Artichokes are fetching from 2 to 3 bits per dozen.

New Potatoes are plentiful and good; the old are going out. Other vegetables in fair supply.

SAN FRANCISCO, May 6th, 1872.

FOREST AND TIMBER TREE CULTURE.

Our earnest hopes that the Governor would sign the law to encourage forest and timber-tree culture in California, which was passed by a large majority in both branches of the Legislature, have not been realized. The Governor saw fit to crush the bill. We do not know what his objections were. It is said that the great consideration with him was *economy*. If such was the reason, it is consoling to know that we have an executive who is willing to protect the tax-payers; but it was undoubtedly equally important to the people of this State, that a measure which had for its object not only the improvement of the condition of the farmer and the cultivator of the soil, but the future well-being of the nation, should not have been lost sight of

merely for a small pecuniary consideration. As the Governor had no means of knowing the importance of such a law, he should have taken counsel with men of both scientific and practical knowledge in a measure which to so great an extent concerns the welfare of the State.

State aid for the encouragement of forest-tree culture in California is therefore delayed to a more intelligent era; but the matter is being agitated everywhere throughout the United States with a stronger determination than ever before displayed. The people cannot, must not, any longer ignore the imperative necessity of tree culture.

FAVORS RECEIVED.

Transactions of the Wisconsin State Horticultural Society of 1871. The affairs of this Society, which numbers about one hundred members, seem to be in a very healthy condition.

Transactions of the Massachusetts Horticultural Society for 1871. This, the most prosperous Horticultural Society in the United States, has over five hundred life members, over five hundred annual members, and a large number of honorary and corresponding members.

A Colored Plate of new Fuchsias, published as a supplement to the *Garden Calendar* of Henry A. Dreer, Seed and Plant Establishment, Philadelphia, Pa.

From the Secretary of the Massachusetts Horticultural Society we received the schedule of Prizes for the year 1872.

We are indebted to Hon. Chas. W. Kendall for his able speech on Irrigation-wells in the Desert, etc., delivered in the House of Representatives.

CATALOGUES RECEIVED.

Descriptive Catalogue of new, rare and beautiful Plants, for Spring of 1872, cultivated and for sale by John Lane, Washington, D. C.

OUR EXCHANGE TABLE.

The *Boston Journal of Chemistry*, devoted to the science of Home Life, the Arts, Agriculture and Medicine, gives much valuable information in the field of practical chemistry. Published by J. M. Nichols & Co., Boston; price \$1 per annum.

The *American Farmer's Advocate*, official organ of the Agricultural Congress, advocates the business interests of the farmer and planter. Published monthly at Jackson, Tennessee; subscription price, \$1 per year.

The *El Paso Ranchman* is devoted to the general interests of Southern Colorado. Published at Fountain, Colorado, monthly, by B. F. Long & Co.; subscription price, \$1 per year.

The *Scientific Manual*, a monthly journal, devoted to Art, Mechanics, Manufactures, Inventions and Patents. It is published by J. S. Ferbe & Co, Cincinnati, Ohio; price \$1 per annum.

Heald's College Journal, is devoted to the interests of Commerce, Literature and Education, and has steadily improved ever since its first issue. Its present appearance is very creditable. Published by E. P. Heald, San Francisco; subscription price, \$1 per annum.

NEW BOOKS AND PERIODICALS.

Barry's Fruit Garden: By P. Barry. Published and for sale by Orange, Judd & Co., 245 Broadway, New York. This is a late and valuable publication, being practical and to the point. The illustrations are very distinct and easily comprehended. In addition to a complete Treatise on Fruit Trees, it also gives many practical hints in regard to Diseases, Insects, and the Gathering and Preserving of Fruits.

American Manures. We have been looking for a book of this kind for some time. It is written and published by William H. Bruckner, of Monroe, Michigan. Price \$1 50.

Partial Synopsis of the Work:

Chapter I. — Importance of the Work — Farming may be made Scientific — Book-knowledge is necessary to this — Object of Concentrated Manure—Secrecy and Frauds of Manufacturers—Immense Profits, etc., etc.

Chapter II. — Elements of Manures and Plants — Definition of Manure — A perfect Manure — Gaseous Elements — Acids — Basis — Alkalies — Phosphoric Acid — Bone-Phosphate of Lime — Neutral Phosphate of Lime — Super-Phosphate of Lime — Its Composition and Qualities — Ronna's Report, etc., etc.

Chapter III. — Composition of Plants — Analyses of Wheat, Rye, Corn, Oats, Barley, etc. — Elements necessary to be added as Manure, to produce a given crop, etc., etc.

Chapter IV. — Origin and Composition of Soils — Natural Sources of Elements required by plants, etc., etc.

Chapter V. — Money Value of Commercial Fertilizers, calculated from the market value of the raw material — General remarks on the Business, etc., etc.

Chapter VI. — The Nature and Value of Natural Manures — Necessity of their Accumulation and Preparation — Composting — How it should be done, and the Chemical Action necessary to be produced, etc., etc.

Chapter VII. — General Remarks — Analyses of Commercial Fertilizers, with Comments and Criticisms — methods of Analysis — Farmers' Certificates — What they are worth, etc. If desirable, the book may be obtained at our office.

"*Old and New*," for April, is to hand, and presents a very good appearance. Besides a good selection of choice and general reading matter, we find in it most valuable information upon the Condition and Progress of Society, of Literature and the Fine Arts. Published by Roberts Brothers, of Boston. Subscription price, \$4 per year.

Coll's Illustrated Scientific Magazine for April lies before us, and is entitled to particular notice. Its first-class reading matter, useful information for the household and notes on the Poultry Yard, Farm and Garden,

should make it most welcome to every family circle. Published by the Colt Publishing Company, New York, Albany and Buffalo. Subscription price with Chromo, \$2 50 per annum.

NEW AND RARE PLANTS.

The Director of the Botanical Gardens, Sydney, obtained a large collection of plants from the north eastern coast of this continent on the occasion of the visit of the Eclipse Expedition to Cape Sidmouth. The arrangements made subsequent to starting, by which the astronomical observations were taken on the island instead of the mainland, no doubt reduced the opportunities for botanical research; but, as a boat was placed at the disposal of the Director, and as he had the assistance of volunteers from the ship, Mr. Moore was enabled to make several excursions on the mainland, and to penetrate some distance into the interior. Time and equipments, however, did not permit of anything like a thorough examination of the country. On the coast there was either mangrove swamp or open forest ground intersected by belts of thick scrub, containing many interesting plants new to cultivation. In the collection by which our Botanic Gardens have been enriched we observe a very graceful palm, probably a species of *Sagus*, and a pitcher plant allied to *Nepenthes distillatoria*. Growing on the trees were species of *Dischidia* and *Dendrobium*, as well as those singular plants, but little known to botanists, called *Myrmecodia armata* and *Hodrophytum formicatum*. The last named were rare, but the *Myrmecodia* was very common, and, as usual, they were the *habitat* of colonies of ants. Plants were obtained. In the open forest grounds seeds and specimens were collected of two arborescent species of *Hakea*, of *Grevillea chrysodendron*, and a very beautiful shrub with large, cream-colored bracts, a species of *Mussenda*. From the sandy reaches near the coast, seeds and plants of a species of *Eugenia* were secured.

The shrub bore a profusion of fruit, about the size of a large cherry, having a most delicious sub-acid flavor, and believed to be one of the most agreeable fruits indigenous to Australia. A species of *Elæodendron* was found growing in company with this *Eugenia*, and it bears fruit of similar color and size. The cotton tree, *Cochlospermum gossypium*, grows everywhere in great abundance; and in some parts the ground was clothed with masses of that beautiful fan-leaved fern, *Schizæa dichotoma*. Seeds were obtained of *Guylandina bonduë*, and of two fine-flowering species of *Ipomea*. From the islands touched at during the cruise many valuable acquisitions were made both of plants and seeds. Fitzroy Island was, perhaps, more richly clothed with vegetation than any other. There, a new species of *Acrosticum* was found growing upon the rocks near the sea, to the south of the landing place, and a large quantity of seed of *Myristica insipida*, a very beautiful kind of nutmeg, was got. Among the ferns collected was *Lindseæa*, *Campyloneuron*, *Drynaria*, *Asplenium* and *Adiantum*. Plants of the palm, described by Brown under the name of *Livistona humilis*, but up to the present time not brought into cultivation, were secured, and the fronds of another fan-shaped palm, supposed to have been described by Brown under the name of *Livistona inerinis*, were found by some of the passengers. *Calamus Australis*, or the Lawyer Vine of the Colonist, was very abundant, and a tall-growing palm was seen at a distance, but was beyond reach. Near the shore were *Spathoidia* and *Sarcephalus*, and a large bright-foliaged species of *Eriginia*. That most beautiful of all tropical trees, *Calophyllum*, or *Tamana*, was most plentiful near the shore, and seeds of it were obtained, as also of a fine orange-flowered *Hibiscus*. A large Scitamineous plant was obtained, but was not in flower or seed. Cocoanuts were growing on the island, but not well. At Cape Sidmouth, on the mainland, the *Nonda*, upon the fruits of which Kennedy's party subsisted for some time, was plentiful, but

the fruit was not ripe. Although the Eclipse Expedition called at Frankland Island and Percy Island, nothing remarkable was obtained. The stay was very short, and these islands presented no great scope for botanical investigation.—*Sydney Mail*.

AMARANTHUS SALICIFOLIUS.

This plant seems to have achieved a great success with the florists of the East and in Europe. We have not yet seen it under cultivation on this Coast. The *Florist and Pomologist* speaks of it thus: "It is one of the most ornamental of its family; beautiful as a specimen pot-plant, and beautiful in suitable sheltered situations of the formal flower garden, during the Summer season. The drooping foliage, except in color, reminds one of some of the narrow-leaved crotons, and the whole plant, from its pyramidal outline, is not only remarkably fountain-like, but singularly graceful and beautiful."

BEAUCARNEA RECURVATA.

The Beaucarneas are of recent introduction, consequently are seldom seen in our conservatories. They belong to the *Liliaceae* or lily family, and are natives of the temperate regions of Mexico. The *B. recurvata* is an exceedingly graceful and ornamental plant, quite tropical in its appearance, and alike suitable for the conservatory or for bedding-out in Summer. The stem is remarkable for its bulb-like swelling at the base, and for the long tuft of gracefully recurved leaves at the top. The plants require considerable heat and a liberal supply of water during the season of most active growth. The soil best suited to the Beaucarneas is one composed largely of fibrous peat, with an admixture of sharp, coarse sand. Large plants should be allowed a full exposure to the sun during Summer, and should also be kept constantly supplied with water, because they require almost as much as the common *Calla* (*Richardia*).

An English writer says that they thrive best with their roots in water and their heads in an oven; but we have found no difficulty in growing this species in an ordinary greenhouse without special care. As Autumn approaches, water should be gradually withheld, to give the plant an opportunity to rest and ripen, and it should be kept quiet until Spring. Young seedlings, of course, can be kept growing, both Summer and Winter, until they are a few years old. The plants are of slow growth.

Moore's Rural New Yorker.

NEW DOUBLE FUCHSIA.

Champion of the World.

This is by far the largest Fuchsia that we yet possess. The footstalk is of unusual length and strength, so that the flowers stand out boldly. The tube is short, the sepals are very broad and of great substance, well reflexed and of a most beautiful coral red. The corolla is of immense size, and as it expands, forms two-thirds of a perfect ball, its color being of the most intensely bright, though dark purple. The plant is of free growth, tall, and blooms abundantly, so that for conservatory decoration it is one of the most valuable Fuchsias yet sent out.

Gardener's Chronicle.

NEW DWARF MIGNONETTE.

A new variety of the *Reseda odorata*, called the *Nova compacta multiflora*, has been brought out in Europe. It forms a dense, semi-globular bush, of about ten inches high, and eighteen inches across, the robust and vigorous branches being clothed with dark green leaves, and decorated with innumerable close spikes of reddish-tinted flowers. These flowers are said to be produced, without intermission, from Spring till late in Autumn, the blooming period being of longer duration in this than in any other variety, owing to the continuous branching growth. It seems very suitable for the garden border, or as a specimen.—*Horticulturist*.

PRIMULA JAPONICA.

(New Crimson Primrose.)

The *Florist* says of this valuable acquisition: "Hail! Queen of the Primroses! for so its introducer designates this lovely flower, which is as hardy as a peasant, and resplendent as a princess. It is just ten years since Mr. Fortune met with it in Japan; some plants were secured, but the journey home was too much for them, and despite every care none reached England alive. Ever since that time endeavors have been made to introduce this lovely plant. At last, perseverance has been rewarded, and plants have been raised in the establishment of Mr. W. Bull, of Chelsea. Our gardeners have thus secured a perfectly new, thoroughly hardy and exquisitely lovely Primrose, one which is really valuable. Of the hardiness of the *Primula Japonica* there can be no doubt, for plants have stood all the Winter, fully exposed, in the trying atmosphere of London. The *Floral Magazine* says: "A Primula a foot and a half high, bearing four or five separate whorls of flowers, each flower an inch in diameter, and of a splendid magenta color, and the plant perfectly hardy! Can anything be added to this to indicate its value?"

BAY DISTRICT HORTICULTURAL SOCIETY
OF CALIFORNIA.

(Regular Meeting, Saturday, April 27th, 1872.)

The minutes of the previous meeting were read, and approved.

The Committee on Exhibition Building reported progress, and asked for further time, which was granted.

The Committee on Premium List suggested that it would be expedient that the matter should be taken up in Committee of the whole.

A communication from W. H. Treen, Esq., Editor of Agriculture in the *Melbourne Times*, was read, wherein that gentleman offered his coöperation with the Society as a corresponding member. The communication was re-

ceived and the Secretary instructed to return thanks, etc.

W. H. Treer, Esq., was elected honorary member of the Society; Dr. F. Behr was also elected honorary member.

George Boreham, of Nicisio, Marin Co., was elected a regular member.

A lengthy discussion took place on the subject of the proposed Spring Exhibition. When the unusual lateness of the season, the exorbitant rents demanded for suitable sites, and the pending negotiations for an Exhibition Building, having all contributed to retard the preparations, it was resolved that it will be to the interest of the Society to abandon the Spring Exhibition, and to hold an annual one this season.

Mr. Reimer offered the following resolution:

Resolved, That the Spring Exhibition, as previously announced, be abandoned, and that an Annual Exhibition be held from Thursday, August 22d, to Saturday, September 7th, 1872.

On motion of Mr. Meyer this resolution was carried unanimously, and the Secretary was authorized to make the necessary announcement.

The Premium List for the Annual Exhibition was then taken under consideration, and finally adopted. The Secretary was authorized to have the Premium List printed.

HORTICULTURAL EXHIBITION.

(Under the auspices of the Bay District Horticultural Society.)

At a late meeting of the Bay District Horticultural Society, the report of whose proceedings is published in another column, it was resolved that it is expedient to merge the proposed Spring Exhibition into an annual one, to be held in the Hall, the time for opening of which was fixed for Thursday, August 22d, to close on Saturday, September 7th.

This will give ample time for every one interested to prepare himself, and we think,

for the reasons urged, that the change is for the better.

We hope and believe that this Exhibition will eclipse anything of the kind ever before undertaken on this Coast. It has our best wishes and support.

AGRICULTURAL FAIRS.

The State Fair, to be held at Sacramento, commences on the 19th day of September and continues for ten days.

The San Joaquin Valley Fair, to be held at Stockton, commences on the 10th day of September, and continues for four days.

An Exhibition of the Sonoma and Marin District Agricultural Fair will be held at Petaluma; it commences on Monday, September 9th, and will continue for six days.

The Santa Clara Agricultural Fair commences on the 2d day of September, and continues for six days at San José.

COLLEGE OF AGRICULTURE AND HORTICULTURE.

At a late meeting of the Board of Regents of the State University, Professor Bolander introduced the following resolution:

Resolved, That a Select Committee of Three be appointed by the Chair, to consider and report upon the best means for the early and practical opening of the College of Agriculture and Horticulture, and that the said Committee shall report at the next meeting of the Board.

The resolution was adopted, and the gentlemen appointed upon said Committee are Messrs. Bolander, Reed and Martin.

This is a good move, and we hope to see the matter taken in hand with energy. Theoretical education connected with physical practice, should be the motto of the college proposed.

WOOD ASHES.—The application of wood ashes will alone keep up the integrity of most soils, by supplying nearly all the organic substances needed.

OAKLAND FARMING, HORTICULTURAL AND INDUSTRIAL CLUB.

The officers elected are: For President—Dr. E. S. Carr; Vice-President—Charles W. Howard; Secretary—A. T. Dewey; Treasurer—Christian Bagge; Librarian—Charles H. Dwinelle.

The following gentlemen were also elected as Standing Committee on Horticulture: J. V. Webster, Christian Bagge, W. F. Kelsey, J. A. Hutchison, Harry Linden. On Floriculture: M. Pryall, S. Nolan, John Ross, J. H. Gilmore, and Mrs. C. L. Pierson. It is expected to hold a Horticultural Exhibition in May.

INJURY TO THE GRAPE CROP.

The *Alta California*, of April 22d, says, on this subject: "Our information in regard to the injury done by the frost on the morning of the 12th, to the vineyards, is not yet precise enough to enable us to say with confidence whether the grape crop will be less this year than last. Some of the grape growers think that it will probably not be larger. The most damage, according to the reports so far received, was done in the foothills of the Sierra Nevada, and in Anaheim, Santa Clara Valley, Sonoma Valley and Napa Valley. The vineyards on the hills and those which, on account of situation or variety of grape, were least advanced in growth, suffered least. Many of the peach and apricot trees in the mountain counties were badly bitten, and numerous peach orchards in the lowlands of the Sacramento Valley do not look well. Some harm has also been done to the strawberry fields in Santa Clara Valley."

One of our exchanges has the following on the

LATE FROST:

The recent frost did much damage to the grape vines at many points. Accounts from Colema, Folsom, Visalia, Knight's Ferry, Chico, and other places, represent the grapes as greatly injured. The orchards at Colema, Uniontown and Michigan Flat have suffered

severely. The crops in Yolo are in fine condition; so also at Colusa. The vineyards near Sacramento sustained no damage. About one third of the Santa Clara strawberry crop is damaged. Petaluma, Healdsburg and Marysville escaped the frost. Great damage was done to the vineyards in Sonoma county, particularly to those situated on low grounds. A meeting of vine growers was held last week, and from a comparison of notes it was estimated that the damage will amount to about one fifth or one sixth of the crop. The copious rains came in good time, and will prove of immense advantage. The ground in the vineyards had become so dry and hard that cultivation of the vines was next to impossible.

We clip the following items from the *Morning Call*:

FARMERS' CLUBS.

A simultaneous movement in nearly all the agricultural counties of the State, for the formation of Farmers' Clubs, where such institutions do not already exist, is at this time in progress. Perhaps no better method could be devised to advance the farming interest and secure to the agriculturists protection, than in monthly comparison of notes and interchange of sentiment. It has been found to work well in other States, and is to be specially commended in a new country like California.

WELL-BORING IN SAN BERNARDINO.

In the town of San Bernardino, which lies close to the margin of the Colorado Desert, several artesian wells have been flowing for some time past. A few days ago, two more were added to the number. Mr. Lepper bored to the depth of 207 feet, and struck a water vein which sends its aqueous flow to the surface through a two-inch pipe, and promises to be of permanent duration. Another fine stream, says the *Guardian*, was obtained on the lot of Judge Boren. A piece of gold was panned out from the dirt of this

well, which was obtained at a depth of 120 feet. These successful experiments at well-boring seem to leave but little doubt that water may be obtained at almost any place on the Desert by boring.

IMPORTATION OF QUAIL.

Several years ago, Hon. Charles Fairfax introduced several live grouse from the prairies of one of the Western States into California, and set them free in Marin County. The pot-hunters came along, however, and killed them off. The California Acclimatizing Society has just received twenty dozen of live Eastern quail, to be let loose in such place or places as may be deemed most favorable for their growth and multiplication. It is to be hoped that a watchful care may be extended over them, until such time as it is fairly proved whether they will flourish in California. Their habits of feeding are somewhat similar to our own varieties of quail, and we can see no good reason—if they are protected—why they should not increase as rapidly here as elsewhere.

THE SPANISH BAYONET.

The plant of the cacti family, known as the *Spanish Bayonet*, is at present bearing large clusters of handsome flowers. Were they one quarter as fragrant as they are beautiful, they would vie with the most choice productions of a cultivated garden. Most of our readers who have resided long in San Diego have seen these flowers; but many of our visitors and recent arrivals have not. To such as wish to gather them, we direct to the hills in the rear of La Playa and Roseville. Here they may be obtained in unlimited quantities, and those who are fond of something that presents a beautiful appearance can find nothing handsomer to adorn a parlor than a bunch of these elegant flowers. They can be gathered so that by giving them fresh water they can be kept for a week or ten days.

Exchange.

Editorial Cleanings.

PARKS FOR SMALL TOWNS.—An excellent suggestion comes from the Sacramento *Union*, to the effect that the small cities and towns of California should take measures for providing themselves with public recreation grounds, and should seek Legislative authority or assistance to that end, if necessary. The last Legislature of New York enlarged the powers of village trustees, so that they might lay out and improve small parks, and, as the *Union* says, an act of the California Legislature, providing for a public park in every permanent village, would have a salutary effect on the habits, morals and tastes of our people. It may be said that the small towns are so closely neighbored by rural landscapes, and are often so rural in themselves, that they do not need tree-planted squares or larger public cultivated grounds. But it is a fact, that the surroundings of these towns and villages are often of the most dreary character, and that only by long drives or walks are pleasant resorts accessible. This is even more true in California than at the East, and especially in our treeless valleys, where the heat is most intense. Every one of our permanent towns should have its public recreation grounds, proportioned in size to the importance and prospects of the place. Now, while the required land can be cheaply procured, is the time to agitate the subject, and to decide what legislation is needed. In many cases, public-spirited citizens would be willing to give the land outright. In some cases, the towns own enough for the purpose. The cost of planting trees and shrubs, and yearly tending them would be comparatively small. Our climate is highly favorable, and the growth of two years, anywhere away from the strongest sea-winds, would secure beautiful shady retreats. The Spanish settlers of the State always left a large square, or plaza, in the heart of each village, intended to be planted and beautified eventually. We ought to improve on this

hint, which with them was a reminiscence of Old-World luxuriance, perhaps borrowed from the Moors, and provide every town with a small park.—*Bulletin*.

ARBORICULTURE.—“Plant trees” has been said so often, by way of advice to the people of California, that we doubt if any article now on the subject can offer any further inducements or lend any interest to the matter. Nevertheless, it is a live topic, which never will become exhausted as long as the consumption of wood is greater than the production. It can be shown, and has often been shown, that the dry plains of the Sacramento and San Joaquin valleys may become vastly changed in the utilitarian sense as well as in landscape scenery, by the cultivation of forests. It is, however, foreign to our purposes to go beyond the wants of our own coast counties in this respect. We wish to impress upon our readers, not a scientific theory, but a practical opportunity for this enterprise. The cultivation of a forest may seem, at first glance, as a matter to be left to enthusiasts and capitalists. Such an idea is very erroneous. There is no one of our farmers or stock raisers who cannot, by a little enterprise and industry, obtain either a title to or lease of some fertile piece of mountain land—some cañon which is at present only used for grazing, or who cannot appropriate a corner of his own lands or even the marginal surroundings, banks of streams, etc. for the purpose. Land suitable for growing trees can be purchased in abundance for five dollars per acre or even less. One hundred acres of even rough, wild land, unsuitable for the plough, may be set out in locust, eucalyptus or walnut at a very slight cost. When once in growing condition, the trees will require but little attention; and while the farmer is dreaming of what shall come next, his fortune is being made for him. In ten or twelve years a piece of otherwise useless land may be converted into a forest which will yield a great income. How this

is true, is easily shown. For fence posts, railroad ties and all purposes which require wood that will not readily rot when in contact with a moist soil, a supply of material for that purpose will always find a ready market. All of our readers have had experience enough to teach them that in a few years a locust tree will attain sufficient size to make several posts or ties. Let them sit down some evening and calculate the number of such trees that can be grown from the seed on an acre of ground, and then demonstrate to themselves the probable profit. It would be thousands of dollars for every one hundred invested in the work. It is not a question of time, simply; while growing, the forest will acquire a commercial value. If the farmer should desire to leave his present home, his work will not go for nought. Take the hint and try it. Look at the nearest and most accessible piece of land that you have heretofore considered worthless, and before this Spring is over, run furrows through it, regularly or irregularly, and drop your seeds. You can buy them at a very small cost, and you will never regret the purchase. —*Saucelito Herald.*

CULTIVATION OF TOBACCO.—W. H. White, of South Windsor, writes thus about the cultivation of tobacco in Connecticut: The geologic conformation of the towns of South Windsor and East Hartford, where the greatest success is attained in growing tobacco, is mainly a succession of plateaus, or steps; first, the bank of the river is higher than the ground a little back to the next step; this portion is usually overflowed by high water, is known as meadow land, and is chiefly devoted to grass, furnishing a large amount of hay, with more or less pasture in the lower ground and back portion; next follows a step affording soil for culture of various crops, pasture, etc. We next come to the highest ground, along which the main road runs, near which is the best soil for the crop. The soil is generally an alluvial, sandy loam, vary-

ing in composition from a heavy sandy loam to a light one containing very little clay. The heavier soils produce the heaviest tobacco, the great crops of 2,900 down to 2,000 pounds. The lighter loams are underlaid with a yellowish sandy loam; the heavier ones have a darker sub-soil, with a darker colored surface soil. The light-colored surface, with light sub-soil, grows the finer qualities of wrappers, and averages, under thorough culture, about 2,000 to 2,400 pounds per acre. In the back part of these towns the soil is of somewhat different character, yet growing good crops of tobacco, usually selling at a little less price than that nearer the river; to the traveler, or casual observer, much of the soil appears like an unproductive one, especially where uncultivated, yet with high culture and manuring, miracles are wrought, almost, in productiveness. The variety of tobacco grown, is that commonly known as "Connecticut seed leaf," which is very similar to the "Virginia tobacco;" there are different varieties, or rather variations, in the seed leaf, grown out of culture, etc., varying in their burning qualities, chiefly. Seed is changed from a gravelly to a sandy loam soil, and *vice versa*. This is thought to prevent what is termed "rust," a not unfrequent disease when the same seed is sown and grown year after year in the same locality or on the same farm. This same variety and seed has been widely diffused throughout the country, especially the West, yet the cured leaf from this seed has very little, if any of the qualities it has grown in this vicinity; I am informed that the tobacco grown in some of the Western States must be worked as soon as it has passed the "sweat," or it is good for little for cigar wrappers; but that grown here improves in quality by age, losing none of its toughness or strength, for fine wrappers; the reasons for this variation remains yet unexplained. Farm and stable manure are mainly relied upon for fertilizers; this, on the ground, costs, where purchased, about \$20 per cord of 164 feet, and is applied broad cast, just before corn-planting time in

Spring, evenly distributed over the whole surface, and plunged under four or five inches deep; the land then remains until about a week before setting time, just long enough to prepare the ground for setting previous to time, when it is ploughed again about two inches deeper than at first; in the intervening time one or two harrowings are given to destroy weeds, etc. Ten to twelve cords of stable manure are applied to the acre, and in addition, from 200 to 250 pounds of Peruvian guano, Chinchá brand, with an equal or somewhat greater quantity of plaster, mixed, to the acre, strewed in the drill as the ground is fitted for setting the plants. No other application of fertilizers is made to the crop, with us, but a very important essential is in setting good strong plants well, and then to keep them growing evenly throughout the whole field, from the time they take root to the time of harvesting, doing all in just the right time. Our people never split the stem, but hang without; we find that the tobacco weighs better and cures up better, and is every way better where we hang without splitting the stem. We also find it better to cut and house before it is fully ripe, than to wait till dead ripe.

CRANBERRY CULTURE. — From correspondence of the *Boston Cultivator*, it appears that Cranberry culture is destined to be very profitable in Wisconsin. In Berlin, Aurora and Warren are some 40,000 acres of marsh lands where the cranberry is indigenous and where by ditching, flowing and draining, the finest cranberries can be produced in the greatest abundance. The soil consists of peat or muck and silicious sand. Cass & Brother had, last year, three hundred acres under cultivation from which they gathered about 6,000 barrels, worth from \$11 to 13 a barrel, making the gross receipts about \$70,000. The adjacent Sackett marsh, less extensive, produced about 5,000 bbls. of very fine berries, which brought the highest market price. Lands which ten years since were almost valueless now sell at from \$500 to \$1,000 an acre.

Exchange.

COTTON ON DRY CREEK.—John G. McManus has recently received sixty pounds of cotton seed from Col. J. L. Strong, of Merced county, a portion of which will be planted by Messrs. Miller & Neely, Dry Creek, as an experiment. The discussion of the cotton question in the *Flag*, last fall, has awakened the interest of farmers on the subject, and a number of experiments will be tried this season to test the matter. We shall watch these experiments with interest, and report progress to the public from time to time.

Russian River Flag.

THE CAMPHOR TREE OF SUMATRA.—Among the most luxuriant and valuable trees on the Island of Sumatra, the first belongs to the *dryolanops camphora*. The tree is straight, extraordinarily tall, and has a gigantic crown, which overtops the other woody giants by one hundred feet or so. The stem is sometimes twenty feet thick. According to the natives, there are three kinds of camphor tree, which they name "mailengaun," "marbin tungan," and "marbin torgan," from the outward color of the bark, which is sometimes yellow, sometimes black, and often red. The bark is round and grooved, and is often overgrown with moss. The leaves are of a dark-green, oblong-oval in shape, and pointed. The outward form of the fruit is very like that of the acorn; the flower has five round petals, these are placed somewhat apart from each other, and the whole form much resembles a lily. The fruit is also impregnated with camphor, and is eaten by the natives when well ripened and fresh. The amazing height of the tree hinders the regular gathering, but when the tree yields its fruit, which takes place in March, April and May, the population go out to collect it, which they speedily effect, as, if the fruit be allowed to remain four days on the ground, it sends forth a root about the length of a finger, and becomes unfit to be eaten. Among other things, the fruit, when prepared with sugar, furnishes a tasty comfit or article of confec-

tionery. It is said that it is very unhealthy to remain near the camphor tree during the flowering season, because of the extraordinary hot exhalations from it during that period. The greater the age of the tree the more camphor it contains. Usually the order of the Rajah is given for a number of men, say thirty, to gather camphor in the bush belonging to territory which he claims.

PRODUCTION OF HONEY. — In 1860 the product of honey of the United States, reported, was 23,369,357 lbs. In the Winter of 1868-69 the Department of Agriculture sent out circulars to known aparians in most of the States, and received returns from 489 counties in the States. The aggregate number of hives reported was 722,385. Estimating for the other counties not reporting, and making due allowance for the fact that many of the counties reporting were giving special attention to bee culture, 2,000,000 of hives were deemed as low a figure as the returns would warrant. Allowing 15 lbs. of surplus honey to the hive (about two thirds of the average reported), the total product in 1868 would be 38,900,000 lbs., which, at an average valuation of 22½c. a lb., would give \$6,750,000. In 1868 the quantity of honey imported was 212,175 gallons; value, \$50,750, were re-exported. A very small quantity of domestic honey was exported the same year. These figures show conclusively that an immense trade in honey has been built up in this country, and is constantly increasing, which will eventually supersede all necessity for the importation of any from the West Indies. A small township in Minnesota reports 262 hives; from these hives 2,826 lbs. of surplus honey was taken in the season of 1869. When we consider that the cost of production is merely nominal, it will be seen that it pays to keep honey bees.

Exchange.

THE WEEPING WILLOW has a romantic history. The first scion was sent from Smyrna, in a box of figs, to Alexander Pope. General Clinton

brought a shoot from Pope's tree to America, in the time of the Revolution, which, passing into the hands of John Parke Custis, was planted on his estate in Virginia, thus becoming the progenitor of the weeping willows in this country.

GOOD SEED, whether for the garden or field, is indispensable to success. You may plow, pulverize and fertilize until your soil will be in the finest imaginable tilth, but if your seed is not good, your anticipated crops will prove failures. Let the grower who is about to make his seed purchase for the Spring bear these facts in careful remembrance, and not hesitate about the price, when he is fully assured that the article he is getting is the right one.—*Journal of the Farm.*

A KENTUCKY ENTOMOLOGIST has kept two vigorous mosquitoes under an inverted tumbler for six months without food, and they remain in a healthy condition. This clearly proves that their annoyance of mankind is entirely uncalled for, and not at all necessary to their sustenance.

It is now certain that nearly a million trees, chiefly almond and walnut, will be planted in the vicinity of Santa Barbara this year. Mr. O. L. Abbott will propagate 90,000 trees, mostly almond; Mr. N. W. Winton will have some 40,000 or 50,000; and many others will have large numbers. The lowest estimated profit, one year with another, is \$1,25 to the tree, or \$200 to the acre. The true yield is, no doubt, a third higher, or \$300 to the acre, profit. The full capacity of fully-matured groves of almonds is not less than \$500 profit to the acre. It is safe to say that within three years the income from nuts raised in this immediate vicinity will not be less than half a million dollars.

THE WOLFSKIN ORCHARD, in Los Angeles county, the oldest in the State, at present contains 1,700 bearing trees, and the yield this year is estimated at 1,360,000 oranges.

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ORCHIDS.

We have heretofore said little or nothing about this most interesting and peculiar class of plants, because we have considered that the culture of Orchids really belongs to a more advanced state of floriculture, and because heretofore they have received the attention only of enthusiasts. We are somewhat at a loss to say why this has been so, nevertheless florists will verify our statement.

The opinion was formerly prevalent that the cultivation of Orchids was a difficult enterprise, and many were actually discouraged from embarking in it; now it seems to have become an established fact, that Orchids may be grown to perfection under ordinary treatment. Formerly it was supposed that Orchids must have their own peculiarly-constructed glass-houses, and that they must be kept exclusively by themselves; now many of the varieties are found to do finely, if grown among other greenhouse plants. In the East, Orchid culture is now beginning to attract a great deal of attention, and has become fashionable, if we may use the expression. Geo. Such, the well-known florist of South Amboy, is growing a very large number of varieties, and has given the matter more attention, we believe, than any one else in this country. Prices are somewhat high, and always will be; this is due to some difficulties in their propagation, to the time which

is required to grow them into saleable specimens, and to the difficulty and expense of obtaining new varieties.

In California, Orchids, generally speaking, are hardly known. We see, here and there, an odd-looking specimen, cultivated, it seems, for curiosity's sake, and apparently without any signs of development. The only specimens which have, to our knowledge, come to perfection, are cultivated in Woodward's Gardens.

We have some amateurs among us who have a desire for something new, and we hope to call their attention to the cultivation of this class of plants by devoting some space to the subject.

Orchids are found almost everywhere, except in the extreme north or the extreme south, but the most beautiful varieties are natives of the tropics, where the moisture of the atmosphere and the increased temperature afford the principal requisites for their perfect development.

Asia and America, we believe, are particularly productive of Orchids; Mexico, Central America and Brazil are the more particular localities to which we look constantly for new and rare varieties of great beauty. They are found mostly in the mountainous districts, and within a short distance from the sea.

In the cultivation of Orchids, we must, however, bear in mind that there is no other

class of plants of a nature so diversified in habit and requirements as the one we have under consideration; it is evident, therefore, that they cannot be treated alike, nor is it possible to lay down a general rule for their proper cultivation.

Some Orchids grow in soil, others on blocks of wood, in rustic baskets, on rocks or other material, and all that is imperatively necessary for their growth seems to be an abundance of moisture in the atmosphere and a free exposure to light, although there are some Orchids found in the dark forests of the Tropics, in places where the sun never penetrates.

It is not necessary to keep the temperature very high, when we take into consideration, that in the Tropics Orchids are seldom found less than 2,000 feet above the level of the sea, and that at this height the atmosphere is much cooler than near that level. An atmosphere which will grow oranges or lemons to perfection, is sufficiently warm to suit most of the Orchid families, but certainly they require more moisture than either oranges or lemons. But we should consider a frequent general sprinkling of the house in which they are kept, and an occasional bath of the Orchid in water, of the same temperature as the house, sufficient for ordinary success.

In our next we shall give some practical hints on Orchid culture, from various sources, and will also name some of the most prominent varieties.

THE CRANBERRY AS AN ORNAMENTAL PLANT.

The *Ladies' Floral Cabinet* says: "It is one of the most beautiful of trailing plants in habit of growth; and then, too, its bright red berries are peculiarly ornamental, peeping out from among the bright green foliage. For a hanging basket or a flower stand, it is without a rival. A florist, away up in Minnesota, writes a word or two, showing our readers how to use it: 'Any of the leading

varieties are suitable for the purpose—perhaps the Bell variety, being an upright grower, should be recommended for the common flowerpot, and the others, as being affluent runners, for the hanging basket. They will grow profusely in the house, throwing out luxuriant shoots adorned with delicate blossoms and rich crimson fruit, which remains on the vine until the new blossoms appear. The directions are very simple: Fill the pot or box with rich earth or vegetable mould to within an inch and a half of the top, covering with an inch of clean sand; set the vines singly around the edge and in the middle, and keep tolerably moist. The bell variety makes a very pretty garden border, and is the only kind fit for that purpose, as the others like to claim all the land that joins them. J. E. W.'"

VEGETATION IN ALASKA.

The greater part of continental Alaska is covered with timber, but none of it has any commercial value at present for exportation. The best tree is the yellow cedar, which abounds in the hills and in the valleys in the northeastern districts. It is light, tough, durable, and in every respect well fitted for ship-building. It is, however, not large enough to make large masts. Spruce, hemlock and balsam-fir are also common in the same district, and they extend farther north. On the borders of the icy barrens, the willow, alder, poplar and birch are found.

One of the chief vegetable productions of northern Alaska is sphagnum—a moss which grows very abundantly, covering the ground to the depth of a foot or more, and forming a spongy mass that is always wet.

Edible berries are numerous, including the cranberry, which is now exported, and could be cultivated with profit.

The Aleutian Islands have no trees, and many of them have no vegetation of any kind.—*The West*.

BEAUTIFYING OUR HOMES.

Although we notice in most of our cities and large towns a disposition to improve the surroundings of dwellings, it is a most lamentable fact that very little is done to adorn the homes of our farmers and other residents of our rural districts.

It has been said that the rising generation of this country who are now growing up to manhood, despise farming and a country life, that the highest ambition of our boys and girls is, to live in the city. We think that this unfortunate and dangerous prejudice against rural life is due to the fact that no efforts are made to make farming life a pleasant and desirable occupation. It is true, we meet here and there a farm house which has every appearance of being a happy and pleasant home, but these are few indeed, compared with the large number of miserable buildings, destitute even of comfort (embellishment is entirely out of the question), without a tree or shrub to shelter them. When we inquire for the cause of this shameful neglect, we hear innumerable and varied excuses: this one fails to see the necessity for such improvements; another thinks of selling out at the next good chance; still another finds no time for work that don't pay, etc. All this is wrong; make a home comfortable, and the surroundings cheerful, by planting a few trees and shrubs, watch their growth and development in the hours of rest, and they will be sure to create a taste in you, if it did not already exist, for home improvements. The little ones, as they grow up, will become attached to the trees and flowers, and home will become dearer from day to day.

We sincerely believe that the surrounding trees and flowers exercise a powerful and refining influence upon our minds, while they give an air of comfort to the cottage, which wealth cannot furnish.

But this is not all; trees and shrubs necessarily enhance the value of our homes. As one of our contemporaries says: "It is a

great mistake to suppose that money spent in reasonably improving the appearance of a place is thrown away; it may be doubted whether there is any more direct method to increase its pecuniary value. Certainly its market value will depend very much upon its outward appearance. Tasteful and well-painted buildings, well-arranged yards and gardens with neat fences, shade-trees properly disposed, good farm fences and clean-kept fields, will set off a farm to a great advantage, and make an amazing difference when it comes to be sold; and even if it be not sold, the things just mentioned will add amazingly to the enjoyment of it by its possessor, if he be not blind to everything but the dollar. Every man, too, owes it to the community in which he is living to contribute to general reputation and to public enjoyment by making all his surroundings as attractive as possible. There is such a thing as paying too much attention to outside and show; but there is reason in all things, and a measure of time, attention and expense should be devoted by every one to making his farm and his home more attractive every year that he lives."

LANDSCAPE GARDENING.

California possesses, within reasonable distance from the commercial metropolis, a vast number of estates which are well adapted for first-class rural residences. The landscape is unsurpassed, the climate all that can be desired, and yet our wealthy men hesitate to take advantage of the beauties of these natural parks. Here and there we see an effort made to turn one of these beautiful spots into a magnificent rural home, but no sooner do the proprietors commence improving than we see an indiscriminate cutting down of every living tree, for the purpose of showing off an elegant building. It is absurd to migrate to the rural districts, unless we endeavor to preserve the natural growth of trees and shrubs; our earnest endeavor should be to add to, beautify and adorn by every

appropriate improvement the already-existing condition of the locality. Not only do we see this unmerciful destruction of Nature's chief embellishments practised upon private grounds, but also in the abortive attempts to improve our public parks, etc.

We have frequently complained of the wrong which is inflicted by our public officers in selecting men who are incapable of carrying on works of this description, but our protests, apparently, do not produce any good results.

The Melbourne *Times* seems to be in about the same fix as we are, and says: "While the art of Horticulture, aided by the talents of Loudon, Lindley, Knight and many others, has made so great advancement, and its sister art, Agriculture, has been equally fortunate in this colony, alas! for Arboriculture, its star appears to have not yet risen, its altitude is not yet very great. Our wealthy men have all, or nearly all, fine tracts or breadths of land and timber in their possession; but the great majority do not understand, or otherwise very much mismanage them. Doubtless we have many very eminent corn-growers and breeders of stock, but certainly few good foresters, otherwise we should have more picturesque estates, considering the rate at which other things have moved forward."

We have before stated that there are landscape gardeners among us who have the proper qualifications and experience to take advantage of all the natural resources which California landscape offers, but they will not go around and beg for work, for the sake of making a living; and in this particular our contemporary again says truly:

"The years of study, work, and attention necessarily devoted by any thorough gardener to his profession, has at present been but seldom recognized in this colony; but an improved state of things should now be looked for, never forgetting that 'the laborer is worthy of his hire.' As a rule, the multitude follow great examples; therefore, with the advent of a new Government House, let us hope a brighter morn will dawn upon

Horticulture, and that refined taste may be exhibited; for at present many amongst us scarcely look at flowers, much less think of them, so much so that they will be apt to become like the young law student on his first visit to Chiswick, who upon being asked if he had seen the charming, lovely, new Polly-anthus, he urged the questioner, to his great amusement, to point out at once the beautiful 'Mary,' and, if possible, to introduce him without delay; and thus many have, and still do, wander flowerless through a flowery world."

We had hoped that the work of establishing our new and extensive City Park would have been entrusted to men of undoubted ability, and that success with this improvement would have initiated a taste for similar undertakings, both large and small, on this Coast; but our hopes are disappointed, and we do not expect any good results to arise from the injudicious raid which our Park Commissioners, with the men they have selected for the work of making a park, have made upon the few natural embellishments of the park grounds; indeed, they have destroyed that which a practical and experienced landscape gardener would have conserved as very essential to the making of a park.

After all is ruined and the money expended, the people of San Francisco will doubtless be wiser, but present reform in our park affairs has become absolutely necessary.

NOXIOUS INSECTS,

And the Condition of Plants Fostering them.

Editors California Horticulturist:

On a recent trip to the Warm Springs with friend Bosqui, near the old Mission of San José, I was surprised to see everywhere the young buds and tender leaves of the Plane trees *Platanus racemosa* dried up, as if killed by frost or blight. Similar observations, I have since learned, show that it extends to all parts of the country. A year or more since, great complaints reached us

from the East. It is, therefore, evidently not local, and some general cause must exist for it. What satisfactory solution can we give? First, let it be understood these trees require much root moisture at all times, and also a good degree of local humid exhalation, such as usually abounds along streams and alluvial soils where they flourish. As we have had several years of extreme drought, this condition had at length reached their extreme roots and told sadly upon them, for many years, being unable to mature their seed. The wild cherry is pretty uniformly distributed where the seasons are so, North and West; but South, and where long, hot and dry seasons prevail, they retire to the banks of streams and alluvial bottoms, like the Sycamore; hence in neglected grounds, or those exposed to hot suns, and not well irrigated, a few of the domestic species have suffered or died out, as from their natural habits might have been expected, from the recent extreme droughts.

This is premised, in order to illustrate a principle and practice well known to gardeners, florists and others; that is, starving, or checking back some choice flowers and shrubs, in order to bring them to a given date or desirable season, by subsequent irrigation and other forcing means (boiling water, etc.). It is manifest that our very abundant rains, succeeding such extreme drought here have wrought the same result on the great scale of Nature. By thus forcing forward with extra moisture and warmth, after great privation, their untimely buds and incipient foliage have caught the cold winds or severe weather, and been simply killed back in their early effort. Would it not seem reasonable, at least, that some general climatic causes were responsible for these results?

Suppose the observer does now find *fungi* and noisome lice or insects—from which, by the way, they appear to be remarkably free. Let it be settled as an axiom, that fungoid spores and noisome insect eggs exist, or are ever ready to exist, everywhere—a matter of small import, not to be alto-

gether overlooked in forest, fruit, ornamental shrubbery, or garden herbage, etc. But questions of far greater importance are: What are the causes or conditions that favor, invite, or foster their ravages? Next, how can we forestall or hold in check these devastators? And, lastly, how rid us of them when present, and repair their damage? Empirical answers and remedies abound. Only a few can be noticed; our attention and space is best devoted to principles or reasons *why* we deal thus and so with these pertinent and practical questions. Rationale given, every one's judgment and experience will qualify, adapt, aid and confirm whatever of truth he perceives.

Many tender species of trees and shrubs, and some seedlings of even the more hardy sorts, lack lime and other needful constituents, being too precocious for certain climates, altitudes or localities; a mild but capricious Spring may favor or force precipitate and ill-timed growth, and then usual, or certainly extreme cold winds will weaken and impair the vital vigor. Their starch and sugar exhausted, and no corresponding growth, by resultant stagnation, the diluted sap sours; hence comes the common form of *curled leaf*—apt nidus of varied fungi—effects, rather than primary causes of mischief, or, as the Good Book hath it, “wheresoever the carcass is, thither will the eagles be gathered together”—the Divine utterance of a universal law. We refer now to that sudden and very general form that appears on peach trees, rose bushes, etc., when a warm, forcing spell is followed by a cold snap or bleak wind; some curl more or less every season; but a graft taken from an habitual curler will not curl, though the parent-tree, growing alongside, may continue to do so. From this it will appear that it is the *quality* of the sap, as above stated, however brought about. Similar deterioration, contamination and disturbed circulation is caused by poisonous punctures of plant lice, whereby the leaf-growth is “checked, curled and warped, hollowed beneath, with corresponding red

swellings above." Nor are we to conclude that all habitual curlers have no infestors, because none are seen above ground; animals, worms, root-lice, etc., may be busy beneath. These and manifold proximate causes nevertheless operate upon one common principle — sap-deterioration. Nature, animate and inanimate, writhes in agonized efforts to throw off offending objects or fluids. The remedies are numerous. Change of soil may be said to lie at the bottom and foundation of all, whatever else may be done; the cheapest and most feasible is urine; ponded so as to percolate, it is sure to kill the root-lice and drive away offenders—best fresh from the chamber. (Potash and water; boiling water, with salt, if handy; Carb. Ammonia, one ounce to a quart of water; suds, etc., etc.) It is useless to repeat the advantages of applying stale urine as manure, and composts, etc.

"We know remedies for insects," say cultivators, "but who can guide the seasons and stay the winds?" In northern, or alpine regions, heaping snow to their roots and covering it; or, what is nearly equivalent in warm latitudes, very cold irrigation, will keep them back, aided by judicious finger-pruning to husband the full strength of the sap for its due season. "But what of the winds?" Why, observe and imitate the Great All-Father; destroy not utterly your tree shelters; the kindly nurses His wisdom hath provided; or, being destroyed, replace. A word just here: it is a matter of some importance what trees are selected for shelters, or rather, which to avoid. Ask them, and they will tell thee. Are they invariably free from the pests that scourge you? Then they are the elect. But more of this anon. One among many pre-disposing causes of orchard infestation in milder climates, like our own, is the purient proneness to blossom young, running riotously to such excess as prematurely exhausts themselves. What though these trees of yesterday boast that they are exempt, and all that —. Let us return and consider: Every pomologist knows that his choice seedling, uncared for, reverts back

towards the wild, unsavory stock whence it came. Care and high culture made it, and must still maintain it good; failing in this, and thence enfeebled, or with the best clean culture, when too crowded, and mother earth over-taxed, she will cry out and cause her voice to be heard: Neither plant nor people can defraud and injure, and long prosper. Thus often doubly weakened, sick in soil and sap, they implore the sensitive heart for help. Variety and rotation of crops is the law written by the finger of God all along the pages of experience. "But we cannot undo mistakes already made—perchance by others." Well, rotate the soil then, especially if you lack the means to supply the needed manure; change the soil about the roots, and, if you have a favorite tree, or one specially feeble, plant old bones and pile up stones, if at hand, well out from the body, and behold them rejuvenate and bid adieu to blight and bugs beneath the enchanter's wand. We notice line upon line is given to take away nine tenths of the fruit that the remainder may be fair for the market, or the table, and also that you may have a supply every season; or, to be still more specific, take off nearly the entire crop from young trees not yet attained to years of discretion. Not a tree in the recently-settled parts of the State should have more than one apple, pear, plum, peach or the like for every six to ten inches space at least; yet, all these precautions being taken, there may have been some radical defect in root-grafting, or transplanting too deep, or lightly or carelessly. Trees may have been sawed, chopped or whittled nearly to death, by rote, and need only one more lick at the root—according to Japanese or some other style suited to the other side of this or some other planet—where they repress, whip and whittle their children in the same way; at all events they are *sickening*, and the minions from beneath are hard after them, and they will never fail to make their appearance where they are invited, *i. e.* so long as the world stands.

Fearing monotonous and tiresome repeti-

tions of what many know, we had concluded to omit the brief natural history of some insects named, but re-considering how often like data are required for reference as aids to memory, instruction of the young and inexperienced; in short, to inform all, let us return and consider the *Great Universal Plant Rogues*, the *Aphides* or plant-lice: Be not alarmed, gentle reader, as if on a tramp to Egypt to learn less than a million or more hard names, "for there is scarcely a plant which does not harbor one or two kinds peculiar to itself," and we have a fraction less than 100,000 species, some of which include vast varieties; nor need one try to prove they were all from one parentage, much less a man from a monkey, shell or polyp; nor whether they all came through Behring's Straits, straight across Atlantic, Pacific, or round the Horn. Nor is it wise here to treat technically of (*Aphis Brassicæ*) cabbage-lice, (*A. Rosæ*), rose do., his highness on sycamore, willow or walnut, etc., etc.

The forms of common green plant-lice are known, but much confusion and some errors are apt to occur for lack of natural history knowledge.

The eggs from which the race emerge are deposited in Autumn; hence the best time for sponging with kerosene, etc., is from Fall to Spring. Not one will be left alive, it is so searching. All hatched in Spring are wingless females. The young are produced alive; each one may give birth to fifteen or twenty in a single day. These give birth to others to the tenth generation—the last brood in Autumn being both male and female, which at length acquire wings, celebrate nuptials, deposit eggs and die.

Much might be said of their habits * * * Piercing and fixed by their long tube or sucker, they rarely change place till they exhaust the part first attacked. Taking in great quantities of sap, they would soon be gorged did they not get rid of it by two little tubes or pores at the extremities of their bodies—often in a sudden shower of honeyed dew or minute drops of sticky fluid, which,

on drying, leaves dark-colored stains on the foliage—often taken for real honey-dew, the true kind being a concrete oozed sap from leaves in dry weather. One may often know the presence of plant-lice in high trees, etc., by seeing ants go up and down in search of this sweet fluid. The upward swarms are slim, hungry and active; others, black shining and lazy, descending with bellies swelled almost to bursting. Every gardener sees ants packing their herds or kine in their mouths, back whence the wind or water had dispersed them, much to his disgust. Many other of their novel solitudes and cares for the welfare of these lice are well known; hence the reason for belting with a ring of kerosene or the like.

Bark or *scale-lice*, (*Coccidæ*) vary in form and size, being mostly oblong, oval, boat-shaped, kidney, etc. The scale insect is not confined to the bark, but abounds on fruit and foliage and some on roots; surface dark brown, smooth, stick close to the bark, etc., at certain stages, by their flattened surface; six short legs, pointed by a single hook or claw; head so retracted that the sucker is, as it were, from their breast; while torpid, set longitudinally in regard to the branch, head upwards. Their oblong eggs are best seen in Fall and Winter on the smooth skin of an apple, under the thin, skeleton skin of the dead mother, on bark, lying on a tiny patch of cottony web; several broods here in a single year; when hatched, they escape at the lower end of this shield by a notch; active and restless, they disperse over young twigs and leaves, and, finally, fix, suck and grow. At the close of this larvæ state they emit this radiated web to close and secure them for transformation. In a few days the larger ones break up and throw off in flakes their outer scaly coats, and appear active as before; but the smaller ones sleep on for a time, when a pair of hairs and tips of the wings are seen protruding below, and the perfect insect backs out. He is exceedingly small, with only two wings lying flat on the top of his body. After they pair, the size of the female increases, be-

comes quite convex, fixed, as before stated, the eggs under her body, while she shrinks and leaves nought but her shell. If too many eggs, — a few outside, — she provides wool, etc. This general sketch must suffice for all.

As to imported origin and all that — it is well to know that they are native to our Manzanita (*Arctostaphylos*) and Laurel Hawthorn (*Photinia arbutifolia*), etc., etc.

The woolly apple-tree louse (*Aphis lanigera*) appears to be less woolly in the fore part of the season, or in its early state, than at the East. Wherever a colony of these is established, warts, knobs or excrescences arise. As they spread, the tree still more sickens, and dying, it dies. These, too, are natives, whatever some may say. Kerosene is perfectly harmless to the tree, and sure; but potash and ammonia solutions are also the best possible manures, and if any can suggest better modes of riddance, let them "speak out." For cabbage, a good garden engine and abundant water, forced on as strong as the plants will bear, seldom fails in industrious hands; but any soaps, or strong potash, or carbonate of ammonia solutions are good in a double sense.

A. KELLOGG.

P. S.—We came near forgetting the *best remedies*, as many others do, viz.: The carnivorous birds and bugs; let them take the chief charge of this department, as it is in their line, and they like it. Notice those birds that run along the bark, such as the wren, and do as your grandfather did: make him a home, — a nice little ornamental cot in a tree. He is not about for display, even a skull on a pole pleases him. Welcome the titmouse, or tom-tit, and the chickadee, when they deign to give you a call; also friendly bugs, etc. Entertain the angels Heaven sends, and for mercy's sake teach your children affection for the dear little lady-bird bug. A few of these are better than the best gardener you can hire, and no expense at all.

K.

THE BOTANICAL GARDENS OF MELBOURNE (Australia).

With considerable surprise and regret we have read in the Australian newspapers sundry charges against the Director of the Botanical Gardens of Melbourne, Baron F. von Mueller. These must appear to an impartial mind both unjust and malicious. The Baron, as a government officer, has no right nor opportunity to answer these charges, but he has true friends, who can appreciate the immense services which the Baron has rendered to the colony in particular, and to the civilized world at large. However, his opponents find no sympathy with men who have the progress and development of their country at heart. The leaders of the assailants are neither men of scientific attainments nor of horticultural knowledge, but being but partially educated, narrow-minded and sordid, and having been so far fortunate as to scrape together some of the wealth which ("having left their country for their country's good") they cannot return to spend, and being also of a race that presume to dictate and interfere with the domestic government of that, as well as other thriving parts of the world, inflict an intolerable injury on the community, which, ere long, must be remedied. These men cannot be expected to appreciate, or even to understand the purposes for which botanical gardens are established, and their mean and vicious meddling can weigh but lightly with an intelligent public. To these we must add another class of men who ought to know better, but being engaged in the raising and selling of trees and plants, imagine that the free distribution of plants by the Botanical Gardens injures their business. The selfish motives of such men will, we hope, have no bearing upon a measure which deserves the blessings of the present and future generations.

It has been charged that Dr. von Mueller is not a landscape gardener and that the Botanical Gardens might be more ornamental,

etc. In regard to this extraordinary fault-finding, the *Ballarat Courier* very justly remarks: "Granting, for the sake of argument, that Dr. von Mueller has studied prettiness in flower beds, and scenic effect, less than the propagation of useful timber trees, and shady and valuable shrubs, has he not nobly fulfilled the first requisite in a new country, the native forests of which are for the most part fit only for rough bush and mining work? Has he not produced and distributed hundreds of thousands of young trees amongst the public institutions of the colony, and scattered them broadcast throughout the country? If a mere landscape gardener had been at the head of affairs, would the gardens, streets and roads of so many centres of population be presenting such a cheerful verdure, and affording such a grateful shade as they do now? Notwithstanding the grand flourish of the Commissioners about the whole colony learning botany, horticulture and landscape gardening at the feet of the Gamaliel to be, we are of opinion that the Melbourne Botanical Gardens were originally intended, and should be continued, a vast nursery of plants, shrubs and trees for distribution throughout the country. This idea should never be lost sight of, however the professional nursery seedsmen may set up their backs against Government competition with private enterprise. Wide tracts of land have been set apart for State forests. How are these wastes to be peopled with useful and ornamental timber, unless there is a large reserve in Melbourne from which to draw supplies? But the Commissioners, in their zeal for the creation of a big flower garden, and 'scenic effects,' seem to forget that it is the country at large, and not Melbourne alone, which pays the annual subsidy they complain of as not having been expended to the best advantage; and that it is the country districts which are most in need of constant drafts from the parent nursery. There is something intensely selfish and Melbourne-ish in the report, and we have no hesitation in saying that our opinion will be confirmed

by the majority of the country journals, the conductors of which only regret that there has not been a wider distribution of plants, shrubs and young trees; and who are anxious to know in what particularly useful work the much-vaunted Inspector of State Forests has been engaged since he received his well-paid appointment."

The people of Australia should congratulate themselves on possessing a man of such high standing and scientific attainments, both at home and abroad, as Dr. von Mueller is universally acknowledged to be, and who has done far more for his country than his ungrateful assailants deserve. We doubt not but there is sufficient public spirit and intelligence in the country to vindicate him, notwithstanding the alloy.

SWEET VIOLETS.

These are among the sweetest and loveliest of the gems of a spring garden; their light blue eyes open very early and their fragrance is unsurpassed by that of any other flower. Then they will grow and bloom in the shadiest nooks and corners and are not particular as to soil, although they prefer a rich, deep loam, and will flower much more profusely if liberally watered, when coming into bloom, with manure water.

Great have been the improvements in these little beauties during the past five years, and various are the shades of blue now offered to us in both single and double sweet violets.

King of the Violets is dark blue and a very fine bloomer, fitted either for house or outdoor culture.

Reine des Violettes is very double and hardy and of a blush-white.

Rubro Plena is a very distinct species, hardy and a free bloomer; of a double red or copper-color, entirely different from any other kind.

The Czar is a single variety, very fragrant, and the flowers are borne on long stems.

Deviensis blooms for months, and is of a

light violet shade with long stalks, which add to its value in bouquets.

Neapolitan is one of the loveliest of all violets, very sweet scented with beautiful pale-blue flowers.

Arborea alba is pure white and excellent for home culture; it is not very hardy, and requires protection during winter; [perfectly hardy with us in California.—Ed.]

Ladies' Floral Cabinet.

LOUDON, THE LANDSCAPE GARDENER.

Loudon was a man who possessed an extraordinary working power. The son of a farmer, near Edinburgh, he was early inured to work. His skill in drawing plans and making sketches of scenery, induced his father to train him for a landscape gardener. During his apprenticeship, he sat up two whole nights every week to study; yet he worked harder during the day than any fellow-laborer. During his studious hours he learned French, and, before he was eighteen, translated a life of Abelard for an Encyclopædia. He was so eager to make progress in life, that when only twenty, while working as a gardener in England, he wrote down in his note-book: "I am now twenty years of age, and perhaps a third of my life has passed away, and yet what have I done to benefit my fellow-man?" An unusual reflection for a youth of only twenty. From French he proceeded to learn German, and rapidly mastered that language. He now took a large farm for the purpose of introducing Scotch improvements in the art of Agriculture, and soon succeeded in realizing a considerable income. The Continent being thrown open on the cessation of the war, he proceeded to travel for the purpose of observation, making sketches of the system of gardening in all countries, which he afterwards introduced in the historical part of his laborious "Encyclopædia of Gardening." He twice repeated his journeys abroad for a similar purpose, the results of which

appeared in his Encyclopædias — perhaps among the most remarkable works of the kind, and distinguished for the immense mass of useful knowledge which they contain, all collected by dint of persevering industry such as has rarely been equalled.

OUR WINE INTEREST.

Much has been said about the Wine Product of California for 1871, and the probable increase in the future. The *Alta California*, some time since, took occasion to criticise certain statements from various sources, and bearing upon this matter. It asserted that the amount of wine produced in 1871 has been over-estimated, which fact, if permitted to go abroad uncontradicted, would injure our reputation, and might result in pecuniary loss to business men.

We know that many extravagant statements have been published, both here and abroad, in regard to the products of our soil. This is occasioned by indiscretion on the part of our newspaper men in accepting statements from unreliable parties as facts.

We fail to see, however, that a great error has been committed in estimating the wine product of 1871, in California at 6,000,000 gallons, which the *Alta* wishes to reduce to 4,500,000 gallons. We maintain that if the yield has not been 6,000,000 gallons it certainly *should have been* that much.

The statements upon which all the estimates have been based are incomplete and unreliable, and we do not see how the *Alta* can arrive at any closer estimate of the true facts than others who have watched with great interest the condition and progress of our wine interest.

As others have done their guess-work, we may be permitted to guess a little on the subject.

According to statistics on hand, the total number of grape vines now under cultivation in California is estimated at 30,000,000, of which number the counties of El Dorado, Los Angeles, Napa and Sonoma claim about 14,-

000,000, and the remaining forty-six counties about 16,000,000.

As for the export wine and the supply for San Francisco, it will be admitted, that the before-mentioned four counties certainly furnish ninety per cent. of it—three fourths of the counties having never shipped one gallon from home—and ten per cent. may be credited to small shippers; it will also be admitted that fully one half of the wine produced in 1871 is now on hand at the vineyards of the leading wine-producing counties.

Now, if we entertain the statement of the *Alla*, that the amount of wine shipped to San Francisco and exported in 1871 has been about 2,000,000 gallons, we must credit the four counties named with ninety per cent. of that amount, and also with an equal amount on hand; while the forty-six other counties must be credited with one half of the entire yield of the State, which, according to these figures, must be over 6,000,000 gallons, making due allowance for waste, home consumption, and other uses of the grape.

As for the annual increase of our wine product, it may be stated as a fact, that grape vine planting reached its largest dimensions in the years 1868, '69 and '70; it will, therefore, be fair to presume that the increase of our vineyards, per acre, will be at an average of about ten per cent. per annum; upon which we may base, after the lapse of four years, a future increase of ten per cent. of the vine yield. As vines become more productive from year to year (at least for many years to come), and as experience in cultivation, etc., will produce most beneficial effects, resulting in a better and increased yield, we may add another ten per cent. per annum on that account, which will give us a total increase in the annual product of about twenty per cent.

Vines five to six years old should produce one gallon of wine per annum, with the exception of a very few foreign varieties, which are less abundant bearers and require a larger amount of berries to make a gallon

of wine, but it must be taken into consideration that of the 30,000,000 of vines now cultivated, a very large proportion is scattered over small farms and gardens, and cultivated only for the fruit, while some grapes are also made into raisins; in addition to this, some of our large vineyards carry on an extensive trade in supplying San Francisco and the neighboring States, Territories and Islands with this delicious fruit. We must further remember that a large percentage of our vines are non-producing on account of neglect and mismanagement.

All these considerations combined justify the opinion, that only one half the grapevines of California are actually wine producing, and should give, when in full bearing, 15,000,000 of gallons of wine per annum, provided that the season is favorable.

Last year, in a general view, was unfavorable on account of the long, dry season; this year is somewhat unfavorable on account of the late severe frosts which we experienced, yet it is fair to presume that this misfortune will be fully made up by the yield of vines which have been heretofore unproductive, and therefore the total product may not fall short of that of last year.

To support some of our assertions we may give a number of statements, which we obtained lately in visiting some of the vineyards in Napa. In one vineyard there (for instance) 30,000 vines are cultivated, 15,000 of which are five and six years old. The quantity of wine produced last year amounted to about 8,000 gallons. The vine-grower is confident that in a favorable season the product would be fifty per cent. more. The cellar of the vineyard being located by a public road, the entire product is retained at the vineyard or in Napa city, and not one gallon of the wine has ever been offered in San Francisco or for export. We could mention several other vineyards bearing out the same facts.

In Nevada county we know of a vineyard which has produced wine for the past ten years; the cellar of this vineyard contains

wine made of foreign grapes, of every year since 1863, and the proprietor took extraordinary precaution to keep the wine from the different varieties of grapes separate, so that we may obtain Zinfendar, Black Hamburg, Catawba, Riesling, Burgundy, Muscat, etc., of different ages, in bottles or casks, at this vineyard. The five-year-old vines there have produced, on an average, one gallon of juice to the vine in favorable years, the vines being trained about five feet high and supported by stakes, in the old style. Not one gallon of the wine produced in this vineyard has ever been offered for sale in San Francisco. The wine being of a superior quality, the owner expects to profit largely by keeping it until a proper distinction shall be made and recognized by the trade in the quality and character of California wines. We think the owner is correct.

We could bring more evidence, but our space will not permit.

THE STUDY OF NATURAL HISTORY,

AND

How it Accords with Sundry Pursuits and Recreations.

MR. EDITOR:—It will certainly be conceded that the study of *Natural History* is a kindred science with Agriculture and Horticulture, and I therefore plead that whatever relates directly or indirectly to that study cannot be out of place, but may be considered interesting in a Horticultural Magazine.

I have, therefore, taken the liberty of addressing a few remarks to you on the relation between Natural History and sundry pursuits and recreations, as Hunting, Fishing, Shooting, etc., where the close observation of the habits, food, resorts, etc. of the animals pursued are more keenly (though perhaps not so scientifically) noted by the sportsman than even by the naturalist, the information derived from such sources constituting the great bulk in all works on Natural History.

I must, however, admit that but a limited knowledge of that science suffices for sundry branches of those sports, as riding to hounds,

coursing hares, duck etc. shooting, where the season selected and the mode of pursuit militates against any close study of the prey, and the bustle, noise and excitement causing too much disturbance and affright in the animals to afford any great opportunity for scientific observation; while the season, best suited for these sports is not the one best adapted for general study, as the leaf is withering, insects have passed their gay summer day, and numerous varieties of birds have congregated and taken their departure for southern climes.

But the co-relation between the study of natural history and the practice of fishing is undoubtedly intimate, and they certainly may be jointly pursued without neglect of either. The very mode of pursuing his sport, adopted by the angler, necessitates keen observation as to the haunts of his prey, mode and time of feeding, nature of food, condition of weather, water, etc.; the seasons, habits and nature of food of the insects, which are themselves the food of the fish, for the successful angler not only knows from the appearance of a river or stream what fish to expect, but also from the trees, shrubs and herbage overhanging, what is the nature of their food, and, consequently, which are the most inviting flies to offer, for, be it remembered, the fisherman has to deceive his keen-eyed prey, approach them very closely, and tempt them to feed; if he excites alarm in the slightest degree, all his efforts are fruitless. Not so the huntsman or gunner, who cares not, so that he can get within fifty or one hundred yards of it, whether his prey is frightened or not. Angling is thus indebted for an auxiliary charm to this fellowship with natural history in advantage of the other sports—of hunting, shooting, etc. This intimacy, however accidental, links the angler closely with the Botanist and the Entomologist, themselves inseparable from the Florist and Horticulturist; and to excel in his art he must study with them. And how delightful the study! How conducive to health! reinvigorating both

to mind and body; how genial the seasons appropriate to his sport and study! while the beauty of the scenery is enhanced by the soothing influence of rural sounds—the merry notes of birds, the hum of insect life, the rustling of the gentle breeze among the leaves, and the rippling of the brook, the perfume of plants and flowers, with other sweet accompaniments—

“Rivers, to whose shallow falls
Melodious birds sing madrigals;”

the soothing, and thought-awakening influence of the water itself, “Nature’s storehouse, in which she locks up her wonders”; the numberless and varied forms of animal and vegetable life which constantly arrest his attention and excite his interest, many of them by reason of the silence and quiet necessary to his sport, being seen to especial advantage. All these things combine not only to present the works of Nature before him in their most attractive form, but at the same time peculiarly dispose his mind to meditate on the impressions they can scarcely fail to make on it. The book of Nature is in fact opened before his eyes—nay, obtruded on his notice—written in such distinct and inviting characters that he must indeed be blind of eye and dull of apprehension if he do not, to some extent at any rate, attain to a knowledge and love of her language.

It is scarcely to be wondered then, that, springing from all these associations, there should insensibly arise in the mind a cordial sympathy with, and appreciation of, those delights and wonders of Nature which hardly any other class of men save botanists and entomologists possess.

The accuracy of these conclusions, as between hunting any animals on horseback, shooting, etc., and fishing, may be, perhaps, not unfairly tested by comparing the standard works on each, and thus forming an estimate of the regard in which Nature and the study of natural history are held by their respective votaries.

To go through the whole list, both Ameri-

can and English, would be a tedious and a needless task; but let us take some of the best works on each subject: say *Beckford’s Thoughts on Hunting* (English), *Murray’s Instructions to Sportsmen* (American), and *Walton’s Complete Angler*. Now, what is there in Beckford but hunting? what in Murray but shooting? But what a change is there when we come to dear old Izaak! How keen and pure is his appreciation and enjoyment of Nature for Nature’s self. There is scarcely a page in his whole book which does not breathe forth his earnest and devoted love of her. Do not his descriptions almost lead away his readers in spite of themselves from the avowed subject of his book, and incite them to become anglers, more for the sake of the accessories which he paints so graphically and invitingly—his “honey-suckle hedges,” his “airy creatures;” his “silver streams,”—than for the actual fishing? Verily, he has done as much to promote a genial and healthy love of Nature as any man who ever lived.

That Fishing by thus leading up to the study of natural history, has acquired a just right to be associated with it, is a question which no philosophical mind will dispute any more than that Agriculture and Horticulture have a like paramount claim to such companionship, and, consequently, the study of natural history (fishing included) and essays upon it, particularly with respect to the insect world, can be beneficially admitted into a Horticultural publication like the *California Horticulturist*.

Should these pleadings for the gentle art induce any readers who may have been inclined to dissent from our view of the case, to refrain from pronouncing against us, these remarks will have answered their purpose. And if our arguments in this article or paper have the effect of bringing forth from any of its readers notes or observations in writing, throwing any light on Ornithology, Entomology or kindred subjects, the object of the writer of the above lucubrations will have been fully answered.

E. J. H.

FOREST CULTURE.

The Promotion of Forest Culture.

Many of the Western States have already instituted measures for the promotion of Forest Culture; others are only now beginning to move toward the attainment of the same object. They all feel the need of forests, not only for the purpose of protection against the terrible gales that sweep the prairies and to furnish the inhabitants with cheap timber for fencing and building purposes, but to modify climate and prevent the ruinous droughts that afflict every unwooded country. An effort is, this Winter, to be made in the Wisconsin Legislature to adopt some means of restoring the forests, which have been almost wholly cleared away in the northern portion of the State. It is a movement somewhat analogous to that proposed by the sportsmen of this State, and which is, we believe, to be brought to the notice of our Legislature this Winter — to have the State purchase the great north woods and preserve them as a wilderness. The fact that the people are aiming at the same object in so many different parts of the country, shows clearly that it is one whose importance is already recognized.—*Utica Herald.*

FORESTRY.

The forests which remain in Europe are carefully tended by foresters, educated to a proper knowledge and execution of their business.

Forestry includes a knowledge of planting, transplanting and cultivating forest trees, and of felling, removing, rafting and by other modes getting into market the mature timber. By these means the forests are a source of large revenue to private individuals as well as to governments, and are kept up in the best condition. In America the time has come when the art might be profitably introduced: as it is, our vast forests are fast going to destruction, with no effort to preserve them for the future.

Hearth and Home.

THE LARGEST VINEYARD IN CALIFORNIA.

The largest vineyard in California is the Buena Vista, in Sonoma County, where there are 500 acres of vines. The whole tract belonging to the Buena Vista Vinicultural Society, covers some 6,000 acres, on which there are several creeks, and sulphur, iron and soda springs. An avenue a mile long leads to the houses, and on both sides are planted three rows of locust and mulberry trees. Of the latter there are some 3,000 exclusive of cuttings. The dwellings, men's quarters, carpenter shop, blacksmith shop, stable, etc., are all separated so as to prevent the possibility of a heavy loss by fire. The Company make different classes of red and white wine, and 160,000 gallons were produced there in 1871. Sparkling wines are made with the foreign varieties of grape. The press-house, near a hill, is three stories high and 100 feet square. The grapes are brought around on the side of the hill and crushed in the upper story, while the juice is carried by pipes to the vats below. From this house three tunnels or cellars 100 feet long each, are run into the hill for the purpose of storing the wine. The champagne house is also three stories high, and from it are two long tunnels running into the hill containing at present about 60,000 bottles of sparkling wine.

On one side of the creek, near the press-house, is the cooper's shop, where all the casks, which are made from the best Eastern wood, are put together, and on the other side is the distillery where the brandy is made. In the press-house cellars are large tanks holding from 1,000 to 2,000 gallons each, where they have wine from the vintage of 1866 to date. Tunnel No. 3 is what they facetiously term the "library," where they have casks of different kinds of wine of a variety of ages for the visitors to sample. On the main creek is the Willow House where all the champagne baskets are made from willows grown on the ranch. They employ from forty to one hundred men, according to the

season, and have at present forty six at work. Every department has its "boss," who brings his report nightly to the superintendent, Mr. E. P. Cutter. The manager of the cellars is Mr. A. Ketz. There are at present about 230,000 gallons of wine in the cellar.—*Rural Press*.

MUSHROOMS.

The French are famous for *mushrooms*, as all the world knows, and their cultivation is conducted with great art and on a large scale. The mushroom gardener, like the asparagus gardener, is not content with the production of delicate esculents only, they must be gigantic as well as delicate. The finest asparagus (quoting Geo. Colman) looks like "*three single gentlemen rolled into one*," and now mushrooms are appearing in the shop windows of Paris which look like united families. The method of production is as follows: The spawn of the common mushroom is taken up with a small camel-hair pencil, and laid on a damp strip of glass, so that it can be placed under a microscope, and the process of germination of the spawn watched during its modification. When the mycelium, or *blank de champignon*, as it is called in France, is developed, it is placed in highly manured earth, in which the development continues; the finest specimens are afterwards selected and placed in a mushroom bed, in a cave or quarry, and covered first with a bed of sand, ten inches deep, and over that a layer of old plaster, about six inches thick, the whole being watered, with the addition of a small quantity of nitrate of potash. At the end of five or six days very large mushrooms will be obtained, clustered together in masses, and of delicious scent and flavor.—*Gardeners' Chronicle*.

ALL highly concentrated Animal Manures are increased in value, and their benefit greatly prolonged, by the admixture of plaster or pulverized charcoal.

TO DISTINGUISH EDIBLE MUSHROOMS.

A writer in the *English Mechanic* gives what he considers to be an invaluable rule for distinguishing the true Mushroom from the poisonous species. He remarks, in the first place, that the true mushroom is invariably found in rich, open pastures, and never on or about stumps or in woods; and, although a wholesome species sometimes occurs in the latter localities, the writer considers it better to avoid their products. A very good point, in the second place, is the peculiarly intense purple brown color of the spore-dust, from which the ripe mushroom derives the same color (almost black) in the gills. To see these spores, it is only necessary to remove the stem from the mushroom, and lay the upper portion, with the gills downwards, on a sheet of writing paper, where the spores will be deposited, in a dark, impalpable powder, in a short time. Several dangerous species, sometimes mistaken for the true, have the spore, *umber* brown.

In the true mushroom, again, there is a distinct and perfect collar, quite encircling the stem, a little above the middle, and the edge of the cap overlaps the gills. In some poisonous species the collar is reduced to a mere fringe, and the overlapping margin is absent or reduced to a few white scales. Lastly, the gills never reach to nor touch the stem, there being a space around the top of the stem, where the gills are free from the stalk.

There are numerous varieties of true mushrooms, all of them equally good for the table. Sometimes the top is white and soft, like kid leather; at other times it is dark brown and scaly. Sometimes, on being cut or broken, the mushroom changes color to yellow, or even blood-red; at other times, no change whatever takes place. To sum up, it is to be observed, that the mushroom always grows in pastures; always has dark purple-brown spores; always has a perfect encircling collar; and always has gills which

do not touch the stem, and has a top with an overlapping edge.

In addition to the methods just indicated for testing the genuineness of mushrooms, we are informed that, however much any particular fungus may resemble the eatable mushroom, none are genuine or safe, the skin of which cannot be easily removed. When taken by the thumb and finger at the overlapping edge, this skin will peel upward to the centre, all around, leaving only a small portion of the centre of the crown to be pared off by the knife.

Prairie Farmer.

PINUS EDULIS.

Its Adaptability to a Dry Climate.

That this Pine is well adapted to a dry climate, there can be no doubt. It is perfectly at home upon the arid mountains of New Mexico and Colorado, where rain is almost unknown. In some localities it seems to be the only tree that can survive the dry climate. Dr. Warder, in describing the timber observed, during a recent excursion over the Plains to the Rocky Mountains, says: "*Pinus Edulis*, the Piñon or Mountain Pine, was found only on the bare rounded hills of red sand rock that guard the Ute Pass, near the base of Pike's Peak."

Professor Torry says of this Pine, in the *Pacific Railroad Report*: "It is found from 150 miles east of the Rio Grande to the Cajon Pass of the Sierra Nevada." This includes the most rainless, arid region on this continent.

Its manner of growth is conclusive evidence of its adaptability to a dry climate.

It has but few of what are called surface roots; the roots dive deeply, apparently searching for water below the drying sun and air. We have had seedlings send down the radix or tap root, twelve or eighteen inches, with a single spongiole at the end, while the plant was scarcely an inch above the surface. We have experimented with the little seedlings to test this tendency to send the radix downward. We have dug them with the

root ten to twelve inches long, and marked and tied it into a knot, and then replanted with the whole of the root not over ten inches from the surface. In a short time the radix would be found to have again plunged down to its former depth. In this way we have found the little plant to produce a single radix two or three feet long, and not larger than a small straw, while the top was not more than one or two inches high.

Again, it can be grown from the seed in dry, sandy soil, in the hot sun, with no protection, without any inconvenience whatever being felt from the influence of the sun. We have grown them upon the same bed, for the purpose of experiment, with some fifteen other varieties of native and foreign evergreens, without shade or any protection whatever from the sun. None except the *Pinus Edulis* and the New Mexican Red Cedar stood the test uninjured, while nearly everything else was wholly destroyed. We found this pine in every case grow as well from the seed, fully exposed to the sun, and, we thought, generally a little better than where it was shaded. From the foregoing we feel satisfied that it is well adapted to the climate of all our Western States and Territories.

Evergreen and Forest Tree Grower.

INEXPENSIVE ORNAMENTS.—There is no mere ornament inside or out of our houses so cheap and tasteful as plants and flowers. Few pause to regard the architecture of your rooms or your house, but the beauty of flowering shrubs, or the living arabesque of a thrifty creeper over your door, are lessons of taste and beauty. Indeed, suburban residences are sadly deficient without these simple yet beautiful accessories, always within the reach of taste and refinement, no matter how empty the purse. As the real necessities of life require the least expenditure of time and money, so these objects which tend most truly to satisfy the love of the beautiful in Nature, are within the reach of her humblest children.

Editorial Portfolio.

AGRICULTURAL AND HORTICULTURAL SOCIETIES.

Of late, we have noticed with pleasure a disposition amongst the tillers of the soil to form associations, we presume for mutual protection, for exchange of practical and useful information, and for the general advancement of Agriculture and Horticulture. Combined efforts on the part of our farmers and gardeners to establish more intimate relations amongst themselves must produce good. If we were to assume that these associations have been formed merely for show, or (as some see fit to assert) for individual purposes, we should attach but little value to their existence; but the indications are, that their members are in earnest and are determined to make their gatherings productive of improvement in all the branches of Agriculture and Horticulture.

There has been a great deal of talking done during the last ten years, but very little profit from it. What we require are sound and honest deliberations, useful and practical information, and a persevering disposition to benefit ourselves and our neighbors by exhibiting better results. Deep plowing, early sowing, proper and thorough cultivation, manuring instead of exhausting the soils, ornamenting our homes and making them comfortable, necessary irrigation, tree culture, selection of proper soils and locations for the different crops in view, and more satisfactory arrangements between producers and consumers, by dispensing with the present unhealthy commission business as far as practicable; all these improvements are both desirable and necessary, but talk alone will not accomplish these results; we must be prepared to act. If our Agricultural and Horticultural Associations will make success in their purposes their fixed determination, their very existence will inspire people with confidence in the future of California.

The most useful means to aid in the consummation of all this advancement, are our Agricultural and Horticultural Exhibitions; the discussions at the meetings, of subjects belonging to Agriculture and Horticulture; and the maintenance and perusal of Agricultural and Horticultural publications.

Our exhibitions are not generally considered as fully answering the purposes for which they are held; entirely too much attention is given to horse-racing and gambling. The blame, however, cannot be attached so much to the associations holding these exhibitions, as to the individuals who patronize them. It is evident that visitors delight more in horse-racing than in admiring and judging the products of our fields; and so long as the patrons of our exhibitions exhibit more interest in the horse-racing than in the other features, so long will the associations be compelled to gratify their patrons in this respect, in order to meet their expenses. If reform is possible and practicable, our farmers must change front in this matter.

The meetings of our associations should also be reformed, by paying more attention to useful and practical matters than to unimportant formalities and discussions, which are neither interesting nor of sufficient importance to warrant publication. The Secretaries of the various associations should be required to furnish the proceedings of meetings to the Agricultural and Horticultural publications and to the local newspapers; and if these Secretaries cannot afford to give a portion of their time to these duties, they should receive a moderate compensation for their labors and the time they actually devote. But few members of the associations being able to attend the meetings, it becomes necessary to publish the discussions for the benefit of all concerned.

Agricultural and Horticultural publications and periodicals are the proper media through which knowledge and information upon these specialties can most readily be disseminated throughout the country.

For various good and substantial reasons, these periodicals are published in the larger cities, away from the fields, where the practical work is done, and however many and good the qualifications which the respective editors may possess, the co-operation of the practical cultivators is required to make these publications useful, and adapted to the requirements of the people. But very few seem to be willing to contribute to the columns of our Agricultural and Horticultural papers items of general interest and importance which come under their observation in everyday life. This inexcusable neglect and lack of public spirit is due partly to an ill-timed (we had almost said ridiculous) modesty, partly to lack of time, partly to selfishness, but most predominantly to indifference, the worst and most culpable of all the reasons. The modest excuse of not being able to write is a mere fiction; what editors require are facts, plain, and to the point, such as any man of ordinary intellect is able to furnish; the editor and publishers will attend to the balance of the work, and take excellent care that the articles are presentable.

All that may be reasonably expected of the cultivator of the soil is a will to do as much as lies within his power to advance the interests of all, by communicating to the public that which he knows or believes to be useful and practical; and he can accomplish this object best by making our exhibitions complete, by taking an interest in our associations, and by furnishing facts worth knowing, to our Horticultural and Agricultural publications, and thus make them the most useful agents to lead to permanent prosperity.

BERMUDA GRASS (AGAIN).

We have, on several occasions, spoken freely of this grass, but we do not hesitate to publish reports and opinions which may differ from us, as what we seek is the light of experience—that is our mission.

A Texas (the home of the Bermuda) correspondent of the *Country Gentleman* says:

“The Bermuda of this section flourishes best in our very heavy, strong, adhesive clay lands, is very nutritious, much more so than anything else we have, but has two bad qualities with us: 1st, it is not of any value for winter pasture; 2d, it will not relinquish its place when it gets possession of a piece of ground. It kills shrubbery, trees, flowers, and keeps spreading, spreading, spreading, till it is supreme, and takes lawn, garden, orchard, farm, if sufficient time and not enough work is given it. For a summer pasture it is unexcelled. It is rich in valuable matter, it is rapid in growth, and stands trampling and drouth admirably, but otherwise it is dreaded here. Those who have it as a yard grass are each and all entertaining it at great expense and trouble, and advising others to let it alone.”

MARINE AQUARIUM.

As a “Marine Aquarium” is now being constructed at Woodward’s Gardens, in this city, under the supervision of Mr. Schuman, it may be of some interest to our readers to read the following, which we copy from the *Gardeners’ Chronicle*, of London: From the Manchester papers we learn it is proposed to build a good *Marine Aquarium* in that city. The funds are to be raised by a company started under the superintendence of a number of gentlemen resident in the city, who are interested in Marine Zoology, and desire to promote scientific education in all its branches. The building will contain all the recent improvements shown to be necessary at the Crystal Palace and Brighton Aquaria, and will be rectangular in shape, 120 feet long and 70 feet wide. This space will be divided into two wide galleries, each 120 feet long and 15 feet wide, separated from the central saloon by a light screen. Running along one side of each of these galleries will be a series of tanks, about 80 in number, 40 in each gallery, varying in capacity from 300 to 3,000 gallons; and the roofs will be so arranged that the light will pass through at

an angle of about 45 deg., thus rendering distinctly visible the living inhabitants and plants contained in the grotto-like tanks. The grand saloon will be also 120 feet long by 40 feet wide, supporting on eight iron columns an open-pannelled roof. All the windows will be so arranged as to admit only the exact quantity of light required, as it is found that an excess of light acts upon the higher marine plants and animals in a manner directly contrary to its action upon terrestrial life, blanching them as ordinary plants are blanched by being earthed up, while the most brilliant-colored marine plants are those which live in comparative darkness.

CEMENT FOR AN AQUARIUM.

Mrs. D. R. B. sends the following recipe to the *Rural New Yorker*: "I send you a recipe which I have used eight years in my own aquarium with perfect success. The cement has never been removed, and the tank has never leaked a drop during the time:—one part (by measure) say a gill, of litharge; one gill of plaster of Paris; one gill of dry, white sand; one third of a gill of finely-powdered resin. Sift and keep corked tight till required for use, when it is to be made into a putty by mixing with boiled linseed oil, with a little patent dryer added. Never use it after it has been mixed with the oil over fifteen hours. This cement can be used in marine as well as fresh water aquaria, as it resists the action of salt water. But the tank must have either an iron or stone frame-work. A wooden one will warp and cannot be made tight with any kind of cement. Be sure your plaster of Paris is pure. Dentists always keep that which is good. It is best to let the tank stand a day or two before the water is put in. The best I have used are the water cress and the calla lily."

CANARY BIRDS are imported to the United States to the annual extent of 30,000, mostly from Germany.

WORK FOR JUNE.

The present is a busy time for all classes of farmers and gardeners, and will continue to be so for some weeks. There will be little leisure for the farmer outside of harvesting, and those who have neglected other work which might have been done during the last two months, must blame themselves for the consequences and loss.

The farmers have commenced harvesting, and although the yields do not come up to former expectations, we believe that most of them are doing moderately well. Some localities have suffered severely from the dry and cold winds, while others promise more than an average crop. Early planting and deep plowing take the first prizes; those who have been satisfied with scratching, and who are always behind time, will profit by another lesson, we hope.

Our fruit-growers have their hands full; cherries, apricots, currants, gooseberries, etc., are ripening:—gathering, packing, and shipping are laborious, and take the entire time for a month to come, of those who grow these fruits for profit. The cherry yield will be unusually large, and much better in quality than last year.

We should like to see our fruit-growers a little more careful and particular in marking their fruit with the proper names, so that the consumer may become familiar with, and be enabled to particularize the different varieties which he prefers. The labor is small to put a label on each box, and the information thus given to the public will be appreciated, and create a more particular inquiry for the most desirable varieties. Unless we educate the masses upon these points, we cannot expect a due appreciation of that which is really good.

In the vineyards, all we can do is, to keep the weeds down and prevent them from maturing their seed; a good hoeing will benefit both the vines and the fruit. Vines which have been planted lately should be staked and the young shoots tied up to keep

them from breaking off. We do not believe in allowing young vines to trail upon the ground.

In the Vegetable Garden attention should be paid to the following duties:

1st. Irrigation, which need not be done more than twice a week, but should then be thoroughly done—a light sprinkling of the surface does not amount to much; as one hour of warm sunshine will evaporate it.

2d. Frequent hoeing; the ground around vegetables should always be in a high state of cultivation, that is, loose, and free from weeds.

3d. To thinning out of young plants wherever they appear crowding each other; each plant requires a certain amount of soil from which it can draw its nourishment; they should be kept far enough apart to admit cultivation around them.

It is well to throw up the earth a little around the more advanced plants of Cabbage, Cauliflowers, and Tomatoes.

Head Lettuce should be transplanted; late Peas may be sown; Corn may yet be planted; Pole Beans should receive proper support. Fresh horse or cow manure, dissolved in water, will have a wonderful effect upon vegetables, if applied two or three times with the watering pot. A little attention of this kind pays well; we cannot expect good results without some labor; vegetables must grow luxuriously to be of good quality.

The Flower Garden cannot dispense with any less attention than heretofore, or it will exhibit neglect, and result in discouragement. Roses have yielded their first crop, and now the young wood is sufficiently ripened to allow of cutting back to a few strong buds; with moderate moisture these will soon make a new growth and produce new flowers. Our gardeners and amateurs do not pay proper attention to the cultivation of Roses, or we should see them in bloom throughout the year. As soon as the young wood is ripe, which is the case now, four fifths to five sixths of it should be removed, in order to

secure a new growth, which is necessary for new flowers.

Dahlias and Gladiolus make their growth now, and we must keep the soil around them in a loose and porous condition. As we said last month, remove all but one strong stock from Dahlias, if fine flowers are expected.

Young seedlings of Pinks, Pansies, and other hardy bedding plants must be transplanted to where they are expected to flower; do this during the evening, and water well, but carefully. We plant with a small dibble, and after planting we stick the dibble into the soil beside the young plant, forming a small hole into which we pour the water with the watering-pot; in this way the water will penetrate deeper, and keep the roots moister, which is very desirable.

The Greenhouse and Conservatory require all the fresh air we can give, and frequent watering of the floor, in order to produce a moist atmosphere. Fuchsias and Camellias require considerable moisture and shade. Geraniums may be kept rather dry; flowering Begonias and Ferns may be placed under the shelves, as they can do with less light than others. Azaleas may be placed in a sheltered and shady situation in the open air, and should have just enough water to keep them alive; Bouvardias should have a very airy place near the door; Cape Jasmines, young Palms, Caladiums, Gloxinias, variegated leaf Begonias and other tropical plants should have a close atmosphere; warmth and plenty of moisture are requisite for their successful growth. Achimenes bulbs, etc., should be planted.

THE FRUIT TREES OF CALIFORNIA.

Reports are continually received from various localities of the fact, that fruit trees, particularly peach, plum, apricot and nectarine, are dying off without any apparent cause.

We knew the time would come when sad experience would teach our pomologists that fruit trees cannot be expected to live a long life, if planted on the bottom lands. The

most injudicious localities have, unfortunately, been heretofore selected both for orchards and vineyards; and further, left as they have been planted, in most cases they received no attention from the owners, save gathering the fruit.

We have found by experience that it is of no avail to talk to our horticulturists until they have burnt their fingers. Listen to them, and they know it all, when we know that, practically and scientifically, we have a larger percentage of ignorant horticulturists, farmers and pomologists here, than in any other country on the globe.

What will be the result of their sad experience, when they see that their injudiciously-planted orchards perish! They will not go to work and profit by it, but will pump at something else, or cry the country down.

We should have the reports laid before the meetings of our Horticultural and Agricultural Societies, and should endeavor to trace the evil to its proper origin. That is the purpose for which we have associations. But if no one is willing to report, we cannot expect to have more light thrown upon the subject.

ORANGE SCALE INSECTS.

Many remedies have been tried, but none seem to succeed so well as *Peruvian guano*, mixed with soap suds. This mixture seems to have the desired effect when applied by means of a syringe (in the Spring), about once a week, the soap and ammonia killing the young coccus as it first emerges from the female scale, and before it has become impermeable to the liquid preparation. The guano will also serve to enrich the soil under the tree. In planting new trees, great care should be taken that they are entirely free from scales, as a whole grove may become infected from one diseased tree. The *coccus* has a few insect enemies, which in a measure serve to check its ravages.—*Rural Carolinian*.

ORANGE TREES are growing in the open air at Healdsburg, Sonoma County, and producing fruit.

APHIDES (GREEN FLY) ON HOUSE PLANTS.

The *Rural New Yorker* says, that in the conservatory they can be readily destroyed by fumigating with tobacco, but with parlor plants they are not so easily disposed of. A large box, into which a number of plants can be placed and then fumigated, is a very convenient method, always selecting a warm day for the operation, or using some room in which the smell of tobacco would not be objectionable. The soft-wooded or herbaceous plants are the ones mostly infested with this pest. Place the plants in a deep box, and then put a few live coals into an earthen or metal dish, and throw a handful of fine-cut tobacco upon them. The box should then be covered up lightly, in order to confine the smoke about the plants. Allow the plants to remain in the box two or three hours, then take them out and syringe the leaves and stems with clear, tepid water. Repeat this operation as often as the green fly appears, if you desire healthy plants.

TO DESTROY CABBAGE LICE.

Two remedies have lately been recommended in the East as very effective.

One is, to sprinkle buckwheat flour over the plants affected with the lice, early in the morning, when the cabbages are covered with dew.

Another is, to sprinkle or sift salt over the cabbages, in the early morning, while the dew remains on the leaves.

Unfortunately, we have very little dew here in California; nevertheless moisture can be detected upon the cabbage plants in the morning, wherever irrigation is resorted to, and irrigation being necessary to raise cabbage in summer, the above remedies may be worth experimenting with.

BEEET SUGAR.—The State Legislature of New Jersey has passed a law exempting from taxation, for ten years, any establishment engaged exclusively in the manufacture of beet sugar.

THE BEST STRAWBERRY.

In answer to a correspondent inquiring as to the best strawberry, the *Gardeners' Monthly* says: "There is no more difficult question to answer than this. The vote of the whole United States would be in favor of the *Albany Seedling*. Some, because it bears abundantly; some, because it bears anywhere—in sand or in clay; and some, because the peculiar tartness when plenty of sugar is used with it, is agreeable to them. But there are others who are willing to sacrifice some of these peculiar advantages for the sake of a large, handsome berry, with a pleasing aroma and sweeter taste. These people prefer *Jucunda* or *Triomphe de Gand*;—*Napoleon III*, *Charles Downing* and *Agriculturist* also have merits which commend them highly to various growers. From your letter we judge that you want them for your own use, and not for marketing, and some of the last-named will probably suit you best."

The following items are from the *Monthly Report of the Department of Agriculture*:

REGULATING THE HATCHING OF SILK-WORM EGGS.—Duclaux, after a careful observation of the external conditions which favor and influence the hatching of the eggs of silk-worms, has prepared the following rules, by attention to which it is said that the development of the eggs can be regulated at will. First, to prevent an egg from being hatched at the usual time, it must be kept, from the period of being laid, at a temperature between 59 and 68 degrees of Fahrenheit, and then exposed fourteen days to cold, three months before the time at which the hatching is desired, being subsequently treated in the usual manner. To cause an egg to hatch before the usual time, it must be exposed to cold twenty days after being laid, and kept in that condition for two months, and then removed. Six weeks later it will be in the same condition as ordinary eggs, and can be treated in the same manner. In this way

it is possible to have silk-worms' eggs ready for hatching at any season of the year.

INCREASING THE VIGOR OF GROWTH IN PLANTS.

—A very important announcement has lately been made in France as to the effect produced upon the luxuriance of vegetation by the disturbance of the natural position of the branches. It has been known for some time that if two branches of a fruit-tree be selected of about the same size, and the same upward inclination to the horizontal plane, and one of these be bent downward toward this plane, it appears to lose its vigor, while the other gains in like ratio. It is now announced as the discovery of an ignorant peasant on the Danube, named Hooibreuk, that this law holds good only up to the horizontal position; and that if the branch is depressed still further, and below the horizontal, it becomes characterized by much greater vigor than before, and, in fact, will put out leaves and branches to an astonishing and unheard-of degree. But this depends upon keeping the branches as nearly as possible in a straight line, the effect being measurably lost with a considerable curvature. In this case, only the buds which occupy the top of the arc are developed completely, at the expense of the rest, which remain in their original condition, contributing neither to the extension of foliage nor of fruit.

A VISIT TO NAPA VALLEY.

A visit to Napa Valley may now be made with so much comfort and facility, with so little loss of time and at so little expense, that we wonder why thousands of the citizens of San Francisco do not avail themselves of their leisure hours to view the very many interesting natural features of this Valley, as well as the rapid progress of improvement.

Leaving San Francisco in the morning by one of the accommodation steamers of the Central Pacific, in the first place we enjoy a most agreeable voyage of two hours upon the

Bay of San Francisco; being always in sight of the neighboring shores and islands, they present an ever-changing panoramic scene of great beauty. Half an hour before landing at the wharf at Vallejo we come within sight of this thriving city, prominently located upon gently-sloping hills, and, as we approach the landing, a full view of Mare Island, which, fronting the city of Vallejo, adds much to the effect.

But few minutes are occupied in transferring passengers and baggage from the steamer to the comfortable railroad cars, and on we roll amidst the fertile fields of Napa Valley, every mile of travel adding new interest to the beautiful landscape. Within half an hour after leaving Vallejo, we arrive at Thompson Station, named after our enterprising friend—Mr. Thompson, who is the possessor of an extensive farm, sub-divided into orchards, vineyards, grain fields, meadows, and extensive ornamental grounds. All these are in a high state of cultivation; and here we have most attractive exemplification of the comforts and pleasures of country life within a few hours' ride of the metropolis of the Pacific. Glancing over this estate, the first thought impressed upon our mind was: "Here must be happiness!" How many such homes as this one, could be established by just such enterprising men as Mr. Thompson, the traveler may judge by turning his eyes over the length and breadth of this beautiful Valley; and we feel assured we have other localities within our State of equal fertility, and as easy of access.

Another half hour's travel through the grain fields, and we are, almost unexpectedly, in the streets of Napa City; one of the most thriving towns of California, with its hundreds of cozy cottages and magnificent mansions, sprinkled through a forest, not of native oaks and pines, but the result of art and perseverance, to which rich and poor have contributed with equal success. The streets are margined with stately Locusts, Elms, Poplars, Ailanthus, and English Walnuts of advanced growth, which form a

happy contrast with the Pines, Cypress, and Acacias, intermingled here and there with fine specimens of Libocedrus and Abies, the graceful Willow and the towering Eucalypti, giving the whole a most picturesque appearance, while from amongst the dense foliage of trees the choral song of many birds rings out most sweetly; the flowers are scattered in profusion over verandas, the garden plots and borders, and every other available spot, and saturate the air with delightful perfume.

The people of Napa City have accomplished more towards their happiness than we can find in any other of our rural centres of population. Their houses, their trees, and their flowers are comforts to them, which dollars and cents cannot replace. Surrounded by these pleasing evidences of their labors, they are not ready to sell out at any price and at any time, as some of our settlers do, who cannot perceive the value of a tree or a rosebud.

(To be continued.)

REPORT ON THE FRUIT MARKET.

Fruits and Vegetables are still somewhat backward, but the quality generally is superior.

FRUITS.—Strawberries are good in quality, moderate in supply, yet sufficient to meet the demand, at from 12½ to 15c. per lb.

Cherries, very fine and plentiful, from 12½ to 37½c. per lb.

Currants, plentiful and very fine, from 8 to 9c. per lb.

Gooseberries, plentiful, at 6c.

Plums (*Cherry Plums*), are just coming in, at 25c. per lb.

Apricots (*Royals*), in limited supply, at from 25 to 37½c. per lb.

Peaches, one lot has appeared in market at fabulous prices.

Raspberries, a very few but fine, at 25c. per lb.

Pears (*Madeline*) and Apples are just coming in, but look indigestible; the old are out.

Tomatoes are just appearing, retailing at 25c. per lb.

Rhubarb is plentiful and fine, sells for 5c.

Oranges are plentiful; Lemons in moderate supply.

Limes, plentiful.

VEGETABLES. — Asparagus going out, supply moderate.

Peas and String Beans, plentiful and good, at from 5 to 6c. per lb.

Cauliflowers and Cabbages, good and plentiful, at 10c. each.

There is also a good supply of Green Corn in market.

Spinach is going out.

Artichokes are plentiful.

New Potatoes abundant.

SAN FRANCISCO, June 10th, 1872.

OUR EXCHANGE TABLE.

Overland Monthly, for June. There is much highly-interesting reading matter in this number. The article on "Sheep Farming in California" is well written, and worthy the attention of all interested in, or connected with that line of business. "Kodiak and Southern Alaska," and "Northern California Indians" afford useful information on both subjects; as also "Pavy's Expedition to the North Pole." We commend "The Netherland Mettray" specially to attentive perusal by our City Fathers. We notice that this is the closing number of Vol. VIII, and wish its spirited proprietors increased success with Vol. IX. John H. Carmany & Co., publishers, 409 Washington Street, San Francisco, Cal. Terms, \$4 per annum.

The Science of Health. We have received the first number of this new and apparently very useful monthly, devoted to Health on *Hygienic Principles*. Samuel B. Wells, publisher, 389 Broadway, New York. Terms, \$2 per year.

The Little Corporal, for June, came to hand. Reading matter and illustrations are equally creditable. It deserves the success which it undoubtedly enjoys. John E. Miller, publisher, Chicago.

The Virginia Real Estate and Farm Journal, devoted to Real Estate, Agriculture and Immigration, which interests it ably represents. Published monthly by A. F. Robertson & Co., Lynchburg, Va. Terms \$1. per year.

The Colorado Real Estate Register, devoted to Real Estate, Railroads, Agriculture, Mining, Live Stock and the general industry of Colorado, contains valuable information and statistics of the State it represents. Published by E. G. Matthews & Co., Denver, Colorado. Price \$2 per annum.

Through the kindness of G. P. Rowell & Co., advertising agents, 41 Park Row, New York, we received the *American Newspaper Directory* for 1872, etc., a most valuable compendium of information relating to all newspapers and periodicals published on this Continent, and of the towns and cities where they are conducted. We especially call the attention of our enterprising business men to this work, as containing all that is necessary to be known to enable them to systematize that most potent aid to success in business—intelligent advertising.

FAVORS RECEIVED.

Monthly Report of the Department of Agriculture for March and April, 1872; full of interesting notes and statistics.

The Lady's Friend, Monthly Magazine of Literature and Fashion, well illustrated; has a large staff of able contributors. It is edited by Mrs. Henry Peterson, and published by Deacon & Peterson, of Philadelphia. Price \$2 per annum.

From M. Ludermann, copies of a valuable German publication, by Dr. Wilhelm Neubert, on Floriculture.

CATALOGUES RECEIVED.

Descriptive Catalogue of Fruit and Ornamental Trees, Shrubs and Climbing Vines, Stove and Greenhouse Plants, cultivated and for sale by W. C. Strong & Co., Brighton, Mass.

Wholesale Catalogue of superior Dutch Bulbs and other Flowering Roots, from Grube & Nieuwland, No. 13 First Street, New York.

BOTANICAL WORK.

Baillo's History of Plants is now being translated from the French into the English language. *The Gardeners' Monthly* considers it the best work on classification at present.

FAIRS AND EXHIBITIONS.

INTERNATIONAL FRUIT SHOW.—In September next there will be held a great International Fruit Show in Glasgow, Scotland, under the auspices of the "West of Scotland" Horticultural Society. One of the great features will be the exhibit of foreign fruits, in which France, Italy, Germany, Holland, Belgium, the United States of America, and British North America, are expected to participate. We hope California will be represented.

INTERNATIONAL EXHIBITION AT VIENNA, 1873.—The International Exhibition to come off at Vienna in 1873, it is predicted, will be a very imposing one, and Agriculture and Horticulture are expected to be the leading features. The Lower House of Congress passed a bill to authorize the President of the United States to appoint proper Commissioners on the part of this Government.

OUR HORTICULTURAL EXHIBITION.—Arrangements have been made to hold the coming Horticultural Exhibition in the Horticultural Hall, corner of Stockton and Post Streets, in the City of San Francisco. The Hall will be enlarged, etc.

SPRING EXHIBITION OF THE PENNSYLVANIA HORTICULTURAL SOCIETY.—The Spring Exhibition of this Society, held in April last, is said to have been a magnificent affair. The display of flowers was superb, and nothing was left undone by the various committees to make it a complete success.

The Kansas City *Industrial Exposition and Agricultural Fair Association* holds its next Annual Fair from Sept. 23d to Sept. 28th, 1872. The Premium List exceeds \$15,000 in cash.

PREMIUMS FOR FLOWERS

(Offered by the State Agrl. Soc. at their next Fair.)

- Best and largest collection of Flowering Plants in bloom..... \$25 00
- Best collection of Ornamental Foliage Plants 25 00
- Best collection of New and Rare Plants..... 15 00
- Best collection of Roses in bloom... 15 00
- Best collection of Fuchsias in bloom 15 00
- Best display of Cut-flowers..... 10 00
- Best collection of Australian Plants.. 10 00
- Best display of Bouquets..... 10 00
- Best collection of Plants suitable for greenhouse, conservatory and window culture..... 15 00
- Best display of Hanging Baskets containing Plants..... 10 00

NEW AND RARE FRUITS.

Diospyros Kaki. L. f. var. costata, as a hardy fruit.

This is a fine variety of a species that is native of Eastern Asia, and has been cultivated in China for many years. The ripe fruit of this variety is of a nearly globular figure, marked, however, with four longitudinal furrows; it is of a bright orange color, colored with a delicate bloom, and attains, in the climate of Paris, a size of from two inches to two and a-half inches in diameter. The flavor approaches that of an apricot,

gradually passing into that of a medlar, and when fully ripe is very pleasant. Before maturity, the fruit partakes of the astringency which is frequent in other species of the genus. The plant is a vigorous shrub, or rather a small tree, with widely-ovate leaves, shining on the upper surface, which fall sometime before the complete maturity of the fruit. The leaves on the young, barren shoots sometimes reach eight to ten inches in length by five to six inches in width, but those on the flowering shoots are somewhat smaller. The variety was introduced into France from China some time ago, and first bore fruit in the nursery attached to the Paris Museum, in 1869. It was described and published by M. Carrière under the name of *Diospyros costata*. From its appearance there, where I saw it last Summer, I should expect it to thrive in the milder parts of the South of England, in which case it would form a valuable addition to our stock of fruit-trees. The species is diœcious, or nearly so, nevertheless the female plant produces good fruit in the total absence of a male companion, but the seeds are not perfected.

W. P. H. Gardeners' Monthly.

Lawyer Apple.—We received, May 4th, from Messrs. Park & Goodyear, of Parksville, Mo., a specimen of this fruit. It is a beautiful apple—large, dark-red and of mild taste. It is described as of a “rich, sprightly cranberry flavor, hardy and productive.” It is evidently a good keeper; but we cannot call the flavor either rich or sprightly. But it will please many, though not sufficiently cranberry to please us. It is certainly an acquisition as a late keeper for the more Southern latitudes, (and therefore may be tried with success in California.—ED.)

NEW BULBS.

Amongst the bulbs of 1871 the *Liliums* take the first place, and deservedly so, for few of our garden flowers are more beautiful than they. We shall hope to see blooming

flowers (of *Lil. Washingtonianum*) exhibited in the ensuing Summer. *L. Maximowiczii tigrinum*, and *L. Boezlii*, are two very charming sorts—the first from Eastern Asia, the second from the Rocky Mountains. We shall leave Mr. Baker to locate, being content to record the fact of their having found their way to European collections.

The South African *Gastronema sanguineum flammenum* is a charming dwarf greenhouse bulb, with linear lanceolate leaves, and rosy crimson flowers of great beauty.

The Gardeners' Monthly.

THE CAPITOL GROUNDS.

There is some talk of converting the State Capitol Grounds at Sacramento (which by a new law, passed at the last session of the Legislature, have been considerably enlarged) into a State Park. Provisions have now been made for Golden Gate Park, our National Park, and for a State Park; but we are afraid that the interposing of individual interests, political chicanery and the lack of sufficient public spirit, will prove detrimental to the efficient management of these public improvements. These require the services and should be under the supervision of our most skillful and practical landscape gardeners.

HORTICULTURAL HALL.

The fact that San Francisco now possesses a Horticultural Hall, will be gratifying to those interested in Horticulture. The Hall is owned by the “Horticultural Hall Association,” the capital stock of which is \$60,000, divided into 600 Shares of \$100 each. The Trustees are—Robert J. Betge, William Meyer, Christian Westphal, E. L. Reimer, and F. A. Miller. It is proposed to enlarge and beautify the Hall, so as to make it worthy of its name.

Make a slow answer to a hasty question.

THE LOS ANGELES ORANGE CROP.

The most of the present year's crop of Los Angeles oranges has been shipped. The entire crop is estimated at about 28,000 boxes. Oranges have been sold at prices ranging from \$7 to \$30 per \$1,000, and the total amount realized will be about \$100,000.

WINE PRODUCT IN THE U. S. FOR 1871.

Mr. Bush, in a lecture before the Mississippi Valley Vine-Growers' Association, at a recent session, estimates the product of Missouri at 1,000,000 gallons; Illinois, 1,200,000; New York, 2,250,000; other States east of the Rocky Mountains, 1,000,000; and California, 7,000,000; total 12,450,000 galls.

BEET SUGAR IN COLORADO.

Denvers and other localities of Colorado raise large crops of sugar beets, and the yield of beet sugar there will be immense, when we take into consideration that the dry climate of the eastern slope of the Rocky Mountains is favorable to this industry.

APPOINTMENT.—N. P. Sangford, of Montana, was appointed (Washington, May 14th, 1872) Superintendent of the Yellowstone National Parks.

We have made arrangements to supply the *Overland Monthly*, together with the *California Horticulturist*, for \$4 50 per annum. Subscriptions at this rate should be for one year, and should be paid in advance. Orders directed to F. A. Miller & Co., box 128, P. O., San Francisco, or to the Office of the *California Horticulturist*, 622 Clay Street, will receive prompt attention.

APHIS LANIGERA.

Dr. Kellogg drew our attention to-day to a number of young cones of *Abies Douglassi* which were severely infected by this terrible

pest. He promises to furnish us with the result of his observations on this subject in our next number.

By the way, we notice two errors in his article on "Noxious Insects," page 198, col. 2, for *pages*, read *ages*; and, page 199, col. 1, for *Rogues*, read *Plagues*.

Editorial Cleanings.

DRYING AND PACKING OF FIGS.—It seems, at first sight, that nothing is easier than to dry and pack a box of figs; yet there are little points to be attended to, which, if neglected, will cause disappointment and loss; to these I will now invite attention. Previous to collecting the fruits, provide light wooden frames; battens will be strong enough, if they be not more than six feet by three feet, over which coarse wire-netting is to be nailed, having meshes about an inch square, the object of which will be evident in a moment. The fruit should be not merely ripe, in the sense of being ready for market, but the whole inside of it should look, when cut, like rather thick oil, and the outside just beginning to show signs of shrinking. Very little practice will guide the eye in selecting the right ones. Where they cannot be easily reached by the hand from the ground, the cane contrivance described before will be found useful. Care must be taken not to crush or damage them. Now, the tray, or frame above-mentioned, is placed on any convenient support, close to the trees, and as the figs are gathered they are placed in the tray, always with the little stalk downwards, and the nose of the fig upwards, and each in its own mesh of the iron net. The reason for this is that very often ripe figs open at the nose, and lose all that is really valuable in their inside long before they are dry. Neither should they be handled more than can be helped, for that removes the bloom. So soon as there is no more danger of their contents running out, which may be at any time from a week to

a fortnight, according to the state of the weather and the ripeness of the figs, they may be placed without much danger on large canvas or Macintosh sheets, and covered up, or taken in at night, and exposed to the sun during the heat of the day.

But while they remain in the trays, they must be covered up from damp. The most economic way, as well as the most secure, is to erect strong posts, of any convenient height sufficiently wide asunder to receive the trays into grooves, or upon pieces of wood nailed to the side about nine inches apart, and then throw over them, at about 5 P. M., a tarpaulin or sheet. On hot-wind days it is just as well to leave them uncovered in the uprights, as the current will dry them well without sunshine. Notwithstanding all that has been said, at the end of three weeks or a month, if the weather has not been of the best, it would be desirable to allow them another week on any warm floor where no damp can get at them before packing, for one undried fig will spoil a box or a basket, as it will cause fermentation. There is also another process which hastens the drying of the figs, and which does not appear to have attracted Dr. Bleasdale's attention. It is as follows: Procure some scalding hot lye, made of the ashes of the fig-tree itself. Dip the ripe fruit in this lye for about half a minute. Take them out and drain, spread them out on straw, exposed to the sun, or put them for the requisite time into the drying closet or stove; when sufficiently dry, pack them tight in rows in wooden boxes. Dr. Bleasdale prefers baskets for picking them in. He says: "I consider far more appropriate for this country is the plan usual in the Algarves and some other parts of Portugal, and it consists in packing the figs in a sort of basket, made of the leaf of a sedge, or something of the kind, the substitute for which would be the leaf of the New Zealand flax. These baskets (Alcofas and Alcofnhas) will hold from seven pounds to about twenty pounds; they must be strong. According as the dried fruit is put in, the sides are com-

pletely covered with a double thickness of bay leaves, and the figs pressed firmly down; and when the alcofa is completely full, the mouth or opening is firmly drawn together and sewed with some strong material. The nearest approach to the basket of figs to which I can direct the reader is a basket of dates, and the firm way in which they are packed. Now, the purpose of packing thus tightly is this: It prevents the fruit from throwing out that mealy substance so commonly to be seen, which is the natural fruit sugar, and supposing the fruit to throw it out, by excluding air and moisture, it prevents decay or fermentation from taking place. Perfectly dry figs should have no mealy coat on them. Packed as described above, our dry figs ought to keep for at least one year. So soon as the difference is discovered between fresh dried fruit and imported, the public will prefer our own, though it will be both smaller and darker in color." It is stated that the best kind of fig for drying and preserving is the true white fig, and it usually bears two crops each season.—*Sydney Town and County Journal*.

THE CAROB-TREE. — A correspondent to the *Rural Press* says: "The Carob-tree might be made a very valuable acquisition for California. It is the fruit of this tree that is referred to in the parable of the prodigal son. The 'husks' were the *Pods* of this tree, which contain a small quantity of a sweet substance, something like the honey locust. It is also sometimes called 'St. John's bread.' The carob-tree is of good size, and when the pods become heavy with sweetness, they weigh down the branches on every side, so that they have to be harvested to prevent injury to the tree. This tree would be very valuable in this country, as, after it is once started, it requires no irrigation, and would suffice to feed stock and hogs in dry seasons. Moreover, the more trees we can grow without rain, the more rain we shall be likely to have."

CINCHONA.—From the Monthly Report of the Department of Agriculture for March and April, we copy the following article :

“Since the publication of our February number, containing an article on this subject, (pp. 73, 74), the Department has received several letters from California in relation to the same subject.

“The first is from Arthur B. Stout, M. D., of San Francisco, with a copy of a proposed act “to create and establish a State Botanical and Zoological farm for the experimental culture of all desirable plants of foreign or indigenous growth, available for economic purposes, for the cultivation of knowledge in Zoology, and for the foundation of a public thermal sanitarium for the cure of chronic maladies.” The plan suggested, and to be carried out by legislation, is to appropriate one million acres of public lands (granted by the State or by Congress), forty thousand acres to be divided into four nearly equal and appropriately located farms, so as to obtain all the benefits of different climates, soils, altitudes, and of thermal springs—all to be under one general government, and each to be managed with reference to the object of its institution. As the California Legislature meets only biennially, the corporators desire, to avoid delay, that permission to occupy at least a portion of the lands be obtained from Congress, so that cinchona plants may be procured and set out immediately. F. A. C. Grebner, of San Francisco, writes that he assisted at introducing cinchona plants into Java, under Dr. Junghuhn, and in their cultivation under the present Superintendent, Van Gookum. He also planted over 200,000 cinchona trees in his own coffee plantation, and when they were six years old their bark was sold in Frankfurt, Germany, at the price of bark from Peru. Though acquainted with the British plantations at Ceylon and Nighlberry, he confines his remarks to those of Holland, in Java, as the bark is superior to that of British India, and fully equal to that of Peru as regards the quality of the quinine extracted,

though the alkaloid is generally less than in the Peruvian. He says that the shipments of bark from Peru and Bolivia are annually decreasing. The plantations of Java now contain over four millions of trees of the best kind, and in the course of the next year a factory will be erected there to extract the quinine and prepare it for use. Mr. Grebner thinks the climate of Southern California well adapted to the raising of cinchona and coffee, and that Chinese labor there will not be dearer, considering its greater efficiency, than Malay labor in Java. He says that entire freedom from frost can only be secured south of Los Angeles, along the coast of San Diego, extending back into the country some thirty or forty miles; that in this district the average temperature for years has been about 62 deg., the lowest 51 deg., in January; the highest, 73, in August; the rain-fall is ten inches annually, but there are frequent heavy fogs. Wood-land is scarce, but that is no objection. Mr. Grebner believes that capitalists cannot be interested in the subject until one or two successful experiments have been made, and proposes to commence on a small scale, at the same time trying coffee planting, and increase the planting as results may warrant. That success may be attained in growing the cinchona, there is little doubt; but as the coffee-plant requires a temperature uniformly above 55 deg., there is less prospect of success in its culture.”

THE MERITS AND NEEDS OF A COUNTY.—Humboldt County occupies an isolated position with reference to the commercial centres of the State. She has neither telegraphic nor railroad communication with other towns, but relies in a large degree upon shipping as an outlet for her trade. This kind of intercourse is not only slow but uncertain, and often causes the lumbermen and producers of that region to lose the advantages of a rise in the market. The people of the county are very anxious for a railroad connection with San Francisco, but can hardly hope to real-

ize their expectations for some time to come. Eventually, the Sonoma or North Pacific road, now operating to Cloverdale, will reach that county, when its natural resources will place it prominent among the best producing regions of the State. It is said the county could grow flax enough to manufacture all the grain and potato sacks needed in California, and supply every demand of the flax-seed market besides. The county could also support a woollen-mill and beet-sugar factory. Its saw-mills in 1867 furnished 25,000,000 feet of lumber and employed nearly a thousand men. In the same year over 50,000 pounds of wool and 400,000 bushels of prime potatoes were shipped from her principal harbors. It is estimated that over 500,000 acres of her soil are suited for agriculture and 300,000 for grazing purposes. In several instances, 70 bushels of wheat, weighing sixty pounds to the bushel, or 100 bushels of oats, weighing forty-four pounds to the bushel, have been raised, or fifteen tons of potatoes, from a single acre. One would think that a county that can offer such inducements for the construction of a railroad through its territory ought to be able to secure such an improvement without delay.

INTELLIGENT FARMING.—Intelligent farmers no longer confine their attention exclusively to the raising of cattle and grain. They find a well-managed orchard or garden equally profitable, while it contributes greatly to the comfort and happiness of the family.

The full benefit of this general attention to fruit culture, however, can only be obtained when it is skillfully and intelligently pursued. To plant a tree and leave it to take care of itself, can be expected to benefit no one, except it be him who does so, learning, by repeated failures, the necessity of bestowing the right care and culture.

The climate of a great portion of the American continent is pre-eminently adapted to the raising of fruit. The orchardist has everything to encourage him to anticipate great success. With judicious cultivation, there

are few failures, and they only serve to stimulate an intelligent horticulturist to renewed efforts.

Horticulture is destined to take a high position in California. Much has been accomplished in testing the different varieties of fruit, and in determining the best soil, location, climate and exposure. We need, however more facts bearing on these points, and, still more, some system for recording and comparing them.—*Rural Press*.

PLANTING TREES ON THE PLAINS.—We have received from George Pinney, Esq., of Sturgeon Bay, Wisconsin, a copy of a memorial to Congress, introduced by Mr. Allen, in the Wisconsin Legislature, asking Government aid in making "large plantations of forest and timber trees in various sections of the Western Plains."

The memorial represents:

First: That the State of Wisconsin, together with other of the Northwestern States, are suffering severely through the inclemency of the western and southwestern winds, which burn and wither in Summer, and greatly increase the frequency and intensity of our drouths, and which are dry and severely cold in Winter, materially obstructing the growing of fruit and many other productions of the soil.

Second: That it is well settled among the meteorologists that these winds, that produce the extreme inclemencies of our season, cross in their course the arid plains lying to the eastward of the great ranges of mountains near our western coast, where they are wrung of their moisture, and in that condition are forced through the Northwestern States, producing the extreme severities of both Summer and Winter.

Third: That those Western Plains are destitute of trees, and that history and science prove that trees exercise a marked influence upon the atmosphere, not only increasing its humidity, thereby reducing its liability to become either hot or cold, but do actually impart warmth to a cold atmo-

sphere, and also cool it when very warm, and do increase and regulate the rain fall; and that these effects are realized not only in the immediate vicinity of the forests, but are extended in a greater or less degree over the whole path of the winds passing the forests in their course.

This subject of tree-planting in its effects upon climate, excites more and more discussion, and the Kansas Pacific Railroad and dear Congress are already turning their attention to the matter.

Facts furnished in a paper of M. Mathieu, Professor in the School of Forestry, at Nancy, read before the Congress of Agricole Libre, held at Nancy in 1869, seem worthy of being called to notice in this connection.

The experiments described in M. Mathieu's paper had been carried on during the last eight months of 1865, and also in the years 1867 and 1868, and were aimed at the following points:

1. The influence of the forest state upon the rain-fall of a country. Two points, some miles distant from each other, one in the wooded and the other in the cultivated country, nearly the same height above the level of the sea, and in other respects alike, were chosen, and the amount of rain-fall compared, with the following results:

RAIN FALL.

Time	In open country	In forest country	Excess in forest
8 mos. 1866...	23.25 in.	27.24 in.	3.99 in.
8 mos. 1867...	33.93 in.	37.41 in.	2.68 in.
8 mos. 1868...	24.84 in.	26.48 in.	2.64 in.

Showing that a considerable excess of rain fell in the forest country.

2d. The amount of moisture that the covert of a forest prevents from reaching the earth. This experiment was made by comparing the amount of rain caught by a rain gauge in the open ground with that caught by a rain gauge embracing a tree in the dense forest. The results were:

Time	Under the trees	In open ground	Difference
8 mos. 1866...	25.90 in.	26.20 in.	.30 in.
8 mos. 1867...	34.17 in.	36.41 in.	2.24 in.
8 mos. 1868...	27.67 in.	29.48 in.	1.81 in.

Showing that less rain reached the ground

where the trees stood, than in the open ground immediately about them; but yet more than fell in the open country, as shown by the previous table. Thus:

Time	Under trees rec'd	In open country rec'd	Difference
8 mos. 1866...	25.90 in.	23.25 in.	2.65 in.
8 mos. 1867...	34.17 in.	33.93 in.	.24 in.
8 mos. 1868...	27.67 in.	24.84 in.	2.83 in.

3d. The influence that the wooded condition of a country has upon evaporation: Vessels containing and replenished with equal amounts of water, were placed, one in an unsheltered nursery of forest trees, and the other in the forest itself, and observed in 1867 and 1868. The evaporation in the unsheltered ground went on four times as rapidly as in the forest.

4th. The influence of forests upon temperature: These experiments were only commenced in 1868, and give no complete results, but so far as conducted, went to show that the annual mean temperature is less in the woods than in the open ground; the difference being greater in Winter and least in Summer. The temperature varies but little between day and night in the forest, whilst it changes a great deal in the open country.

In these facts, we think, are contained principles that have an important bearing on Agriculture and Horticulture, to which we shall, at some time, have occasion to allude.—*Prairie Farmer.*

THE MOSS ROSE.—The Angel who takes care of the flowers, and sprinkles upon them dew in the still night, slumbered on a spring day in the shade of a rosebush. When he awoke he said: "Most beautiful of my children, I thank thee for thy refreshing odor and cooling shade. Could you now ask any favor, how willingly would I grant it!" "Adorn me, then, with a new charm," said the spirit of the rosebush in a beseeching tone. So the angel adorned the loveliest of flowers with a simple moss. Sweetly it stood there in its modest attire, the most beautiful of its kind.—*Krummacher.*

CALIFORNIA BUTTER IN NEW YORK.—California is not entirely satisfied with giving us gold, fruit, wine and flour, but also sends to us butter. The first lot arrived here on Tuesday, and has attracted a great number of spectators, not only from members of the trade, but also newspaper men and others interested. One of our reporters ascertained that it was made on the Pacific Coast and shipped hitherward from San Francisco. On inspection it was found that the butter was of the very best quality, notwithstanding it had been twenty-two days on the road, instead of sixteen, as expected.

The butter was shipped to San Francisco from the dairies, where it was made in two-pound rolls, each roll being wrapped in a cloth saturated with brine and packed in cases containing from sixty to one hundred rolls each, or in casks, each of which held 140 rolls. In the casks the butter, after being duly rolled up, is covered with a strong brine, and reaches here as pure and sweet as any butter could be. This first shipment has been made by Messrs. T. S. Doremus & Co., of No. 178 Duane Street, and Mr. J. S. Martin, of No. 165 Chambers Street. These gentlemen conceived the plan of making the Pacific Coast supply the East with necessaries, and carried it out to the point of making themselves factors of the shippers and manufacturers.

If this new movement in butter proves as successful as it now promises, a new industry will have been opened to California.—*N. Y. Standard.*

INDIA RUBBER TREES.—The belt of land around the globe five hundred miles south of the equator abounds in trees producing the gum of India rubber. They can be tapped for twenty successive seasons, without injury; and the trees stand so close that one man can gather the sap of eight 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 land thirty miles long and eight wide.

FERTILIZER FOR HOUSE PLANTS.—A writer in the *Ladies' Floral Cabinet* says: "An ounce of pulverized Carbonate of Ammonia dissolved in five gallons of water, makes a capital fertilizer for all plants. If you cannot obtain this, but have a chicken coop and barn-yard close at hand, you can still procure fertilizers. To two table spoons full of the oldest chicken manure, dried thoroughly, add a point of boiling water; stir it until dissolved, and add enough water to make the color of weak tea; water with it quite warm. Horse or cow manure is always very good applied in the same manner.

ANTIDOTE FOR POISON OAK—We find the following in an exchange: A standing antidote for poison by oak, ivy, etc., is to take a handful of quicklime, dissolve in water, let it stand half an hour, then paint the poison part with it. Three or four applications will never fail to cure the most aggravated cases. Poison from bees, hornets, spider bites, etc., is instantly arrested by the application of equal parts of common salt and bicarbonate of soda, well rubbed in on the place bitten or stung. Before retiring at night, apply sweet-oil.—*Atta.*

A FRENCH writer thinks that the very frequent fires which occur in pine forests in summer, far from any habitation, are not due, as has been commonly believed, to careless or mischievous people, but to the action of the sun's rays concentrated by the globules of rosin which exude from the trees. These act as burning lenses and start the conflagration, which, of course, spreads rapidly among the inflammable material.

In the Royal Botanic Garden, of Edinburgh, climbing roses are trained to living posts, consisting of straight poplars, closely pruned of leaves and branches, excepting a small branch at the top.

The first Cherries of the season were received on Wednesday, May 1st, from Marysville, and sold for \$1.75 per pound.

T H E

CALIFORNIA HORTICULTURIST

AND FLORAL MAGAZINE.

VOL. II.

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No. 8.

FIGS FOR PROFIT.

From the earliest period that the plough and the spade have been brought into requisition for the cultivation of the productive soil of California, which, aided by a most genial and varied climate, admitting with equal success the growth of sub-tropical trees and shrubs in one locality and the cultivation of fruits adapted to the more northern climates, in another, it has been the misfortune of our farmers and horticulturists to be continually in search of the most desirable, most profitable and best adapted crop to raise. The consequence has been, that experiments have been made with almost everything which our prolific soil and genial climate are capable of producing. Such experiments are prone to be made in all comparatively new countries, but the results have established facts, which every cultivator should himself store up for his guidance in the future. However, the mere fact that a certain plant or tree will thrive and be productive in this country, does not necessarily insure a profitable return from its culture; and it becomes very important to ascertain, before we embark in any such enterprise, what the probable chances are for a pecuniary success, *i. e.*, for profit, and whether the necessary knowledge and the requisite means are at hand to conduct our undertaking to a final success.

It is useless to embark in Grape Culture

unless we have the proper soil and location, with the necessary knowledge of the business, and a market for the produce, or the means for converting the fruit into a fit condition for either export or storing. We may say the same with regard to Silk Culture, also of Ramie, Cotton, Sugar-Beet, Tea, etc.

But to the point: How about Fig Culture for profit? We know that Fig trees will grow and bear fruit spontaneously in California, as we have tasted some very good Figs, which were thus grown on California soil; and we feel very much like the editor of the *Plantation*, who, while eating some fine Smyrna Figs which had been presented to him, permitted his thoughts to suggest as follows:

“This fruit was plucked thousands of miles from this spot, by an Ottoman hand. It was dried under an Oriental sun. It has sailed over the Mediterranean. Passing through the Straits of Gibraltar, it has crossed the Atlantic Ocean to New York. From New York it has sailed southward, doubling Cape Hatteras and landing at Savannah. From Savannah it has traveled three hundred miles by rail to Atlanta, and, as the finale of its perils by land and sea, it was being devoured in his sanctum by a remorseless Georgia editor.”

“Well, why was this Fig brought here? Is the Fig a rarity with us, like the Coconut, or Pine-apple? On the contrary, in

portions of the South, it is the commonest of fruits, growing like a weed without cultivation. Is our Fig inferior? We cannot believe that Turkey can produce it in greater perfection. Is there any mystery in the art of drying and preparing it for market? We are told that the process is cheap and very simple. Yet while this fruit grows so readily and in such perfection, thousands of dollars are annually expended for Figs from Turkey!"

Admitting all this to be so—and we believe it to be—and knowing also that these circumstances apply to us in California with equal force, yet we would have the matter of Fig Culture more carefully taken into consideration, before advising any one to enter into the business for profit. Many people have an erroneous idea, because Figs, Grapes, Apples, Cherries, etc., are grown to perfection in California, and are offered in so fine condition in our markets, that they can be grown everywhere.

Orchards, vineyards and other plantations have been located without any regard to soil, aspect and climate, and many of these enterprises have failed on that account, and if their proprietors or occupants will not admit this to be the case, it is for some reserved reason; however, their products, when presented in our markets, are sufficient proof of what we have said.

The Fig is a sub-tropical fruit, and the climate within the boundaries of California which is best suited to it is, perhaps, that of Sacramento, Marysville, Stockton, Napa, Sonoma, San Luis Obispo, Los Angeles, San Diego, etc. Fig trees may be grown in almost any other locality for shade, (it will make a very handsome and effective shade tree,) or its fruit for family use, but to compete with the Smyrna Fig, it becomes imperatively necessary to select our warmest localities and to give them a deep, light soil. For two or three years they should be irrigated once or twice a month, which may be discontinued as soon as the tree begins to bear fruit, although with an occasional wa-

tering during June and July the fruit will become much larger.

Bearing Fig trees should be treated thus: Clip off the ends of the young shoots early in Spring, before the tree shows any sign of growth, and as soon as the fruit begins to form along the stem, break off the leaf-buds adjoining, in order to throw the entire strength of the sap into the fruit. This is very essential, and gives also more room to the fruit, which it requires in order to acquire flavor. Let the fruit ripen well, and after gathering cut off the branches which have produced the fruit, inasmuch as young wood will bring you larger and better fruit than old wood. All this causes some labor, but if we wish to raise Figs equal to the Smyrna Fig, we must not mind this additional work. About the drying process, we refer to the article on page 219 of our last issue.

Now all of the points of which we have spoken are easily enough attended to, but the most formidable difficulty to overcome, is the obstinate and senseless though widely prevalent prejudice in the mind of the consumer, to prefer an imported article to that produced at home, even although the latter may be obtained equally as good in quality as the former; but this difficulty can also be mastered by the energetic and persevering coöperation of the producers, by placing their superior and genuine article before the public at a reduced rate until they rule the market. It can be done, and is only a matter of time and perhaps of some slight sacrifice at the beginning. There ought to be some satisfaction in establishing another important branch of industry to which California is entitled, and which will prove profitable under judicious management.

THOMAS O'BRIEN, a well known florist of Sacramento, has lately shipped flowering plants to Salt Lake City, for sale among the Mormons. Our friend O'Brien seems determined to open a new field for his surplus stock.

VERBENAS.

The name *Verbena*, is supposed to be derived from *Verbum*, (Word,) and may be accounted for by the historical fact, that the Romans gave their oath by this weed. However, this must have more particular reference to *Verbena officinalis*, which is in reality not the *Verbena* from which our present numerous varieties have been raised. The mother of our Garden Verbenas is, undoubtedly, *Verbena chamædrifolia*, discovered by Feuillée at the beginning of the last century near the Rio de la Plata, of South America. The color of the original flower is a bright red.

The Verbenas, as a class, form a most important and prominent feature in our gardens as bedding-plants, in masses as well as for the purpose of filling up the borders; and as their flowering season, in California at least, in its milder localities, is continuous or nearly so, they have become indispensable to the florist and amateur.

Undoubtedly the art of Floriculture has achieved most wonderful results in the improvement of many tribes of the floral world, and the *Verbena* rivals them all in brilliance of color and productiveness of flowers, to which qualities is now added the delicate perfume which many of the finest varieties possess.

To some extent Verbenas are divided into groups, certain qualities being characteristic of them; this, in some instances, we believe, is carried too far for practical purposes.

We find, first, the *Verbena hybrida*, which includes many large flowering varieties of diverse colors, and comprises most of the Verbenas in general cultivation here. They are a decided improvement on the older varieties in point of size, color and habit.

Another still more attractive and interesting group is *Verbena auriculæflora*, resembling in form and character the well-known *Auricula*, only being smaller in size, all having a white eye in the center.

This group originated, we believe, with the French as well as the English, and by both they are grown to perfection.

The next group, which is particularly interesting and novel, comprises the varieties of the *Verbena hybrida striata*, or new *Italian striped*, similiar to the Carnations.

We will close these divisions with the *Verbena odorata*, in which the fragrant varieties are included. Although all Verbenas possess more or less fragrance, we only refer here to those which are new and most remarkable in this particular character.

The varieties of Verbenas are almost endless, and new ones are produced every season from seed. We shall particularize a few of each group, from the catalogues received this year.

Of VERBENA HYBRIDA, we mention—

Mrs. Douglass, color cherry-pink;
Magnum Bonum, violet-crimson;
Goliath, brilliant scarlet;
Defiance, dazzling scarlet;
Mrs. Dick, pure white;
Challenge, dark maroon;
Calvert's blue, deep blue.

VERBENA AURICULÆ FLORA:

Acme, deep maroon, yellow eye;
Crimson king, blood-crimson, white eye;
Gazella, deep blue, white eye;
Loyalty, scarlet-crimson, black eye;
Peerless, scarlet, white eye;
Rising sun, crimson, white eye.

VERBENA HYBRIDA STRIATA:

Jackson's seedling, white striped-crimson;
Hattie, blue and white-striped;
Punctata, spotted and striped with crimson.

VERBENA ODORATA:

Ultra-marine, deep blue, fragrant;
Excellent, indigo-blue, fragrant.

The propagation and cultivation of the Verbenas requires no skill; they thrive luxuriantly here in all of our soils; they will do

well in our sands, if sufficiently manured; the best soil we can give them is light loam. We find that by permitting plants to become old, their appearance lacks the neatness which one, two and three year old Verbenas possess; nor are the flowers so perfect as on young plants; they exhaust the soil rapidly, and a good top-dressing of manure should be given annually. The soil should always be well cultivated around them. We advise amateurs to plant out some new and young plants every year, by dividing old roots or by purchasing the varieties desired, as they are cheap enough; but we would not make it a practice to replant them in the same spot always, but prefer to change about in regular rotation. The best plants are grown from small cuttings, such as our florists use for growing them in large quantity, but glass cover is required to root them in this way. After roots have been formed—which is within two weeks—they should be potted separately in small pots, and placed close under glass, in order to produce well-branched and bushy plants; which are always preferred by purchasers to those with long straggly branches. After they have become established in those pots, they may be transferred into the open border at any time of the year; if this is done in summer, all they require is newly prepared soil before planting and a thorough watering afterwards.

Verbenas are trailing plants, as everybody knows, and to grow them in good shape and uniform, the branches, which are thrown out in rapid succession, should be pegged down with little wooden pegs wherever they are desired to develop themselves. These branches soon form new roots, wherever they are brought into contact with the soil, and establish themselves as independent from the mother plant; a large circle can thus be formed within a few months, and the product of flowers is most wonderful. The effect is a most pleasing one, and the contrast of color most beautiful, such as no other class of plants can produce in so short a time and for so long a period.

EVERGREENS IN THE EASTERN STATES.

We hear through our Eastern exchanges continuous complaints that many of the Evergreens have died during the last two years. This remarkable phenomenon is attributed, principally, to the severe and dry winters and to the scarcity of rain during summer.

We have no doubt that the extreme cold of our Northern localities is too much for many of the Conifers lately introduced; but when it comes to the scarcity of moisture, we cannot very well comprehend how Evergreens in the East should suffer more than the Evergreens of the Pacific Coast—the rain-fall of the Eastern States being certainly far in excess of the amount of moisture deposited on this Coast. Yet we do not hear of instances where our Evergreens have thus suffered, save in rare and extreme cases. However, a similar fatality has come under our observation, in the dying out of some of our native deciduous trees; this fact is coupled with the extreme scarcity of some of our beautiful wild flowers. This may be attributed to various other circumstances, of which we should not entirely lose sight. Certain native trees and shrubs seem to dislike the proximity of civilization, and absolutely refuse to subject themselves to our notions of cultivation; the very proximity of human habitations, and the inevitable changes arising therefrom, seem to demoralize native vegetation as well as native animal life—of this the present condition of our Indians is a fair instance. Yet there is no doubt that the extremely dry seasons of the last two years, in addition to the other causes, have caused a falling off in our otherwise luxuriant vegetation.

The scarcity of native herbaceous plants may be attributable principally to the want of the necessary moisture and to the fact that our cattle, by thousands, are roaming over the hills and valleys and devouring everything which is digestible, and in consequence very few plants are permitted to ripen their seeds or even to come to flower.

Although, practically speaking, this state of things has not yet subjected the farmer to any inconvenience, yet may it not be reasonably supposed, that a falling off in the vegetation will lessen the chances for abundant rain and moisture?

ACHIMENES.

Ere long we shall see this charming bulbous-rooted plant again in flower, and wherever it presents itself it is sure to meet with friends and admirers. Producing as it does an abundance of flowers, which are particularly effective in their rich and striking colors, the Achimenes should be a great favorite with amateurs.

We will say a few words about its proper cultivation. The Achimenes is a greenhouse plant and is also well adapted for the window, but it will not thrive with us in the open ground. The proper season to plant the little bulbs, is at any time from May to July. By planting at various times, we succeed better in keeping up a succession of flora for a number of months. Plant in shallow pots, one third of which may be filled up with broken pieces of pots, over which put a layer of moss, which is easily obtained, then fill up with a soil consisting of one half leaf-mould, one half light sandy loam, and a small quantity of coarse sand and bone-ashes. Plant the bulb about one half to three fourths of an inch deep, eight to ten in a six inch pot, and place them close under glass. The young shoot will soon make its appearance, and it is advisable to fill up with soil a little around the stems, while they are pushing ahead. After the plants have grown a few inches high, it will be well to pinch off the shoots, which may be used as cuttings and will flower during the same season. Pinching off the tops will make the plants bunchier and more compact and secure a greater profusion of flowers. During their season of development and flowering, they require a good and regular supply of water, which should not, how-

ever, be any colder than the air in which they grow. Draft and fresh manure are injurious to the vegetation of the Achimenes.

After flowering, and when the foliage has decayed, it is best to take up the roots and bury them all in a pot filled with sand, which may at first contain moisture, but should be kept dry during the winter time and should be placed in a protected locality, as, if exposed to too much cold, they are apt to perish. They should remain undisturbed in that condition until the time for again planting them.

There are about ten or twelve varieties of the Achimenes, of which we will name: *A. coccinea*, flowers of a rich scarlet, and abundant; *A. coccinea rosea*, flowers rose-colored, very fine; *A. longiflora*, flowers of a beautiful blue, profuse bloomer; *A. multiflora*, flowers blue and fringed; *A. gloxiniflora*, flowers white and fragrant; *A. cupreata*, flowers scarlet; *A. grandiflora*, flowers large bright purple.

Care should be taken that the bulbs of the same varieties are kept separate and by themselves, as the habit of the different varieties is not exactly the same, and a uniform growth is desirable.

SOUTH YARRA NURSERIES.

Every gardener will at once confess that few days in the year are more unfavorable on which to visit a nursery, than a scorching hot wind day in January. However, not having seen a few of the latest novelties introduced by Mr. Harris in the spring, we did not wish to miss a sight of them in the summer; therefore, all the same for hot winds, we paid a visit to this well known establishment, (and assuredly it is not the fault of its enterprising proprietor if it be not well known), Mr. G. Runnington, who is in charge during the temporary absence of Mr. Harris from the colony, kindly acting as guide. We need not tell the horticultural readers of *The Weekly Times* where this nursery is, or what sort of things are grown there,

for most classes of trees, plants, and roots are well represented, in considerable numbers. It is not to be expected that quite the extreme freshness of a provincial nursery is to be seen here, situated as it is in the outskirts of our ever increasing metropolis. Though free from the more deteriorating influences of the heart of the city, it still must bear its share of the dust, smoke, etc., which a large city always more or less engenders. The South Yarra Nurseries have long been known and noted for their excellent collection of coniferæ cultivated in pots; and we found a fine lot of young plants in capital health, notwithstanding the very trying hot weather lately experienced. Amongst the most noticeable were:—*Araucarias imbricata*, *A. excelsa*, *A. Bidwilli*, and *A. Cunninghamsii*; of these we found well-grown, compact plants succeeding admirably. *Cedrus deodara*, and *C. Atlantica*; *Cryptomeria elegans*, and *C. Japonica*; *Cupressus Lawsoniana*, *C. Lambertiana*, *C. torulosa*, *C. funebris*, *C. Corneyana*, and others. Amongst *Piceas*, *Nordmanniana*, or *Nordmann's silver fir*, was looking particularly well. The *Pinus* family were well represented, fine lots of young *Pinus insignis*, *P. excelsa*, *P. halepensis*, *P. Benthamsiana*, *P. pinea*, *P. sylvestris*, and a number of others are thriving capitally. The beautiful genus of *Retinospora* was here; the majority of which are charming dwarf shrubs, and very suitable for small gardens. *R. plumosa* has a very delicate and fern-like appearance. *R. squarrosa* is very distinct, of glaucous green color, and pyramidal habit.

We noticed nice plants of the umbrella tree, *Sciadopitys verticillata*, and also the maiden hair tree, *Salisburia adiantifolia*; this is grown in Japan for the sake of its almond-flavored fruit, its foliage is handsome and unique. *Thujaopsis Bidwilli* (new), *T. borealis*, *T. dolabrata* were in good form and condition. Of *Thujas* we noted excellent plants of *Thuja Lobbi*, *T. variegata*, *T. orientalis*; and others; a fine stock. There were also a nice lot of young *Wellingtonia gigantea* coming on rapidly, near to which was a pit of very good

Picea Webbiana. Hardy ornamental trees and shrubs are also cultivated largely; the collection contains most kinds of merit, and includes some of the latest additions to our ornamental plants. The *Jambosa acida*, from New Caledonia, is a distinct and curious plant, bearing a fruit not unlike a small pear, with a very acid flavor. *Melia azederach*, or bead tree, is very ornamental, and of rapid growth, affording excellent shade, at the same time it bears a handsome flower; of this there was a nice lot. *Ficus* of various kinds, *Magnolias*, *Phytolacca dioica*, and the various kinds of *Pittosporums* are largely grown and look healthy. Considerable space is devoted to the growth of hardy climbing plants; *Clematis*, a great variety, including handsome novelties. *Bougainvillea spectabilis* and *glabra*, *Loniceras*, *Mandevillas*, *Passifloras*, a great variety. *Tecomas*, and *Tacs-onias*, various *Tropeolums*, and many others. Herbaceous flowering plants and bulbs are not by any means neglected, many of the more fashionable kinds being grown extensively. Of *Gladioli* we noticed some very fair spikes, although the hot weather had almost spoiled them. *Liliums* were in force, including the ever-charming *auratum*. *Pentstemons* are grown numerously, the collection containing some capital new kinds. Amongst bedding plants the new set of *Verbenas* lately raised by Mr. G. Brunning were, with one or two exceptions, looking very excellent, being an advance in the right direction. Numbers of bedding *Pelargoniums*, both double and single, were exhibiting their heat-standing qualities; we remarked as good, *Madame Rudolph Abel*, a new dwarf-growing, and free-blooming, double-flowered variety, *Sapeur Pompier*, a large well-shaped, double, orange-scarlet flower, foliage handsomely zoned. *Claudius* and *E. G. Henderson* are also excellent new kinds. The ivy-leaved variety, *L'Elegante*, proves itself to be very useful and unique. A capital collection of the new kinds of improved *Chrysanthemums* were bidding fair to make nice plants; and the same can be said with regard to *Fuchsias*,

of which there are a numerous variety. The collection of Dahlias, which is large, has lately received a considerable addition by the arrival of new ones from England, some of which will shortly be in bloom, when their qualities can be tested. Petunias (double and single), show and fancy Pelargoniums, Roses, Verbenas, etc., are well represented; while in the glass structures, Indian Azaleas, Camellias, Begonias, Coleus, Caladiums, Gloxineas (a large collection), Ferns, Marantas, Pleroma elegans, Crotons, Dracenas, and Achimenes, all receive attention. Amongst choice plants, *Sanchezia nobilis variegata*, *Allamanda Hendersoni*, *Pleroma sarmentosa*, *Gardenia florida variegata*, *Fittonia argyreaurea*, and *Bignonia argyrea violescens* are all valuable in their respective divisions, and they appear to be receiving extra care and attention. In the stool-ground we noted an extraordinary collection of ornamental shrubs and other plants embracing several rare and beautiful things; such as our old friend *Pimelia rosea*, some fine Mahonias, *Cotoneasters*, *Statice*s, *Cerasus ilicifolia*; a beautifully variegated variety of *Salix caprea*, and numerous others. Fruit trees, hedge plants, culinary roots, herbs, etc., are also cultivated, and each department we found clean, and in good order. The greenhouses and various glass pits, as well as all the shelter-houses, were evidently well looked after, which, in a season like the present, is no easy matter. Persons looking at gardens not over-critically would perhaps not exactly see the difference that this last month has made; but to those having the care and management of large collections of pot plants it becomes daily manifest, and the difficulties of the task of keeping them in good health is by no means light. Mr. Harris has long been known as a most persevering and unostentatious cultivator, and at the present time there is every appearance of his long retaining this satisfactory standard. —*Melbourne Times*.

New Jersey has six thousand acres planted with cranberries.

AZALEA CUTTINGS.

In answer to a correspondent, "T. E.," about the treatment of Azalea Cuttings, the *Gardeners' Chronicle* says:

When the young wood of the present season's growth is half ripe, it is in a proper state to make cuttings of; when it is in that condition, will depend upon the time the plants were started into growth. They will strike freely at any time of the year when the wood is in the proper condition. Insert the cuttings, not too closely, in six inch pots, in silver sand; cover with a bell glass, shade from the sun; keep decayed leaves well removed, and keep the sand moist. It is immaterial whether they receive bottom heat or not. As soon as struck, pot off the cuttings into three inch pots in good peat and sand, and treat them as stove or intermediate house plants for two years, and they will be as large at the expiration of that time as they usually are met with at double that age; they will then be nice small blooming plants, and should have a rest in the winter.

GRAPE GROWERS' ASSOCIATION

OF

Sonoma, Napa and Solano Counties.

This Association holds monthly meetings for the purpose of discussing subjects of vital importance to the Grape and Wine interests.

At a recent meeting held in Napa, the effects of the late Spring frosts came up for discussion.

The facts brought to light upon this subject may be summed up as follows:

The loss of Grapes in the above counties from the effect of frost may be from 15 to 25 per cent.

Vineyards which had been considered as safe from frost have been cut off by it this year, and up-hill lands have not been excepted.

The vineyards on the Western slope of the Valley escaped serious injury, while those of the Eastern slope suffered more severely.

[Personal observation among the vineyards of the Eastern slope has demonstrated to us that the up-hill plantations escaped the late frosts entirely, which is more particularly due, perhaps, to their protected situation from the cold winds of April and May.—Ed.]

In regard to the relative hardiness of varieties, the conclusions arrived at were, that Rieslings, Chasselas and Fontainbleau had suffered less from frost than other more vigorous growing varieties.

The attention of the Association was called to the premiums offered by the State through the California Vine Growers' and Wine and Brandy Manufacturers' Association at the coming State Fair; and the absence therefrom of a recognition of wines older than the vintage of 1870, was severely criticized.

The following resolution was passed:

Resolved, That it is the sense of this Association, that in the award of premiums for wines, through the "Vine Growers' and Wine and Brandy Manufacturers' Association," all vintages from 1860 should be included for competition.

The next meeting of the Association will be held in Sonoma, June 1st.

PROCEEDINGS

Of the Meeting held in Sonoma, June 4th.

[From the Napa Register.]

A. S. Edwards, from the Committee on "Frost," reported that on further investigation, the Committee are led to the conclusion that the grape crop in Sonoma and Napa Counties will not suffer an average reduction from the effects of frost beyond 15 per cent.; as, although many vineyards had sustained great damage, on the other hand, there are districts where no damaging results have been experienced. The loss of crop will be fully met by the young vines coming into bearing, and hence the crop will not be less than that of 1871, if the vines are well set.

A Napa member remarked, that in some varieties the promise is not equal to last

year's. This is especially the case with his Hamburgs, and with shy, or uncertain bearers generally; but he thought it might be expected in all vines bearing heavily the year before, as it is well known that a heavy productive year impairs the bearing capacity of vines for the succeeding year.

The Sonoma members thought the crop of this year, independent of last, promised to be fully equal to any previous year. In regard to Hamburgs, the promise was especially flattering.

On motion, the Committee was continued, with instructions to report any fact of interest that might be developed in connection with the subject, in the course of the season.

The Chair caused to be read the following item, from the report of the Commissioner of Agriculture for April:

"WINE PRODUCT OF 1871.—In a paper read before the Mississippi Valley Vine Growers' Association, at a recent meeting, Mr. Bush estimated the production of Missouri at 1,000,000 gallons; Illinois, 1,200,000; New York, 2,250,000; other States east of the Rocky Mountains, 1,000,000; California at 7,000,000: total, 12,450,000. Mr. Bush predicts that St. Louis is to become the center of this interest—another Bordeaux for the distribution of wines."

J. A. Lockwood remarked, that as California is the principal source of the present and prospective supply of American wines, the idea of St. Louis occupying the prominent place as assigned by Mr. Bush, will not find ready acceptance. It is more probable that Vallejo will attain this distinction. The site of Vallejo, however, may be more aptly compared with Xeres and St. Mary's, the Sherry entrepot of Spain, where crude wines are stored for ripening, until sold and lightered on board ship in the Bay of Cadiz. It is understood that a wealthy company will shortly build wine-houses at Vallejo, to meet a want urgently felt at this time by grape growers. As Mr. Harazthy, of that city is present to-day, the meeting would listen with interest to any statement of the plans of the

Company he may be disposed to communicate.

Mr. Harazthy, in response, stated that the "Land Improvement Association" of Vallejo, of which General J. B. Frisbie is the Business Manager, has in hand the sum of \$250,000 to be expended in the development of the wine business in Vallejo. That the Company propose to proceed at once to the erection of a commodious wine-house on the Railroad, for the storage of wine. Their primary object is, to lend money at moderate rates of interest on wines that may be stored with them; thus doing away with the necessity of vineyard proprietors putting up costly buildings on their own premises, or sacrificing their wines at forced sales. If their cellars are not filled in this way, they will enter the market as purchasers, expecting to confine their operations to the products of Northern California. Competent persons will be employed for the care of wines, among them an expert, as appraiser, to estimate their value, in order to determine the sum of money to be advanced upon them. The price of storage will be merely sufficient to cover expenses. It will be to the interest of the Company to make their wine-house known to the trade at home and abroad, and to give every assistance in their power to have their customers' wines quickly and advantageously disposed of. The Company, likewise, propose to rent casks, and thus obviate the present necessity of vineyardists employing a large capital in that direction. The rent of casks, like the charge for storage, is not intended to be a source of profit. The profit of the enterprise is expected to be derived from the money advanced on wine deposited in their wine-house.

Leonard Goss offered the following resolution, which was adopted:

Resolved, That the proposed erection of buildings in Vallejo, by the "Land Improvement Association," for the storage of wines, is, in our judgment, calculated to benefit the grape-growing interest, and is entitled to our best wishes and support.

G. L. Wrattan, of Sonoma, called the at-

tention of the Association to the subject of the taxation of vineyards and their products, as effected by recent legislation. There has been some complaint of the alleged inequality of assessments, and it would be prudent to communicate with the Board of Equalization, with a view to a proper understanding of the subject. We would therefore move that a Committee of three, consisting of Messrs. Snyder, Krug, and Lockwood, be appointed to communicate, personally, with the Board of Equalization to ascertain their views and purposes with regard to the appraisement of vineyards and wine, and to take such action as may be necessary for the protection of the interests of viniculturists.

A full discussion by Messrs. Wrattan, Goss, Walton, Craig and others, followed, when the motion was carried.

After other business, on motion of C. Krug, of Napa, the Association adjourned to meet at St. Helena, on Saturday, July 13th.

Jno. A. Lockwood, *Sec'y.*

ROSEBUDS.

The commercial value of Rosebuds, at special important holiday seasons, would astonish the ordinary lover of flowers. Peter Henderson, in an article to *Hearth and Home*, gives a few ideas of how often the dainty Rosebud brings its high price of one dollar: "Twenty years ago Camellia flowers retailed at from fifty cents to one dollar each, and no piece of flower-work was thought complete without them. Now they are at a discount, and do not, throughout the season, average half the above named price. Now Rosebuds, that then were not worth as much by the dozen as a single Camellia, are now nearly of equal value, and some particular kinds even more so. One of the leading florists on Broadway informed me that in the week ending December 2d, he sold one hundred buds of the Mareschal Niel Rose for a hundred dollars, for which he paid the grower fifty dollars. 'Tea' Roses, as they are called, are required this season in every basket or bunch of flowers, and the bouquet makers are nearly driven

to their wits' end to get them. The fashion for Tea Roses has already spread to the country towns, and hardly a day passes that orders are not sent to us that we cannot fill. Church fairs, which did not formerly invest in our expensive and perishable commodities, now find that the Tea Rosebud, for the buttonhole, is sought after by hundreds of purchasers. I was waited on the other day, by the Flower Committee, for a Church fair in one of our suburban towns. The first item on their list was three hundred Tea Rosebuds. The wholesale price was twelve dollars per hundred, yet they were much disappointed that only one hundred, instead of three hundred, could be spared. The number of glass structures for growing Rosebuds, in the vicinity of Boston and New York, has probably been doubled during the past year, yet the price has advanced one third. The kind mainly grown are *Bon Silene* (carminé purple) and *Safrano* (orange yellow). The *Safrano* is popularly known as the Tea-rose, but there are a great many others belonging to this class. The *Marechal Niel* (golden-yellow) and the *Lamarque* (white) are grown, but not so extensively as the 'Tea' varieties, as they require greater age before they begin to flower, and being climbers, flower best when trained to trellis-work. The large price paid for the buds of the former, however, will no doubt stimulate to its more general cultivation.—*Cent. Un. Agriculturist.*

THREE BEST ROSES.—Fifteen of the most distinguished rose growers in England were separately asked to name thirty six roses, and out of that number to designate twelve which they considered the best twelve. The result was that of the roses which were named, only three were on the record named by all as worthy to be placed on the first twelve. These three roses ought to be universally known, as every one who cultivates flowers wants the best roses as a matter of course. They are: 1. *Marechal Niel*; 2. *Baroness Rothschild*, 3. *Marie Baumann*. It will be observed that at the head of the three stands *Marechal Niel*, sweetest of the sweet.

Pacific Rural Press.

ORCHIDS.

(Continued from page 194 of last number.)

We promised to give, in this number, some practical hints on Orchid culture, and name some of the most popular varieties. Our experience in Orchid culture having been rather limited, we shall quote extracts from the exhaustive articles supplied by Mr. James Taplin, Manager to Mr. George Such, of South Amboy, New Jersey, and published from time to time in the *Gardeners' Monthly*.

"*CYPRIPEDIUM INSIGNE*.—This is one of the people's Orchids; it is cheap, very easily grown, and very free blooming; it will grow and flower well either in a hot or cold house, and may be placed in the open air from June to September."

[We would say, here, that this rule cannot apply to the climate of San Francisco, nor even to any portions of our State. Orchids require a moist atmosphere, which we lack in California, and it is our opinion that they must be treated by us strictly as greenhouse plants, establishing the requisite moisture by frequent sprinkling.—Ed.]

"If grown in a hot house, the Orchid will flower in October; and, if kept cool and shaded, the flower will last in perfection for two months. If grown in a cool house, it will flower about Christmas; so that it may be had flowering in succession for four or five months. The *Cypripedium* having no pseudo bulbs, must never be allowed to get very dry at any time, but when the growth is finished it must not receive quite so much water as in the growing season, which, with this variety, is from March until September.

"The best soil to grow this variety is one half of rough peat and the other half of rough loam, with a little thoroughly dry decayed manure, and a good addition

of sand; fill the pots one third full of broken pots, make the soil firm round the plants, and then fill up level with soil. The best time to repot, when necessary, is just before the plants commence to grow, but they will do well for several years without repotting, by top-dressing in the Spring with the same sort of soil. Nice plants with four or five flowers may be grown in six inch pots, or larger specimens, with from twenty to thirty blooms each, in large deep frames.

“We have over two hundred flowers on a batch of plants occupying less than twenty four square feet, the flowers being five and a half inches across.

“There are two varieties of this Lady’s Slipper plant; the one known in England as Maule’s variety, has more white in the top or dorsal sepal. The flower is larger and the marking is brighter than in the more common variety. This is the variety we grow.

“I may add, the plant will do very well, and last a long time in flower in a moderately warm sitting room, and the cut flowers will also keep fresh a long time in water.

“*ZYGOPETALUM CRINITUM*.—This is one of the very old-fashioned plants frequently met with, growing with little care and attention among a general collection of stove-plants; and, without any care, it is seen to flower more or less each year. The flower being large, and also sweet scented, it is a very desirable plant. The season for flowering is from October until Christmas, according as the plant is grown in a hot or cool house. The above plant is one of the best for growing in a cool house, in a temperature of from 50 to 55 degrees in winter, and it will take no harm if a few degrees lower on very cold nights. I will here mention, that none of the Orchid family should be placed in

cold draughts, although many will do well in a cool—not cold—house; but when grown in a low temperature, they require less water, and more care in giving it. The water should also be at least ten degrees warmer than the average night temperature of the house the plants are grown in. This is a safe rule in watering all Orchids.

“The *Zygopetalum* being evergreen, of large growth, and also, when in good health, making a large quantity of roots, requires liberal watering at all times. The proper soil is one third rough peat, one third rough fibrous loam, and one third dry rotten dung, with some coke, or charcoal and sand, mixed with it. Fill the pots or pans one third full of coke, then fill up with some of the rough soil, placing the plant bulb just above the pot, and make the soil firm. The bulb need not be kept above the level of the pot. The proper time to re-pot is soon after flowering, but if treated well, large plants will not require fresh pots for several years, but can be top-dressed instead with the same mixture of soil. We grow one large plant in pans twenty inches wide by ten deep, and they flourish and flower well. We had fourteen spikes on one plant this season, bearing a total of ninety six flowers. This, of course, is nothing extraordinary for this free blooming plant, but one plant was quite small three years ago.

“I can safely recommend this plant to beginners in Orchid growing, and also to lovers of winter-blooming plants generally.”

(To be continued.)

BEET SUGAR.—Sacramento County enters heavily into the Beet Sugar business this year. The Sacramento Beet Sugar Company has imported ten tons of Beet Seed from Hamburg, for planting on its grounds.

RAISING TROUT.

DRY IMPREGNATION.

The practice of our American ichthyotechnists has been to take the spawn and fertilize it in water—in this respect following the teachings of the breeders in Western Europe. Notice of another method of fertilization has been introduced to American readers by G. Shepard Page, in the *New York Citizen*, the past season. It is the result of the experiments of M. Vrasski, a Russian breeder, at the government establishment in the district of Demiansk. He began his experiments as far back as 1854. He followed the directions of the French and German writers upon pisciculture with very poor success. From many thousands of eggs, there were only some dozens of young fry, and this probably accords with the experience of many beginners in this country. In the autumn of 1856, M. Vrasski studied the eggs with a microscope, and kept a minute record of every impregnation of eggs that he made. He discovered, as he thought, that his failures were owing to the fact, that he followed the practice of the French and German writers. He found that the longer he delayed the mixing of the milt and spawn in water, the less eggs were impregnated. If ten minutes elapsed between obtaining the milt and mixing it with the spawn, the fecundation failed almost entirely. His observation showed, first, that when received in water at the instant of issuing from the fish, the eggs absorb the water, and preserve the power of being impregnated only as long as this absorption is not finished—that is to say, during a half hour at the utmost. Once saturated with water, the eggs do not absorb any spermatozoa; but if received into dry vessels on issuing from the fish, the eggs remain, on the contrary, for a sufficient time in a neutral state, and do not lose the power, when once put in water, of receiving the spermatozoa. Second, the spermatozoa of the milt, in falling into the water, commence immediately, with much vigor and rapidity, to make move-

ments, which only last for a minute and a half or two at the most; when this time has elapsed, only in some few spermatozoa can there be seen particular movements and agitated convulsions. When at the issuing from the male the milt is received in a dry vessel, it does not change for many hours, and during this interval the spermatozoa do not lose the power of beginning to move when they find themselves in contact with water. Closed in a dry tube and well corked, the milt preserved its impregnating virtue for six days.

The theory of dry impregnation formed from those observations was immediately put in practice, and every ripe egg was impregnated. He immediately enlarged his establishment, and put \$32,000 into fish culture. In 1868 it became a government establishment, and is now used for the hatching of salmon, trout and lavarets, to stock Russian streams. The process of taking the spawn and of fertilizing is like our own in every respect, except the eggs and milt are taken dry and mixed with water as near simultaneously as is possible. In this hatching house the temperature is kept as near 34 degrees as is possible during incubation. This is about the temperature of Mr. Wilmot's water at Newcastle, which is under the direction of the Canadian government.

It seems to be clearly established that M. Vrasski's discovery is one of great value to all fish-breeders in this country. It will be tried very thoroughly this season, and if successful here, it will work an entire revolution in the business. It cannot fail to cheapen the production of fish, and to hasten the day when all our waters will be stocked with the most valuable kinds.

In November, 1871, the process of dry incubation was tried at the hatching house of the Poquonnoc Fish Company, near Mystic Bridge, Ct., on trout spawn, and at Orland, in Maine, on salmon spawn, by Charles G. Atkins, Fish Commissioner of that State, with the most gratifying success, so far as can be ascertained at the present writing;

very few trout eggs have failed of impregnation. In former years a large per cent. failed, and many were thrown out within a month after they were put in the hatching boxes. In a note received from Mr. Atkins under date of Nov. 18th, 1871, he says: "I am able to report complete success in the fecundating of the 43,000 salmon eggs taken during our first week's operations at Orland. I examined them yesterday: 13 samples, containing 10 eggs each sample, were taken from 13 different grilles, and not one unfecond was found among them. Their ages were 15, 14 and 13 days. We owe our success to the dry method." So good results of course cannot always be looked for, for the eggs are not always in contact with the milt. As the final result of Mr. Atkins' experiment, given in his annual report to the State Legislature, he gives 70,500 eggs, packed up on the 18th of December, about five weeks after they were taken, and not more than three per cent., in his opinion, unfecond; 27,000 of these eggs were taken to the hatching house of the Poquonnoc Fish Company, at Poquonnoc, Ct. The loss of eggs has been very small, although they have had a remarkably long period of incubation, owing to the low temperature in the month of March. The water in the hatching boxes has been at 34 degrees every morning, with few exceptions, for nearly four months, and has not varied from that figure probably more than two degrees in the whole time.

At the meeting of the American Fish Culturists' Association at Albany, in February, *Dry Impregnation* was up for discussion. Livingston Stone, the Secretary, produced a lot of trout spawn impregnated in this way, taken indiscriminately from his boxes, as a fair sample of the lot, and submitted them to the examination of the members. Nearly every egg was impregnated. Mr. Stone has entire confidence in the success of this method, and thinks it would add fifty per cent. to the average product of any fish-hatching establishment into which it may be introduced. In all the places in which it has been tried thus

far the testimony is unanimously in its favor. On comparing notes, it was found that Messrs. Green & Collins used very little water in their impregnating pans, and much of their large success in raising fry is no doubt owing to this fact. In manipulating fish just taken from the water, it is hardly possible to prevent a few drops from falling into the pan. When the manipulation of the fish is rapid, this may not prevent success. But the less water, the better.

The results likely to flow from this discovery are of the highest importance to fish-breeders and to the country. It must lead to the abandonment of impregnation in water, and to a very large increase in the products of our fish-breeding establishments. We have no doubt that most of them will double their products, eggs and fry, the first year it is tried. They may not, indeed, hatch every egg that is taken, for many ills betide the eggs in the boxes during incubation. The labor of caring for the eggs will be diminished, for fewer eggs will have to be thrown out. Of course many more good eggs and fry will be for sale, and they can be furnished at cheaper rates. In the governmental establishments of Europe, where parent fish are abundant, the spawn is sold at from one to two dollars a thousand. Here the common price of trout eggs is from six to ten dollars, and until this year, salmon eggs in Canada have been sold at forty dollars gold per thousand. The actual cost of the lot taken on the Penobscot was \$18.09 per thousand to the producers. There can be no doubt that we can produce eggs as abundantly as in Europe, and probably, within a few years, as cheaply. With cheap eggs and fry, which this discovery makes a certainty, we can stock all our waters with the best kinds of fish they are capable of producing. The anadromous fishes that feed in the sea—shad, alewives and salmon—can be made more abundant than they were when the country was first settled, and though they may never be bought again, as in the early days, at a cent a pound in our well-peopled country,

they can be made the cheapest of all animal food, and be put within reach of the poorest people. Cheap fish must affect the price of all other meats, and cannot fail to improve the condition of all the laboring classes. Cheap, wholesome food, means a better education for our children, more books and pictures in the home, and more leisure to enjoy them, better dwellings, and larger and better kept gardens, more culture and refinement in every home in the land.

This discovery throws some light upon an idea held by some of our fish-breeders, that a large portion of the eggs taken by hand are necessarily immature, and on that account are abortive; or if fertilized, produce weak fish, that die early. The results attained by the dry method do not favor this idea. If 95 per cent. of the eggs taken by hand are impregnated and produce fish, it looks as if the trout and salmon do not part with their eggs until they are mature. Sometimes we take trout from the spawning race not quite ready to spawn. By keeping them one or two days in separate water, they part with their eggs readily at the second trial, showing that they have a rapid development, and that when they yield to the gentle pressure of the breeder, the eggs are probably as ripe as they would have been if spawned in the natural way, and make just as strong fish, if they have proper incubation. The bearing of this discovery upon the use of spawning races, will be discussed when we come to that subject. In the use of any of these races a large per cent. of the eggs fail of impregnation, and I apprehend a still larger per cent. are lost through the failure of the trout to visit the spawning race at all.

This discovery opens a wide field of experiment to the scientific breeder. The milt of the Salmonidæ can be kept in a close phial for six days at least. In this time it can be sent across the continent. We can use, here upon the Atlantic shore, the milt of trout and salmon taken in the waters of the Rocky Mountains to improve our own species, and probably to originate hybrids of great value.

And if it should appear that we have the better varieties of these fish, we can easily send the milt of Penobscot salmon to fertilize the eggs of the salmon of the Sacramento. We have no doubt that a brilliant future awaits the fish-breeder's art in consequence of the new facilities afforded by this discovery.

Country Gentleman.

ARRANGING FLOWERS.

It is an art, requiring no small degree of taste and skill to arrange cut flowers so as to form an attractive bouquet, for the vase or basket. It may be said in general that the more loose and unconfined the arrangement is, the better. Crowding is especially to be avoided, and to accomplish this, a good base of green of different varieties is needed to keep the flowers apart. This filling is a very important part in all bouquet-making, and the neglect of it is the greatest stumbling-block to the uninitiated. Spiked and drooping flowers, with branches and sprays of delicate green, are of absolute necessity in giving grace and beauty to a vase bouquet. Flowers of similiar size, form and color, ought never to be placed together. Small flowers should never be massed together. Large flowers, with green leaves for bouquets, may be used to advantage alone, but a judicious contrast of forms is most effective. Avoid anything like formality or stiffness. A tendril or spray of vine can be used with good effect, if allowed to wander over and around the vase as it will. Nevertheless, the faculty of arranging the flowers can hardly be acquired. It is innate.

Pacific Rural Press.

ARTESIAN WELLS.—It is said that Artesian Wells produce disease, particularly in hot climates, owing to the effect of moisture upon the increased decay of vegetable matter.

THE CURRENT CROP of San Lorenzo has been severely damaged this year by the late frosts.

HORTICULTURAL AND AGRICULTURAL
EXHIBITIONS IN AUSTRALIA.

During the latter part of March, the various Societies held their Autumn Shows. This may sound rather strangely to our readers, but it is readily explained by the fact, that, owing to the geographical location of Australia, its seasons are the reverse of ours,—what is early Spring with us, is Autumn in that country.

It will undoubtedly interest many of our readers to know of what the Exhibitions in the month of March consist, and we make a few extracts from the *Weekly Times*, of Melbourne, of extensive reports upon

THE VARIOUS SHOWS.

*The Horticultural Society's Autumn Show,
Saturday, March 16th, 1872.*

The Autumn Exhibition of the above Society was held on Saturday last, at the Botanical Gardens. The Show, on the whole, must be pronounced a success, the number and quality of the fruits alone making a grand display, and clearly evincing that the culture of choice fruits is fast extending in Victoria. The collections of pot plants, although few in number, were very creditable, being particularly clean and healthy. Flowers were but poorly represented. The last two months of severe and trying weather would, doubtless, in a great measure, account for this. Some very good samples of vegetables and culinary roots were also staged. * * * *

[We have not the space to give details in full, but make the following extracts.—Ed.]

The Ferns were a nice lot, both Mr. Stewart and Mr. Walters having excellent specimens. The following were well grown :

Gymnogramme chryophilla (the Golden Fern), *Pteris Cretica albo lineata*, *P. serrulata*, *P. scaberula*, *Adiantum cuneatum*, *A. tenerum*, *Polypodium glaucum*, *P. Billardieri*, *Phymatodes pustulata*, *Blechnum Brasiliensis*, *B. Spicant*, *Lastrea montana*, *Doodia aspera*, *Aspidium oblitteratum*, and others. Very good Lycopodiums, including

L. denticulatum, *L. umbrosum*, and others, were staged.

Of other plants, there were—

Dracæna ferres, *D. Cooperii*, *D. marginata*, and *D. terminalis*; *Cycas revoluta*, *Cissus discolor*, *Maranta zebrina*, *Latantias*, *Cyperus alternus variegata*, *Crotons*, *Zamia pungens*, and *Phormium tenax variegata*.

We also noticed, in Messrs. Taylor & Sangster's collection, the following among others:

Allamanda Schottii, *A. nerifolia*, in good bloom, *Hibiscus variegata*, *Abutilon Thompsonii*, *Bambusa Fortunei variegata*, *Vinca rosea*, *Hibiscus Cooperii*, *Angelonia grandiflora*, and *Alternanthera spathulata*. * * *

Baron von Mueller made quite a display from the gardens, he having extensive collections of useful, ornamental, rare and valuable plants, including—

Forty-nine species of Palms, forty seven kinds of Willows, sixty kinds of Industrial Trees, etc.; also, particularly noticeable: *Anæctangium setaceum*, from Java, and *A. longiflorum*, from the South Sea Islands. These are both terrestrial orchids, with delicate and lovely markings, and beautifully fragrant perfume. The whole of these plants were plainly named and effectively arranged.

The fruit show was both extensive and good, the samples staged in their several classes being unusually fine. With large collections of fruit not for competition, Mr. John C. Cole, of the Richmond Nursery, comes first, with a collection containing 160 valuable kinds. From the gardens of the Society came a splendid collection, nearly filling one tent, neatly named and effectively staged. From Messrs. John Smith & Sons, of Riddell's Creek Nursery, came no less than 80 varieties of Apples, including most of the standard and valuable varieties. They also exhibited a Peach of the new variety named Lady Palmerston. From Mr. John Harbison, of Essendon, came 35 kinds of well-grown Pears, twenty five varieties of Apples, and one dish of Peaches. This was a highly meritorious collection. * * *

Very excellent Black Hamburg Grapes came from Mr. Jas. Banks, of Flemington,

not for competition; a first-class certificate was, however, awarded him. Mr. Murdoch had also very good samples of the same variety of Grapes, which were highly commended. Mr. Draper had, to all appearance, some valuable seeding Apples, which will receive attention at the hands of the Fruit Committee of the Horticultural Society. The competition classes for both Table and Wine Grapes had no entries, which is much to be regretted, the smallness of the prizes being doubtless the primary cause.

Ballarat Agricultural Society's Autumn Exhibition, March, 1872.

The above Society's Autumn Show commenced on Friday morning, under somewhat unfavorable circumstances, so far as regards weather, the rain falling rather heavily for some little time. The show was, however, on this occasion altogether independent of the weather, so far as the exhibits and the comfort of the visitors were concerned; for the Committee had wisely availed themselves of the large Alfred-hall, which is very suitable for holding an exhibition of this character therein. The hall was capitally arranged for effect, the centre being filled with the collections of ornamental, flowering, and other plants.

In the fruit classes there was a great falling off, to what some of our late fruit exhibitions have been, Mr. Moss, of Buninyong, Messrs. J. Smith & Sons, Riddell's Creek, Messrs. J. and S. Learmonth, and Mr. Isaac Westcott being the chief exhibitors. Messrs. J. Smith & Sons' collection of Apples was very good. Mr. Moss had good Pears and Apples, Damsons, Plums, Blackberries, Loquats, Spanish Chestnuts, (poor grapes), and a number of other kinds. The same may be said of Messrs. Learmonth. The best Pears were Williams' Bon Chretien, Beurré Clairgeau, and Gausell's Bergamot. Apples: Lord Sufield's Reinette de Canada, Emp. Alexander, Ribston Pippin, and Stone Pippin. There were also good Pomegranates, Loquats, Barberries, and a few late Strawberries.

Bendigo Agricultural Society's Autumn Show, March, 1872.

The first day of this exhibition commenced on Wednesday, at Sandhurst, under very favorable auspices, the weather being delightfully fine, at the same time not the least inconvenience was experienced from the usual Sandhurst dust. The arrangements were excellent, and the appearance of the different buildings in which the various productions were displayed, had a lively and interesting appearance. * * * * *

The collections of fruit were well shown, being exceedingly good. In many respects the show of Grapes was highly meritorious. In Wine Grapes Mr. C. Pohl obtained first honors, with the six following varieties:

Carbinet, Hermitage, Mataro, Verdeilho, Pineau Blanc, and Riesling, very well grown. The Pineau Blanc and Burgundy of Messrs. Bruhn Brothers, who took the recent prize, were remarkably fine, the wine made from the former being highly spoken of. Mr. W. M. Maplestone's six varieties of Table Grapes were a splendid collection, comprising White Crystal, Wortley Hall Seedling, Muscat of Alexandria, Black Hamburg, Raisin des Dames, and Black St. Peter, and were awarded a first prize. The same exhibitor obtained first prizes also for the best six bunches of White Table Grapes, and Black ditto. Mr. Thos. Craike was first for six bunches of Red Grapes (Wantage), very fine; also for a single bunch of the same variety. The Grapes formed the leading feature in the exhibition of fruit, and were arranged on a long table two sloping sides down the middle of the orderly-room, occupying a space of about 300 square feet. On the whole the quality was good, but inferior to former years, on account of much of the low-lying lands being lately too wet, and showed a marked contrast to the paucity of the same fruit round Melbourne in the present season. The exhibition of Apples was only of medium excellence, and the absence of their names was a great mistake, which should be remedied on future occasions. Mr. W. Eagle took the

first prize for twelve varieties of dessert kinds, as well as for twelve do. of Kitchen Apples, the latter being very good indeed. In Desert Pears, Mr. J. C. Cole, of the Richmond Nursery, Melbourne, showed twelve kinds, for which he obtained the first prize. The same grower was also first with six dessert Pears of one variety, which was Beurré Hardy; and the only prize (there being no other competitor) for twelve sorts of Cooking Pears. Six Pears of the variety Napoleon le Grand, shown by A. Heine, secured a first prize, one being 19 inches longitudinal circumference. The general collections of fruit were very creditable, Mr. Henry Eley being awarded first honors. A fair display was made with flowering plants and cut-flowers, Messrs. Taylor & Sangster, and Mr. James Scott, of Melbourne, having numerous exhibits. Thirty six dahlias were shown, in better condition than we have seen them this season, by Messrs. Taylor & Sangster; also, cut-flowers, and a collection of conifers and other plants, by the same exhibitors, not for competition. Mr. Scott had a number of prizes for plants and cut-flowers, which included Fuchsias, ornamental plants, Dahlias, Roses, and miscellaneous flowers; Messrs. Jno. Melrose, C. Yarnold, W. Hyde, and D. Brewster also exhibiting successfully. In the miscellaneous classes we noticed capital looking sewing-machines, dried and preserved fruits, jams, colonial lemon and orange peel, sausage machines, native pigeons, and a variety of other interesting things. Towards 5 o'clock the number of visitors was very large, and with a continuance of fine weather, it is expected that the attendance will be good throughout to-day.

CURIOUS PHENOMENON.

The Burlingame artesian well at Compton, one hundred and fifty feet deep, ejects live fish resembling speckled trout, from a half to two inches long. The same phenomenon, met with in an artesian well on a ranch near by, seems to indicate the existence of a subterranean lake.—*Alta California*.

[Correspondence of the Pacific Rural Press.]

HELP FOR OUR SILK GROWERS.

Our associate editor, I. N. Hoag, has just received from the American Consul at Zurich, Switzerland, the following correspondence, which will be read with interest by our silk growers and all others interested in the general prosperity of the State. We publish both letters in full; they explain themselves, and show the interest that is being waked up in the silk districts of Europe in the success of silk industry in California.

[From S. H. M. Ryers, U. S. Consul, to the Directors of the Bank of Milan.]

UNITED STATES CONSULATE, }
Zurich, April 22d, 1872. }

Dear Sir:—Recently, while visiting the city of Milan, Italy, I had the pleasure of a conversation with the Directors of the Silk Bank lately established there, relative to the importing into Italy of California cocoons, or raw silks.

Since my return to Zurich I received from the Company a letter, a copy of which I enclose. The letter explains itself, but I will add, the Company composing this silk bank are of the most respectable and worthy raw silk dealers in Italy and represent in their bank unlimited means. By their letter and by their remarks to me personally, I am convinced that they mean business, and are willing to aid California in developing what might easily prove one of her greatest and most profitable industries.

Milan has been, is, and will be, from pure necessity, one of the greatest centers of the raw silk trade of the world, and why then should not California profit by the opportunity offered by this bank, and reap the advantages to be gained by a steady and profitable market for the cocoons or cheap reeling for her own account?

Lombardy almost does the reeling for Europe, and the prices paid workmen in the business here, when compared with those paid in California, are little less than in the proportion of francs to dollars.

The intention of the bank, as I understand, is to make, by use of their large means and experience, Milan still more of a centre of the raw silk trade, and to encourage the development of the silk industry wherever their efforts may be seconded in the way of directing an interest in the trade to their house. Their business, like their opportunities, bids fair to be enormous, and I believe if they meet with encouragement, a branch house will be established in California. Of course they must have a fair opportunity of testing the California cocoons before taking further steps in the matter, and my advice would be, that some of you, or a number perhaps combined, should consult about the matter in a quiet way, and send at once the amount of cocoons suggested by the Company's letter, to be reeled, and reported on. Whatever is done should be done in time to complete the reelings soon, and be prepared for the next year's operations.

Feeling interested in anything that tends to benefit the trade and industry of our country, I shall take pleasure in receiving your reply to this and presenting it personally to the Italian Company.

I send copies of this to Messrs. Wm. M. Haynie, Sacramento; Louis Prevost, San José; Mr. Garep, Los Angeles; each of whom I address, because, like yourself, they are interested in the growing of cocoons, and I will be glad the matter should receive your prompt attention and reply. The requested samples of cocoons should be sent direct to the Silk Bank, at Milan, Italy.

I will be obliged to you for any information you can give me relative to present prospects of cocoon growing in the State, especially as to the number of mulberry trees growing in the State, and the amount of cocoons produced in the last year.

I am, sir, with regard,

Yours truly,

S. H. W. BYERS,
U. S. Consul, Zurich, Switzerland.

GRASSHOPPERS have made their appearance in San Bernardino.

Editorial Portfolio.

IMMIGRATION.

The subject of Immigration is continuously agitating the minds of our statesmen, and is considered by the people in general as most essential to the full development of this country, and most particularly of our Agricultural and Horticultural resources. Although at times attempts have been made to throw cold water upon this continual flow of population, into the broad area of the United States, by denouncing the foreign element, and by passing laws, which by their restrictions are liable to discourage the more intelligent classes of foreigners, yet as these movements had their origin mainly with men, whose selfishness, arrogance and political trickery were well known and appreciated, the effect of their exertions has been but to defeat their obnoxious schemes. Such men, not knowing the wants of this country, it is not safe to trust them with any position in the management of our public affairs.

We are well aware that certain classes of immigrants are preferable to others, and the country would perhaps be better off without some; but to be just and true to the principles of an enlightened nation, we cannot discriminate between the good and the bad, and say who shall come and who shall not.

Labor and all the necessaries of life must become cheaper, if we want to compete with other countries. Most important industries suffer with us on account of high labor, and so long as this is the case, we cannot expect capital to assist in the development of these industries. While labor is too high in this country, it is too low in Europe and other parts of the globe; but if the present strikes for higher wages in Europe are successful, the price of labor will be more equalized and the emigration of mechanics to this country will fall off considerably. This falling off we may perhaps endure with very little inconvenience. But the country calls loudly and persistently for settlers upon our agri-

cultural lands, on the improving and development of which depends our prosperity and the reduction in the cost of the necessaries of life. What we require here more than anything else, are industrious and intelligent farmers with moderate means. Can we induce them to come here? We may by proper exertions, at least that is our sincere belief. A handbook for immigrants has lately been published in England by the owners of a steamboat line. It concludes thus:

"To no other part or lot in the United States can the emigrant be more welcome than to a share in the public lands. The country needs intelligent and enterprising settlers to enter upon its great domain and bring out its varied resources. To such it is sure to hold out an open hand. It offers them its best possessions, and they have only to accept them.

"Nor is any other lot better for the emigrant. On these lands he will find opportunity of proving his manhood, and maturing his powers. His property, if wisely chosen and faithfully cultivated, will improve in value, and as his means increase, his higher wants can be supplied. His children will grow up under influences tending to make them hardy, industrious and temperate, and as soon as the neighborhood is sufficiently settled, schools will give them the intellectual nurture which they need. He will not escape hardship or loss; where could he in this world? But they will be less severe, less crushing, as a general rule, than if he were living on wages and without a home. The great advantage, after all, in settling upon public or other accessible land is, that instead of a hired tenement, poor in itself, and poorer in its close and crowded situation, one has a home of his own, humble, it may be, but healthy, it may also be, with the fresh air about it, and the open sky above it, where he and his family may live in liberty.

"But we would not confine our welcome to such emigrants as settle upon our public lands. To all who are honest and capable, wherever they choose to fix themselves, and

in whatever labor they prefer to engage, we would give kind greeting. This volume began with words of discouragement, or, at all events, of caution against imprudence in leaving the old home. Let it end with words of hearty encouragement for such as have gone to a new home. The land of their adoption is large enough to hold them, active enough to employ them, and generous enough, one may trust, to care for them."

Now this is all very well, but we do not think that such talk has the desired effect; enough of this kind of work has been done, especially in California. What immigrants to this Coast want, is material aid and practical assistance when they arrive here, nothing else. Some new comers may have had sufficient funds to bring them here, but if they rely on material aid, they find themselves sadly dissatisfied. To go to farming here costs money, and practical information is required to insure practical results.

Suppose that some of our large land-owners were to subdivide some of their lands, which are not now productive, into small farms, and were to offer them to actual settlers on reasonable terms, and if need be, furnish them with shelter, stock and implements, upon which a reasonable interest might be charged, can any one doubt, that proper persons could be found abroad who would gladly avail themselves of such opportunities and by proper exertions would be able to pay back interest and capital within a few years. The State might assist by proper legislation; by providing for irrigation, tree culture, and by exempting such lands as were actually occupied by such settlers, from taxation for a certain number of years, and also by distributing gratuitously the reports of our Agricultural Societies and other practical information necessary for new comers. We believe that were such and similar inducements held out, we should not fail to induce settlers to come here and make their homes among us. To accomplish this, it may require some sacrifice on our part at the beginning, but the result would well repay us.

COAL ASHES FOR GARDEN WALKS.

The *German Town Telegraph* says on this subject: "We wish again to impress upon the readers of the *Telegraph* that nothing makes better garden walks than coal ashes. They are of more value for this purpose than any other that they can be applied to, of which we know. When the walk requires it, dig it out two or three inches; put the coarsest portion of the ashes at the bottom, spread the other on the top, to the depth altogether of three or four or even six inches, and then roll well. These walks are always dry and pleasant to the feet, and are rarely troubled with weeds, and when they are, they can be readily removed."

THE WANT OF RAIN.

The West is not the only part of the country or section of the world that has had a short allowance of rain for many months.

Baltimore, Philadelphia, New York, and Brooklyn, all entertain fears of a deficiency of water. Throughout the Middle and New England States the wells are low, as are the streams. The *Boston Journal* says: "Our exchanges from nearly all sections of the country bear out the statement, that what is most generally needed now, everywhere, is a liberal and protracted rainfall. The last winter closed in upon us without being preceded by the customary heavy fall rains; and instead of the usual spring freshets this season, there has been a drought." Nor are the United States the only country now suffering from deficiency of rain. Carefully collected returns from England give a general average of only twenty two inches for the past year, instead of thirty inches, the proper rainfall of England. The deficiency is computed at over a million gallons of water for every square mile of British territory.—*Prairie Farmer*.

CUBAN TOBACCO.—Near Gilroy, a thousand acres of land are to be planted with Cuban Tobacco.

FOREST CULTURE.

THE CALIFORNIA TREE LAW.

The California Legislature has passed a law which has for its object to largely extend Forest Tree Culture in that State. The law provides the appointment of a Commissioner of Forestry, or a State Forester, who is authorized to expend annually \$6,000 to \$8,000, in providing seeds and seedlings for free distribution. By this move California has virtually laid aside the indifference upon this subject that has so long been characteristic of the great masses of the people. Below we give a synopsis of the law, which we clip from the *California Horticulturist*.

We clip the above from a Wisconsin Exchange, and wish we could say it was the case with our State, but our cotemporary here was a little fast in his statement. There was a bill before the Legislature to do this grand act—the bill *did* pass—but unfortunately the Governor's sanction was not given; the law did not go into effect, and we are not as a State in the *forward march* in "Tree Culture" as was hoped to be. Another Legislature will make all right.—*California Farmer*.

FOREST TREE SALVATION.

Science is now demonstrating that the cutting down our forests and cleaning off trees, and leaving our lands in barren plains, is one of the chief sources of many evils that are now inflicted upon the people in the form of tornadoes, whirlwinds, drouths, fevers, plagues, and many other diseases which every country is subject to that strips the land of trees.

We notice that several of our Scientific Societies, and our Agricultural Societies in other States, are taking up the subject of *Forestry* in order to call the attention of the several Legislative bodies to this matter.

A valuable paper was recently read before the New York State Agricultural Society upon Forestry, and many Institutions are noting the effect it had upon the soil, climate

and health wherever the land had been bereft of trees.

It will be seen we have given large space in this number to the subject of Trees, in hopes to draw attention to the importance of this State being saved from the evils that other sections of our country have suffered by the sweeping away all our forests and not supplying their places.

We are confident that one of the best investments that could be made with *capital* would be to *plant Forest Trees*, it would pay better than any *Land* or *Stock* speculation known, as it would be certain at a great interest—the money would more than *compound itself*.—*California Farmer*.

A VISIT TO NAPA VALLEY.

[Continued from page 215 of last number.]

YOUNTVILLE STATION (Groezinger's Station would perhaps be more appropriate,) is situated nine miles from Napa, on the California Pacific Railroad. The principal feature of Yountville is the extensive vineyard of Mr. Groezinger, our well-known and enterprising wine merchant of San Francisco.

Mr. Groezinger's vineyard covers a tract of some 500 acres of land, of which 120 are now planted out in grape vines, of from one to eight years old. A visit to this vineyard and a chat with its genial proprietor, is both interesting and instructive, as his knowledge and experience, which are extensive, are well worthy a most careful study.

Mr. Groezinger now cultivates almost exclusively foreign varieties of grapes, and the very few vines of the Mission variety at present remaining, will soon be grafted with the foreign varieties. He is certain that the latter are worth four times more than the former for the manufacture of wine.

The varieties most extensively cultivated in this vineyard, are: Riesling; Muscats; White Tokay and White Nice, (of which he produces bunches of six to eight pounds each); Clevner, (Burgundy); Silvaner, (va-

riety of Chasselas); Rolander, (also a variety of Chasselas); Black Riesling, (Miller's Burgundy); Trousseau and Charbanot, (being of late introduction); Malvesia; Zinfindal; Burger and Gray de Shay; all of these Mr. Groezinger considers first-class for wine making, and recommends highly for general cultivation.

In regard to low or high training of Vines, he has come to the conclusion that the following do best under low training; White Chasselas, White Tokay, White Nice, Rolander, Muscat, Burger, Malvesia and Zinfindal; while for high training he recommends Riesling, Red Chasselas, Early July (July Cleaver and Gray de Shay, (Gray Riesling.)

Mr. Groezinger has made wine of all these varieties, and knows what they are.

In the manufacture of wine, he does not rely upon his own vineyard entirely; he purchased over 600 tons of grapes last year for that purpose, paying from \$20 to \$30 per ton for them. His total wine product of last year was 130,000 gallons, in addition to which he has purchased about 170,000 gallons; of this quantity over one half he exported.

In order to keep so large a quantity of wine in good condition, an immense cellar is required, and he has spared no means to erect a very extensive and substantial wine cellar, which, we believe, is the largest and most practical in California for the treatment of wines after they leave the press. This cellar now contains 37 large vats of from 1,500 to 2,000 gallons each, besides a great number of smaller ones. The entire capacity of this cellar is 400,000 gallons.

The transporting of the grapes to the crusher, from thence to the press, and the transfer of the juice into the vats, is all done by machinery at a small expense, which seemed very apparent, when he assured us that he employs but twelve men for the vineyard and cellar, except through vintage time, when the force is increased to about twenty four.

In connection with this establishment he has a distillery, with a steam boiler able to

manufacture 1,000 gallons of brandy per day, which finds a ready market in the East.

Mr. Groezinger apprehends much difficulty in obtaining wine barrels for the next vintage. The importation of foreign wines is on the decline, and the supply of barrels from that source is therefore limited; our California Oak is not very well adapted for this purpose, and these circumstances necessitate the importation of Eastern Oak. For vats, he thinks our Redwood will answer every purpose.

The cardinal principles involved in wine manufacture are, he says, *equal temperature*, at from 60 to 70 degrees; *close attention* during fermentation and the after treatment; *cleanliness* and the drawing off of the wine after the separation from the sediment. The fermentation should be perfect, and in order to facilitate the process, the wines should be brought into contact with the air as much as possible, avoiding, however, a material climatic change, which so frequently results in great loss.

His wines are shipped to New York by steamer; to the Western States by railroad; to Oregon, Mexico and Central America; Good ordinary wines obtaining from 50 to 60 cents per gallon, while superior qualities made from Riesling, Muscat, etc., sell readily at from \$1 to \$1.50 per gallon.

Wines improve during their voyage, which is due to the continual motion, and there is no doubt that this could also be accomplished by machinery at home, and should receive the attention of our large vinticulturists. [This has long been recognized in Europe as important, and properties characteristic of old wines have, by these means, been established in a short period.—Ed.]

Mr. Groezinger has first paid attention to practical matters, in order to make the business pay; but he has not lost sight of the beautifying of his estate, when circumstances permitted. He is now contemplating improvements which in point of taste and effect, will give his settlement all the attractions of

a popular place of resort. The landscape and natural advantages which are characteristic of Napa Valley, will facilitate the consummation of his projected plan, and we certainly wish him all the success which his energy and enterprise so justly deserve.

TREE PLANTING.

Plain Talk, and to the Point.

A contributor to the *Rural New Yorker*, says: "The silver and scarlet maple seed are ripe (May 22) and falling from the trees, and now is the time to gather them for planting. The seeds of these trees are very delicate, being very little more than two thin leaves folded up into the form of a bud. If planted within a few days after ripening, they will grow readily and rapidly, and by Fall become plants two or three feet high. How simple an operation it is to grow trees when one knows just how and when to begin! But there is little use of trying to teach people who do not want to learn; although, whenever I ride over the Western prairies, and see thousands of farmers' homes with not a tree about them, I feel like turning missionary and *go to preaching about trees*.

A silver maple tree will grow large enough from seed in four or five years to make quite a handsome shade tree; and yet nurserymen have to beg of people to purchase them, when one year old, for a dollar and a half per thousand, delivered free to any post office in the United States! Sun-stroke ought to be far more prevalent than it is among those land-owners who will neither furnish their cattle nor themselves and families with cool, refreshing shade, when it can be had so cheaply. A dollar and a half per thousand for trees, and still you have none for shade, shelter or ornament! I wish I could pin this in big letters on your coat tails, you miserable, shiftless specimens of humanity, who have neither a green spot in your hearts, nor a green leaf spread to the winds before your doors!"

WORK FOR JULY.

The dry season is upon us again, and vegetation throughout the land is on the decline, except where irrigation can be resorted to, or where other conditions are favorable to the growth of trees and plants throughout the year.

Gathering in the crops, storing and shipping, are now the leading occupations in the rural districts, and we hope for the country's sake that the recompense for the hard and industrious labor will be encouraging to all. According to the accounts received, there is no just cause for complaint, and those who are disappointed may trace their losses back to their own negligence and indifference.

Very little can be done in the Orchards except the thinning out of fruit where too much crowded, if size and flavor are worthy of consideration. Young trees should not be allowed to bear much fruit; as, if permitted, it will retard their growth.

The Vineyards may be let alone. Young vines of this year's planting should be looked after, and if more than one branch is growing upon them, it should be removed. Where water can be had, lately planted vines should be irrigated once or twice during the dry season; if this is done at all, it should be done thoroughly—it will help the vines much in establishing themselves and making a good growth; such vines will certainly come into bearing a year sooner than those which have to do without irrigation.

In visiting the rural districts, we miss the verdant covering of our hillsides which adorns them during the winter season. This seems the only difficulty which the landscape gardener has not yet overcome. In some particular localities water may doubtless be had to irrigate with, but to keep up extensive lawns and to retain the vegetation of grass, etc., during our long dry season, is too laborious and far too expensive. If there is a means to overcome this difficulty, we ought to demonstrate the practicability, of it. We have frequently referred to the

Bermuda Grass, and we have carefully weighed the objections raised to its introduction here, but we have a rather decided opinion on the subject; we are in favor of it for all extensive grounds occupied as rural residences. Our landscape gardeners should give it a fair trial; we shall certainly do so during the coming rainy season. It would have been an excellent move on the part of our Park Commissioners to make some experiments in this direction. Extensive lawns, which we must have in the Park, will be entirely too expensive, in fact impracticable, with any of the grasses now under cultivation for that purpose. We think, also, that the experiment should be made upon the grounds of the State University during the coming rainy season. Are there no practical men in the employ of these institutions, who can suggest some plan which may result beneficially and in the saving of thousands of dollars?

In the Kitchen Garden not much can be done except keeping the soil moist. We advise to water thoroughly, loosen the soil frequently, and to keep weeds down.

The Flower Garden requires some care during the hot weather, if plants are expected to grow luxuriantly and to produce fine and perfect flowers. Wherever irrigation is resorted to, it should be done well, if done at all; even watering once a week, so as to penetrate the soil to a greater depth, is much preferable to a light sprinkling every day, as an hour of sunshine will evaporate every drop of water applied in the usual manner. Cut away withered flowers and clean up dead leaves, etc. Running vines should be carefully secured to pillars, verandas and other supports, as they make their growth. They will answer their purposes much better by a little attention once or twice during the week, than if you let them run *ad libitum* during the entire season and then expect to do it all in a day by forcing them into shape.

Where the seeds of desirable plants, particularly annuals, begin to ripen, it is well to

collect a small quantity for home use. Seeds should be gathered during the afternoon or evening, when there is no moisture upon the plants; they may be cleaned at once, and should be stored away in some cool place, protected from insects, etc. It is of daily occurrence, that we hear of some one complaining, that some of their pot-plants do not thrive at all. We have assigned, from time to time, various causes which occasion such results; we cannot repeat them so often, but in reading the *Gardeners' Chronicle* the other day, our attention was attracted to a small matter which, we acknowledge, has been of assistance to us. The *Chronicle* says: "If any plant in the house is found not to be progressing satisfactorily in the position in which it may happen to have been placed, it will frequently occur that by removal to the opposite end or side of the house it will be favorably affected or otherwise; by the accidental angle at which the light will strike upon its foliage. This influence will become apparent by noticing how many of our common British plants establish themselves when they are under certain peculiar conditions in this respect. When these conditions of light are wanting, I have frequently observed, that although a plant may have been placed in such a position as to light, as might be thought calculated to insure its well-doing, yet unaccountably it has refused to grow; but the simple removal of it to another position in the same house, has had the desired effect.

Before closing this chapter, we would call the attention of our amateur gardeners to the pegging down of bedding plants, such as Verbenas and Petunias; but we would not stop here, and would also advise the pegging down of Roses, Laurustinus, and other flowering shrubs, as well as Geraniums, Heliotropes, etc. By securing them to the ground, many will form new roots, and the result will be immense profusion of flowers and protection against the strong winds. This mode of producing masses of flowers, applies more particularly to extensive grounds, where this mode of cultivating flowering shrubs produces a very pleasing effect.

HOW TO HAVE ROSES ALL WINTER.

BY GRACE SANFORD.

One who spent some time in Germany, tells us that on a certain fête day in mid-winter, he was surprised to see how exquisitely all the windows in the houses, and the occupants, were decorated with "June Roses," so beautiful! and such quantities! If every "Blumengarten" in the village had been stripped, and more besides, he was convinced they could never produce such masses of pink, white, and tea roses. They must be artificial! Could any flowers, but those of God's own handiwork, think you, fill the air with such subtle, delicious fragrance? The pure "attar of roses" in its own native element. Interest as well as curiosity prompted our traveler to find out, if possible, the "Eden" from whence these lovely things were gathered in such amazing quantities. Thank Heaven! he was a man with curiosity; an animal never found (according to themselves), except in woman's garb. Listen, reader! every one who is blest with a rose bush, and I will tell you how to carry June right into December, and garland your homes with these tell-tale blossoms: "Gather the roses while you may," a poet sang, and isn't the time when you may, in June? Take the buds when they are *just ready* to burst in full bloom, lay them carefully in table salt, don't let them touch each other, cover them well with the salt, keep the box, or whatever you put them in, closely covered, leave them in the coolest place you have until winter, when you want them. Then take them out, lay a few at a time on a plate, and put in an oven, just warm enough to unfold the leaves gradually. Do this, pretty reader, and you can feast your eyes all winter, in fact all the year round, on what these unlucky mortals who haven't the German traveler or this "FLORAL CABINET" for a guide, can enjoy only during the short-lived summer. Try a few for next winter.—*Ladies' Floral Cabinet.*

AN ARTESIAN WELL has been sunk 1,200 feet in Chicago without finding water.

GENTLEMAN'S BUTTONHOLE FLOWER,
Or Bouquet.

At the Birmingham Show of the Royal Horticultural Society, on June 25th, three prizes are offered for "Coat flowers," in the words at the heading of these remarks. A Buttonhole flower is generally understood to mean one single flower or spray of flowers, with or without a piece of its own foliage, or a Fern-frond. By a Buttonhole bouquet is meant, a collection of two or more kinds of flowers, made up with foliage or Fern-frond, or both combined. Surely it would have been better, and it may not now be too late, to make separate classes of these very different productions. Another suggestion occurs to me, and as the prizes offered are liberal, I have no doubt intending exhibitors will readily agree to my proposition: Let each exhibitor, who notifies his intention to compete in class 135, be informed that he must exhibit one Coat-flower and one Coat-bouquet.

W. T. C.
Gardeners' Chronicle.

REMEDY FOR CUCUMBER BUGS.

Take pieces of paper, dip them in coal tar, and place them on the ground near the plants; with the foot, move a little soil on one corner of the paper to prevent blowing away, and the work is done. An observer, recommending this remedy, says: "Not a leaf on land so treated was touched, while all the other plants were entirely destroyed. Two or three pieces to the hill are quite enough."

CURRANT WORMS.

Nothing so effectually destroys the vermin as soot, which is both the cheapest cure and the most certain preventive. When dusted on the branches after a light shower has fallen, or after the leaves have been wetted, the vermin will soon drop off and the leaves perish. The application of a sprinkling of dry soot around the roots of bushes, when early digging operations are being proceeded with

in Spring, will act most successfully in preventing their appearance; and this, resorted to in successive seasons, will entirely extirpate the pests.—*Farmers' Journal.*

OUR EXCHANGE TABLE.

The *Scientific Manual*, a Monthly Journal, devoted to Art, Science, Mechanics, etc. Published by J. S. Zerbe & Co., Cincinnati, Ohio. Subscription price, \$1 per annum.

The *Cincinnati Commercial Review*, a Weekly Journal of the Markets, and Industrial and Trades Interests; valuable to Commission Merchants, Manufacturers and Tradesmen. It is published by Murray, Davis & Co., Cincinnati. Price, \$3 per year.

FAVORS RECEIVED.

We have received the *Premium List of the Nineteenth Annual Fair of the California State Agricultural Society*, which is to commence on the 19th and end on the 28th day of September next, at Sacramento. Over \$20,000 are appropriated for premiums, to which will be added special premiums and a gold medal to the most meritorious exhibition in each of the seven departments.

Proceedings of the National Agricultural Convention, held at Washington, D. C., in February last. The pamphlet is voluminous, and we shall speak of it more minutely hereafter.

The *Premium List, and Rules and Regulations for the Cincinnati Industrial Exposition of Manufactures, Products and the Arts*, came to hand, and is a model of neatness. The Exposition will be opened Wednesday, September 4th, and continue until Saturday, October 5th. The Horticultural Department will be a most prominent feature, many liberal premiums being offered; the Floricultural Department alone proposes premiums exceeding three thousand dollars.

We have received the *Transactions of the Wisconsin State Horticultural Society, and its*

Proceedings, Essays and Reports, at the Annual Winter Meeting, which was held at Madison in February last. It is handsomely illustrated, and entitles the officers and members of the Association to much credit.

Diseases of Cattle in the United States. The Secretary of the Horticultural Society authorizes us to acknowledge the receipt of the above work, published by the Department of Agriculture in Washington. The volume is full of interest and contains many valuable illustrations.

CATALOGUES RECEIVED.

Catalogue of Dutch Flower-roots, etc., offered by A. E. Barnaart, Vogelenzang, near Haarlem, Holland. Ben. T. Wells, of Boston, is the Agent for the United States of America.

NEW AND RARE PLANTS.

AMORPHOPHALLUS RIVIERI.—Introduced from Cochin China by Mr. Rivieri, the head gardener of the Luxumberg Gardens.

This very curious Aroideæ will make a striking figure in our gardens. Planted in the open ground in May or June, (like the Dahlia,) the tubers will produce on a thick stem a very extraordinary looking palmated single leaf in the shape of a reversed umbrella. The leaves are from two to three feet in diameter, supported on stems of about the same height. Planted in pots and kept in a greenhouse, they will grow still larger than in the open ground, and from the very little care required, they are well adapted for the decoration of drawing-rooms, etc. The whole plant is of a dark green; the stems and nerves of the leaf are irregularly spotted with white; it requires a light, rich soil, well manured and worked during the summer. When the frost has destroyed the leaves, take up the roots and preserve them like those of the Dahlia. Planted in small or large beds, or in groups on the lawn, etc., it will present a curious and extraordinary specimen of vegetation.—*Journal of the Farm.*

DRACOENA SURADOSI, (variety *Maculata*).—The description of this *Dracoena* we find in the *Rural New Yorker*, accompanied by an illustration of a specimen in flower.

“It was found on the banks of the old Calabar River, in 1863, by G. Mann, but afterwards sent to the Glasgow Botanical Gardens by Mr. Clarke. It is a shrub six or eight feet high, throwing up copious, stout, erect, rod-like surculi from the roots. Leaves in scattered, opposite pairs, and whorled in threes, spreading, flat, four to six inches long, one to two inches broad, beautifully blotched with golden yellow. Flowers in a globose corymb; greenish-white. A beautiful shrub for the conservatory or the parlor, readily propagated from cuttings.

LOCKHARTIA AMOENA.—A pretty *Lockhartia*, with strong stems and beautiful yellow flowers, the lips painted with purple, the column with brown. Discovered by M. Endres, in Costa Rica. Now flowering (March 16th) in the Hamburg Botanic Garden.

Gardeners' Chronicle.

ERIA (FLAVÆ) BERRINGTONIANA, n. sp.—A very unexpected novelty—a giant *Eria Flava*, bearing a raceme of flowers, each nearly equaling a flower, *Bolbophyllum (Sarcopodium) Lobbii*. The flowers are at first yellowish-green, the side sepals and lips marked with purplish streaks inside; afterwards they become ochre-colored. The outside of the sepals is covered with very short arachnoid white hairs, as are also the stalked ovary and the blackish bracts, and the peduncles are more than two spans high. Till now all *Eriæ* of this section were small flowering things, in the way of *Maxillaria squalens*, the *bete noire* of those who introduce Orchids, producing finally the long expected flower-stalk with small dirty flowers, in lieu of a *Houlletia* spike. Now we have a member of this section coming from Borneo, much excelling all these by its large flowers, commonly reversed and with the inside petals rolled, as in a *Vanda*. It has recently flowered with A. D. Berrington, Esq.—*Gardeners' Chronicle.*

PAULLINIA THALICTRIFOLIA.—When this charming plant was exhibited at one of the recent shows of the Royal Horticultural Society by Messrs. Veitch, it was no wonder that bystanders mistook it for an *Adiantum*. At a little distance the resemblance is so striking that the plant may be put down on the list of those given to “mimicry” as the awkward phrase goes. The plant in question is a stove climber, and a native of the southern province of Brazil. The “habit” of the plant in its native country seems, as in the case of our Ivy, to alter when the flowering stage is reached. It then becomes much coarser looking, and as the flowers, though interesting botanically, have no horticultural merit, gardeners need not care to induce the plants to flower, unless they are of a botanical turn of mind. The younger branches are covered with a velvety down. The leaves are of a rich green color, and beautifully cut like those of a *Thalictrum* or *Adiantum*. As a decorative plant for table decorations, few can surpass it, as shown by Messrs. Veitch & Sons, of Chelsea.

Gardeners' Chronicle.

DOUBLE WHITE ZONALE PELARGONIUM.—The *Revue Horticole* announces the appearance of a Double White Zonale Pelargonium, lately obtained by a nurseryman at Toulouse, who has disposed of his stock to M. Boucharlat, of Lyons. The plant in question is a sport from *Beauty*—a single flowered white variety with a pale flesh-colored centre. So says the *Gardeners' Chronicle*.

VIOLA CORNUTA *var. magnificent* belongs to a strain of which *Perfection* and *Enchantress* are the type. It is equal in size to either of them, has the same branching habit, “but is somewhat more robust in growth, while in color it is very distinct and superior.” The flowers are borne well above the foliage; they are of a rich, deep violet color, with a small yellow eye, surrounded by rays of deep violet-purple.—*Gardeners' Chronicle*.

HYDRANGEA PANICULATA is mentioned among

new and rare plants as particularly worthy of notice, and the finest flowering shrub of recent introduction. It grows from eight to ten feet high and bears large pyramidal panicles, from twelve to eighteen inches long. Its flowers are white, and continue long in bloom.—*Horticulturist*.

NEW FRUITS.

THE TELOFSKI APPLE.—This Apple, which is rapidly becoming a favorite, is a native of Russia, and appears to be particularly adapted to our climate. Dr. Warden describes it as follows:—Tree vigorous, hardy, productive, upright. Leaves broad, pale or light green. Fruit small to medium; round, flattened, somewhat conic, angular; surface smooth, yellow, striped, splashed carmine; white bloom; basin shallow folded; eye long, closed; cavity wide, wavy or deep; acute stem, short yellow; core large, clasping; seeds numerous, plump, brown; flesh yellowish-white, breaking fine-grained, juicy; flavor acid; quality good, use market or kitchen; season June, July; before early harvest.—*Journal of the Farm*.

GRIMES' GOLDEN APPLE.—We have on several occasions referred to this variety as one of great merit. It is hardy, produces abundantly, and bears regular annual crops. In one of our early plates, we selected Cornell's Fancy as one which would always do credit to the Eastern States; and looking about us for one to serve the West in the same way, we could think of no variety which had been already pretty well tested, and found to be so generally likely to hold its own, as this one. We do not regard it as of the highest flavor, but in all other qualities, think it is the equal of the best, and as near the average of perfection as people are likely to get in one single fruit.—*Gardeners' Monthly*.

PEAT.—It is said that large quantities of Peat have been discovered in the southern part of California.

NEW VEGETABLES.

FIEDER KRAUT CABBAGE.—This is a new variety recently introduced from Germany, and as far as it has been tried is highly esteemed. It is the general "Crout" of that country, it being preferred on account of the solidity of its heads. It has a very fine flavor, and heads freely, the heads being of a conical shape.—*Journal of the Farm.*

NEW VARIETY OF CUCUMBER.—In *Land and Water* we have a figure and description of what is called the new White-spine Cucumber. This, when raised on a trellis, grows to an enormous size, one vine having three specimens, each of them three feet in length, besides many others over two feet long. The flesh is said to be very solid, with but few seeds, and the flavor very fine. This method of growing Cucumbers is recommended as furnishing a much superior result to that of allowing them to trail on the ground, as they thus grow finer, straighter, and with a larger yield. This new Cucumber has the skin perfectly smooth. It is very short in the neck, and is considered a decided gain to the resources of the vegetable gardener.

FRESH VEGETABLES.

Those who value *Fresh Vegetables* and *Sweet Salads* will have none washed in the garden. Neither the one nor the other should be washed until they are just about to be cooked or eaten. Even Potatoes lose flavor quickly after being washed, so do Carrots and Turnips; while water will speedily become tainted in summer in contact with Cauliflowers and Cabbages, and thus destroy their freshness and flavor. The case is still worse with Salads. If washed at all, it should only be just before they are dressed—and they should be dried and dressed immediately. Nothing ruins the flavor of vegetables, and renders good salading uneatable sooner than water hanging about them. If Lettuces are quite clean, they make the best salad unwashed;

but if washed, the operation should be done quickly, and the water instantly shaken out, and the leaves dried with a clean cloth. But, alas! how often are they cut and washed in the garden in the morning, and pitched into water in the scullery sink until wanted. Then we are gravely assured that our gardeners cannot grow salading like the French! but what French artiste would be mad enough to rinse out his salad juice, and then recharge his Lettuces and his Endives with semi-putrid water?

The best practice is simply to remove all superfluous earth by scraping or rubbing, and all rough tops or leaves by cutting. Enough tender leaves may still be left on Cauliflowers and Broccoli to overlap the flowers. Salad should be sent in from the garden with most of the outside leaves and main root on. The tender leaves are easily tainted and injured by exposure, and if the chief root is cut off sharp, much of the juice oozes out at the wound.—*Gardeners' Chronicle.*

PEAR GROWING.

Fourteen Years' Experience.—The Quince as a Stock.

Aside from the causes of the blight, there is no one point in Pear culture, upon which there is a greater diversity of opinion among fruit growers, than the comparative merits of the Quince and the Pear as a stock.

We propose, therefore, to give some of the reasons which incline us to prefer the *quince*, especially in certain localities. When we shall have given our reasons for this preference, we will give some of our own experience, both with the quince and the pear.

1. The quince causes the pear to fruit much earlier than when worked upon its own root. Such varieties as unite kindly with the quince, as the Duchesse d'Angouleme, Louise Bonne d'Jersey, White Doyenne, and others, will generally bear at the fourth year from the bud, and under favorable circumstances will continue to bear regularly until they cease from old age. This we con-

ceive to be a very satisfactory argument in favor of the quince, since the pear on its own roots does not usually bear in less time than from eight to fifteen years. When we speak of the quince as a stock for the pear, we always mean the *Angeres Quince*, the most thrifty growing variety now known.

2. The quality of the fruit in many varieties, as *Beurré Langelier*, *Soldat Laboureur*, *Duchesse d'Angouleme*, *Easter Beurré*, *Glout Morceau*, *Louise Bon d'Jersey*, and *Vicar of Winkfield*, and others, is very considerably improved. This is another reason why the quince stock should be used, especially when applied to these varieties.

3. Trees grown on the quince are much more successfully transplanted than when grown on the pear; since the quince roots much more readily than the pear, being raised easily from the cuttings, while the pear will scarcely grow at all from the cutting. It is only when the trees are frequently transplanted while quite young, that they can be satisfactorily set at suitable age for final transplanting on the pear root.

4. Those trees worked on the quince are sometimes less liable to *blight* than when worked on the pear stock. This is because the quince has, to some extent, the same effect as root pruning in checking unusual and exuberant growth of young wood. This unusual growth being the most prolific, predisposing cause of blight, for the next season. Trees thus worked upon the quince come into bearing early, and although the trees may make roots from the pear while quite young, yet the amount of fruit produced makes such demands on the root for sap that the unusual growth of wood which would otherwise be made, is reduced, and consequently danger from blight greatly lessened.

5. Whenever a tree is so transplanted as to sink the junction of the pear with the quince, from two to four inches below the surface of the ground, the pear will, in most cases, without any other manipulation, take root, and thus gradually convert a dwarf into

a standard tree. By thus using the quince as a stock, we secure an early supply of fruit and in the case of some varieties an improvement of size, beauty and flavor, and at the same time are gradually increasing the size of the tree with the enlargement of the crop of fruit, while the life of the tree is prolonged to quite an old age.

The foregoing remarks are intended to apply to those soils that are more congenial to the growth of the quince than to the pear.

Our own soil is composed of loam, gravel and shale, with a sub-soil of strong, heavy clay. We have about sixty-five trees in bearing, about fourteen years of age, most of them having borne for several years. Our site is an inclined plane, inclining at an angle of about 30 degrees, affording ample surface drainage. In the soil above described the quince grows finely. The pear root, especially when deeply sunk, does not succeed near so well as the quince. When our trees were set in their present position, there were three of them on the *pear* root, the balance on the quince. Those on the quince, generally, have greatly outgrown those on the pear root; so that for soils of the above description, we feel quite safe in recommending the quince as the better stock for those kinds which unite readily and successfully with the quince. Among the varieties which may be relied upon for such soils, when so worked, are the following: *Beurré d'Anjou*, *Beurré Diel*, *Duchesse d'Angouleme*, *Easter Beurré*, *Glout Morceau*, *Louise Bon d'Jersey*, *Vicar of Winkfield*, *Urbaniste*, *White Doyenne*, *Stevens' Genessee*, and *Tyson*.

Many of our trees originally planted as dwarfs, have, without any assistance of ours, thrown out roots from the pear, and have consequently become standards—we use the word *standard* in its common acceptation. Those trees whose pear roots are growing near the surface are now making fine growth, and promise to become quite large. We know that many of them have rooted from pear, because they throw up pear suckers from the surface. Hence, the preference to

be given, either to the pear or the quince as a stock for the pear, must be determined, mainly, by the composition of the soil in which we wish to plant.

We would remark, that the best informed among us have much to learn upon the subject of successful pear culture, not only in the adaptation of stocks, soils, and climates, but also in regard to the various diseases which attack both tree and fruit, with their preventives and cure.—*Pomologist*.

KILLING GRASSHOPPERS.

An Australian newspaper says, that the practice has been very successfully adopted in gardens, of sowing rows of common larkspur, the leaves of which attract grasshoppers at once, and when eaten is certain death to them—and that thousands of grasshoppers have been thus seen lying dead—all of which may or may not be true. We cannot say that we believe it. Let some one try this season.

Moore's Rural New Yorker.

NATIONAL AGRICULTURAL ASSOCIATION.

The next session of the above Association will meet in St. Louis, Missouri, on Monday, May 27th, 1872.

Each State Agricultural Society is entitled to two delegates, each Agricultural College to one delegate, and every Local Agricultural Society of 50 or more members, which has contributed to the funds of this National Organization, to one delegate.

The circular says: "We hope that every Local Organization in the United States will be represented. Essayists have been appointed, and it is expected that the occasion will be one of great interest to those engaged in Agriculture. All who want more definite information can procure a copy of the Constitution and proceedings by addressing the Secretary, S. B. Killebrew, Nashville, Tenn.; F. Julius Le Moyne, Washington, Penn., President."

APPOINTMENT.

Dr. George Vasey, of Illinois, has been appointed Botanist of the Department of Agriculture, in Washington.

REPORT ON THE FRUIT MARKET.

We have on several occasions spoken of the incubus of the *commission business* on the producers of fruits and vegetables, and on the public. We extract the following from the *Pacific Rural Press* as endorsing what we have already expressed; it appears under the heading of

"FRUIT COMMISSIONERS."

It is just as clear as daylight, that the commission merchants, who receive as middle-men, standing between producer and consumer, make the largest share of the total profit on our annual fruit production. Immense quantities of fruit are yearly dumped into the bay, because consumers will not come forward and pay the exorbitant prices asked, over what the same quality can be bought for directly from the wagon of the producer, who is so fortunately situated that he can market his own fruit at retail.

The country is equal to the production of fruit in quantities that should place it within the reach of the poorest of the land in full abundance, at a cheap rate and still pay the producer a fair price for his skill, time, land and labor. But so long as the middle-men can set their own prices on what they buy, as well as what they sell, so long will the profit of the producer be made secondary.

A quantity of fruit of any kind is thrown upon the market in the hands of the commission merchant at a fair profit to the producer; but the price is immediately put up to so high a figure, in anticipation of a large profit on sales, that nobody, or but a few that are able, buy. As a consequence, the next consignment of fruit finds the former one on hand and no purchasers; of course, down goes the price and profit to the producer, and the first consignment goes into the bay.

The whole story is told in this—the retail prices of fruits in the city are too high for the good of the producer or consumer, whilst both would be benefited if a more extended system of retailing from first hands could be inaugurated.

Our Markets are now abundantly supplied with Fruits and Vegetables of superior quality and in fine condition.

FRUITS:

Raspberries are fine and abundant, retailing at, per lb., 20 cts.

Strawberries, still in good supply and fine, at, per lb., from 8 to 12½ cts.

Blackberries are very fine and plentiful, retailing at, per lb., 15 to 20 cts.

Gooseberries are going out.

Apricots are also on the decrease, selling at, per lb., 15 to 20 cts.

Peaches are now becoming plentiful; there is every prospect of an abundant supply; quality good, selling at, per lb., 12½ cts.

Cherries are very fine and plentiful.

Plums are increasing in supply, but variety inferior; retailing at, per lb., 15 to 20 cts.

Currants are going out, selling at, per lb., 8 to 12½ cts.

Grapes (Sweetwater) are looking well, and sell for, per lb., 25 cts.

Apples, (Red June, Red Astrachan,) selling at, per lb., 8 cts.

Pears (Russet) selling at, per lb., 8 to 12½ cts.

Figs are becoming abundant, both white and blue retail for, per lb., 12½ cts.

Melons, (Cantelopes,) a few in market, sell at 50 cents each.

Watermelons a few, but inferior.

Tomatoes are becoming abundant and selling, per lb., for 8 cts.

Rhubarb, fair in duality and quantity, selling at, per lb., 6 to 10 cts.

Pie Squash, selling at, per lb., 2 cts.

Bananas, a few retailing at, per doz., \$1.00.

Oranges, “ “ “ .75.

Lemons, “ “ “ 1.00.

Limes, “ “ “ .25.

VEGETABLES.

Cabbages and Cauliflowers are plentiful, and sell at, per doz., from 75 cts. to \$1.00.

Sweet Corn, per doz., from 25 to 37½ cts.

Egg-plant, per doz., 12½ cts.

Squash, good supply, at, per lb., 5 cts.

Peas are going out, sell for, per lb., 5 to 7 cts.

String-beans plentiful, at, per lb., 5 to 7 cts.

Shell-beans, small supply, at, per lb., 8 cts.

Peppers in sufficient quantity, at, per lb., 12½ cts.

Asparagus is going out, a limited supply at, per lb., 12½ cts.

Onions are selling at, per lb., 3 cts.

Spinach in fair quantity at, per lb., 8 cts.

Cucumbers in moderate quantity, at, 25 cts.

Potatoes are selling by the sack, at, per lb., 2½ cts.

SAN FRANCISCO, July 9th, 1872.

Editorial Gleanings.

BOTANY IN NEW YORK.—Philadelphia has hitherto enjoyed a pre-eminence in botanical studies, through the large herbariums of the Academy of Natural Sciences; but of late, New York City has shown a commendable activity in the pursuit of this interesting science. A modest but highly valuable periodical, *The Bulletin of the Tarrey Botanical Club*, at the low price of \$1.00 per year, is very well supported, and the working Botanists of the Club, have proved to be an active set of gentlemen. Recently, Columbia College has secured the herbarium of Meisner—some 60,000 species—which, with the already fine collection, will excel that of Philadelphia considerably. We congratulate our sister city on her good fortune in securing this prize.—*Gardeners' Chronicle*.

THE FIRST FIGS—Three days since we saw the first ripe figs of the season, of the kind known as the green or white Ischia—quality fair, but smaller than need be. Do our amateur fig-growers generally know, or if

knowing, practice a method common all over Europe where figs are grown, of increasing the size of the fruit just before ripening, by the application of a small quantity of oil to the flower end of the fig? "At Argenteil", says Loudon, "the maturity of figs is hastened by putting a single drop of oil into the eye of each fruit. This is done by a woman, who has a vial of oil suspended from her waist, and a piece of hollow rye-straw in her hand. This she dips into the oil, and afterwards into the eye of the fig." "We have ourselves," says Downing, "frequently tried the experiment of touching the fig with the finger dipped in oil, and have always found the fruits so treated to ripen much more certainly and speedily, and swell to a larger size than those left untouched." Sweet or olive oil should be used.—*Pac. Rural Press.*

HOP GROWING.—More attention has been paid to Hop growing this year than formerly. A large number of Hop-yards have been planted this season. C. T. Bird, Esq., of San José, one of our successful Hop growers, has sold over 50,000 Hop roots this season.

California Hops, on account of their great strength and high flavor, readily command 20 to 25 per cent. higher rates abroad than Hops grown in other States.

FRUIT PROSPECTS IN OREGON.—The *Willamette Farmer*, of Oregon, says: "The fruit crop this season will be light, many orchards hardly bearing enough for family use. In many localities the frost has been very severe, killing large apple trees; even town raspberries and blackberries are much injured."

PITCHER PLANT.—Mr. Geo. Such, of South Amboy, N. J., has succeeded in bringing the California Pitcher Plant into bloom.

AGAVES.—J. T. Peacock, of Hammersmith, England, cultivates two hundred species and varieties of Agaves, of which he produced fifty named species at the late Floral Show in London.

HOP-CULTURE.—We understand that Hop-culture is to undergo a trial upon the plains of the State of Nevada. Some, who ought to know all about it, say that a superior quality of Hops can be raised there.

PROFIT OF CHERRY TREES.—Some of the Cherry trees of Mr. Bidwell's orchard, in Butte County, yielded \$200 dollars to the tree this season, the fruit selling as high as 60 cents per pound in San Francisco.

"THE GARDEN."—Mr. W. Robinson, who paid a visit to California during the latter part of 1870, is now publishing "*The Garden*," in London.

COTTON PLANTATIONS.—The experimental Cotton Plantations of California look most favorable this year, and a complete success is expected.

AUSTRALIAN SEASONS.—Autumn commences on March 20th, Winter on June 21st (the shortest day), Spring on September 23d, and Summer on December 21st (the longest day.)

MAMMOTH FLOWER.—There is now in bloom, in Mr. Frederick Sunkle's garden, corner of Railroad Avenue and Walnut Street, a flower known as "Aaron's Cup," which measures two feet eight inches from the but end of the flower to the tip of the cup.—*Encinal.*

STATISTICS OF 1870.—According to the Statistics of Agriculture, as compiled from the Census of 1870, the total value of Orchard products in the United States has been \$47,335,189; the produce of Market Gardens, \$20,719,229; and of Forest products, \$36,808,227. As compared with the statistics of 1860, the increase in Orchard products has been \$27,343,304.

 We have made arrangements to supply the *Overland Monthly*, together with the *California Horticulturist*, for \$4 50 per annum. Subscriptions at this rate should be for one year, and should be paid in advance. Orders directed to F. A. Miller & Co., box 128, Post Office, San Francisco, or to the office of the *California Horticulturist*, 622 Clay Street, will receive prompt attention.

THE

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No. 9.

DECORATIVE PLANTS.
FOR OPEN AIR CULTURE.

It is a general rule in the laying out and arranging of ornamental grounds, however small or large they may be, to select some one or more of the most conspicuous or prominent places for the site of some choice and effective plant or group, which in itself may form a leading feature of the grounds.

It is not our purpose here to designate what plants are thus used in the East and in Europe, where immense prices are paid for well-grown specimens of suitable character; but we wish to call the attention of our readers to the fact, that the climate of California permits the introduction into our gardens of many classes of highly decorative trees and plants, which cannot be grown in the open air in colder countries; we should, therefore, take advantage of these fortunate circumstances to cultivate those which are of the greatest decorative value. It has always been admitted that the tropical and semi-tropical climates supply the most beautiful, the most ornamental, and most imposing of decorative plants; and many of these may be grown in California with gratifying success, such as Palms, Dracenas, Yuccas, Pampas-grass, Phormiums, Araucarias, etc. There is something in tropical vegetation which all admire, and we cannot produce either a better or grander effect in

our gardens, than by the introduction of such tropical plants as are now known to be adapted to our climate. It is scarcely necessary to say, that some little discretion should be used by gardeners and amateurs in locating such plants; they require room, and unless they are planted by themselves and in a conspicuous position, the desired object is not attained. In this connection we will mention, for example, the *Corypha Australis*, of which we have seen the best specimens at Calistoga Springs, the trunks of many measuring about a foot in diameter and the luxuriant foliage extending to the height of probably twenty feet. These fine specimens of this hardy Palm are confined within spaces of about fifteen by twenty feet square, which constitute the small front gardens of the cottages; they are thus crowded in between the house and the fence and occupy the entire space, thus certainly resulting in a complete failure. Had these Palms been planted in a conspicuous place, where they could have had all the room they needed for their full development, they would have formed one of the leading features of the Springs, but as it is they are an eye-sore to the place, and the sooner they are removed the better. We could cite many similar instances where errors have been committed, showing lamentable lack of judgment and taste. However, our present purpose is to encourage the cultivation of decorative plants of this character,

and to enumerate those which we may grow here with every prospect of success. We shall first speak of

PALMS,

some of which are so useful in their native countries for numerous purposes, but must be accepted as strictly ornamental plants or trees in California; we therefore cultivate them for their beautiful and effective foliage. Their flowers are magnificent, and are of a whitish-yellow or whitish-green color, developed in bunches of thousands. Of about 350 varieties of Palms which are now known, we believe that over three hundred are natives of America and Australia.

A few words may here be desirable in regard to the propagation and raising of Palms. They are mostly obtained from seed, which it is difficult to procure in good and fresh condition; while the seeds of some retain their vitality for a year or more if kept in a cool temperature, most of them will not germinate unless they are sown soon after they are ripe. They require bottom heat, and to be covered by a very light and porous material, sawdust of a resinous pine is considered best for the purpose. If the seed is surrounded by a dry shell it should be taken off before planting, and to chip them a little with a sharp knife is often instigatory to rapid germination. While some seeds may lie in the ground for two years or more before they sprout, others will germinate within a few weeks. As soon as the first foliage is formed they should be potted in light and porous soil, kept in a close and warm house, and watered frequently. To increase their growth, they should be repotted frequently.

One of the best Palms for our California climate, is the

Corypha Australis (sometimes called Cabbage Palm), of which, as we said above, a few fine specimens are growing at Calistoga. This Palm may be grown in the open air in almost every locality in the State; it is also a fast grower. Plants may now be had at very reasonable prices at our nurseries, viz: from fifty cents to three dollars each; this places

them within the reach of everybody. The foliage is very large and characteristic, its form is effective, and all it requires is moisture for the first two or three years, and when once established it will grow without any further attention. It is a native of Australia.

Chamærops humilis may be successfully grown in California. In its growth it is more shrubby than the former, but will make a novel appearance in our gardens, requiring moisture, but otherwise satisfied with a good common garden-soil.

Chamærops excelsa is a much more rapid grower than the former, and will be quite hardy in California. Wherever the Laurustinus will grow, the Palm may be cultivated with equal success. This fact must be encouraging to all who are lovers of Palms for decorative purposes.

Chamædorea is the name of another class of Palms which are now very popular in Europe. They may be grown wherever the Orange tree will prosper in the open air. The flowers of these Palms are deliciously fragrant and are produced in abundance; they require very little care and develop themselves with great rapidity. The foliage also is very neat and graceful. We do not, however, know of any now under cultivation here, but the plants may be easily imported.

Cocos nucifera (*Cocoa palm*) the large fruit of which is well known to all our readers, is one of the most useful Palms. We think it may be successfully grown everywhere along our coast range, particularly in all localities where the Redwood is found. It seems to thrive well in the vicinity of salt water, and where the atmosphere is influenced by its evaporation. The Cocoa Palm is a most beautiful and picturesque tree and is well worthy of a trial. Moisture is necessary for its success.

Zamia, (of which there are several varieties,) is one of the most beautiful of Palms, but we are not certain whether it is adapted to our climate; a moist atmosphere is requisite.

Cycas is another family which is universally admired; we think the *Cycas* may be grown here without any difficulty, and that it will thrive exceedingly well in Sacramento, Marysville, and similar climates. The most beautiful of this family is the *Cycas revoluta*, a native of Southern Japan. This plant is highly valued in Germany, its foliage being used very extensively for decoration. It is commonly known as the Sago Palm, and furnishes the well known Sago of commerce.

The *Phoenix* (*Date Palm*) is a lofty Palm, attaining the height of from sixty to eighty feet. Date Palm seeds germinate readily, and by proper treatment will grow rapidly. We think there would be very little difficulty in cultivating them in our gardens.

We might mention many other varieties of Palms, but they can not at present be obtained from our nurserymen; we hope, however, that with a little encouragement, and a development of taste for them among our amateur gardeners, more attention will be devoted to their cultivation.

In our next we will speak of other valuable decorative plants.

CHOICE VARIETIES OF FUCHSIAS.

From experience we can recommend the following varieties of Fuchsias for this climate; and in making this selection we are guided by various important considerations: *First*, of form and color; *second*, foliage; and *third*, habit—all of which characteristics form very important considerations in selecting the best:

Striped Unique, very double, tube and sepals crimson; corolla, purple with scarlet stripes.

Wave of Life, beautiful rich foliage of light green; splendid habit; sepals, rich scarlet, well recurved; corolla, violet blue, of fine form.

Avalanche, very double; compact; corolla, pure white of extra size, with long crimson

filaments; tube and sepals, brilliant carmine scarlet.

Talma, flowers double, of globular form, sepals well reflexed; of fine, graceful habit; and free bloomer.

Dreadnaught, tube and sepals, bright crimson, well reflexed; corolla, of a compact form, and of a beautiful purple color.

May Felton, light-red tube and sepals, well reflexed; corolla, mauve and very double; fine.

White Eagle, rich scarlet tube and petals; white corolla; free bloomer; vigorous habit.

Eugene de Camirand, sepals, coral red; corolla, deep blue to amaranth red; very showy.

Majestic, tube and sepals, scarlet, well reflexed; corolla, purple; flamed carmine; very large, full and expanded; a very desirable variety.

George Felton, one of the very best; tube, short and thick; sepals, elegantly reflexed; corolla, of a beautiful bright purple.

Gazelle, bright scarlet tube and sepals; large, violet-blue corolla; graceful flower, splendid habit; free bloomer.

Striata Perfecta, corolla, well expanded, cup-shaped, and beautifully striped; one of the very best.

G. Grant, sepals, bright red; corolla, rosy lake; quite novel and distinct.

Harvest Home, long, pink tube; broad, scarlet sepals, well recurved; large, open, double corolla; violet, with large flakes of rose; very desirable.

Tower of London, sepals, carmine-scarlet, well recurved; corolla, rich violet-blue; double.

Angelina Braempt, sepals, deep scarlet; corolla, double; pure white, striped with rose; one of the very best.

Taglioni, sepals, white; corolla, violet-lake; fine habit; profuse bloomer.

Souvenir de Cheswick is one of our oldest varieties, but will always be popular; the sepals are well recurved, and the flowers are

very graceful; sepals, bright scarlet; purple corolla; very desirable.

Duchesse de Gerolstein, sepals and tube, white; corolla, a rich crimson. We can recommend this variety highly. It is an early and profuse bloomer, and of excellent habit.

Madame Cornelisson is a very popular variety, with a white corolla; free bloomer.

Comte de Flandre, sepals, dark carmine; corolla, very double; indigo blue; a very desirable variety.

Francis Desbois, very double corolla; an old, but much-favored variety.

Exquisite, sepals, bright crimson, well reflexed; corolla, large, and very double; purple and rose, flamed and flaked.

Extraordinary, one of the best; corolla, very large and double; of a rich violet-blue; blooms very freely with us, and is of good habit.

Grand Cross, sepals, scarlet; very large and double corolla, of a rich purple.

Chas. Gailly, sepals, scarlet; corolla, violet-purple, shaded with carmine; one of the best.

All of the above varieties may now be had in our nurseries, and, we believe, form about as good a collection of Fuchsias as can be obtained in the United States or in Europe.

The following species of Fuchsias are novel and remarkable in their character, and should also be in every collection:

Serratifolia multiflora, an excellent winter-blooming variety; white and pink.

Fulgens, orange-pink; will bloom profusely (out of doors all winter) with us.

Meteor, foliage of a rich, golden color; flowering late.

Microphylla, a beautiful little gem; flower and foliage very small; highly ornamental and graceful; always in bloom; excellent habit; a most desirable acquisition.

Corymbiflora, producing long corymbs of carmine-colored flowers, with long tubes and very short sepals.

GRAPE-GROWERS' ASSOCIATION

Of Sonoma, Napa, and Solano Counties.

Pursuant to adjournment, Association met at St. Helena, July 13th, Maj. J. R. Snyder in the chair.

Minutes of previous meeting read, and adopted.

Mr. Hill, from Standing Committee on Vines, reported the present promise of the grape crop in Sonoma as fully an average one: the effects of frost are less pernicious than had been anticipated. Some mildew had been seen on low sites, but not to an extent worthy of notice.

Mr. Krug reported the crop in Napa, according to present indications, as excellent, but not equal in some varieties to the extraordinary yield of 1871.

Dr. Lockwood had heard of mildew in some un sulphured vineyards.

Mr. McCord's vineyard had suffered from cut-worms.

Major Snyder remarked that cut-worms could best be combated by bottling. It could be done by the hands engaged in hoeing or suckering.

Mr. Pellett deemed the effects of frost less disastrous than has heretofore been represented. He considered it noteworthy that unplowed ground was less obnoxious to the effects of frost than ground recently upturned.

Capt. Sayward instanced some facts, proving that an obstruction to the circulation of air conduced to danger from frost.

Mr. Hill announced, on the authority of Gen. Frisbie, that the proposed erection of wine-storehouses in Vallejo, by the Land Improvement Company, had been abandoned.

Mr. Goss moved, that the Association had heard with regret the announcement made by Mr. Hill, and hope some other parties will essay this channel for the investment of capital. Carried.

Major Snyder thought that wine-makers would do well to form co-operative associations among themselves, for the erection of buildings for the storage of wine. Such an

association was now in progress of formation in Sonoma, with the design of having a building for the accommodation of four or five hundred thousand gallons of wine, to be erected and maintained by the wine-makers using it.

Mr. Krug, from Committee on Distilling, reported that the government tax on grape brandy had been raised from fifty cents to seventy cents per gallon.

Mr. McCord moved, that the recent increase of the U. S. internal revenue tax on grape brandy is viewed by the Association as injurious to the vinicultural interests of California, and detrimental to the revenues of the General Government. Carried.

Mr. Backus called the attention of the Association to the difficulties likely to arise in procuring a supply of casks, in consequence of the scarcity and high price of oak staves. It is important to get full information as to the adaptability of redwood for the purpose.

Mr. Hood, of Sonoma, had used, for some years, large redwood casks, to his entire satisfaction. Their cost is fifty per cent. less than those made of oak; and, if properly made, answered fully as well.

Mr. Pellett had several, of 1,000 gallons each, in use, and found they kept both white and red wine in as good condition as oak casks. There was some leakage the first year—probably from imperfect construction; but now that a tartar deposit is formed, they are quite tight.

Mr. Edward's experience with redwood was likewise favorable.

On motion, the subject was referred to a special committee of two—Messrs. Snyder and Backus—to report at the next meeting.

During an informal discussion respecting the wine market, Dr. Crane pointed out some difficulties in the California wine trade, which had come to his knowledge in his visits to the East. California wines had not made a reputation, and dealers, in selling them, if of superior quality, did not hesitate to label them as foreign—poorer wines, of course, they call California.

Maj. Snyder read a paper which was ordered to be spread upon the minutes and published. It controverted the oft-repeated declaration that all California wines have an extraordinary degree of alcoholic strength. This was disproved, in regard to the wines made in the counties north of, and bounded by the Bay of San Francisco, by a comparison of French wines as assayed by Prof. Brande, and of Sonoma wines as assayed by Major Snyder himself. By these assays their average strengths are almost identical; the French wines 13.3—the Sonoma wines 13.1. The objection to California wines is their newness, and this objection must be overcome before the reputation of California, for her wine product, can be established.

Adjourned to meet in Napa City, July 20th.

JNO. A. LOCKWOOD, *Sec'y.*

HOUSEPLANTS AND THEIR TREATMENT.

Window Gardening has of late made rapid progress, and our Eastern friends, particularly the ladies, have become enthusiasts in the culture of home and window plants. It may be said that there is less occasion for window gardening in California, where we may have flowers in bloom in the open air all the year round. This argument may hold good with some, but not with the majority. There are many ladies residing in the city who are passionately fond of flower culture, but have no space for a garden; to them window gardening must be a great comfort and pleasure, while to those who are so fortunate as to have a flower-garden around their dwellings, we would say, that many of our most charming floral beauties will not come to perfection in the open air, and require more delicate treatment, care and protection. Frequently the question is submitted to us: What plants are best adapted to home culture? We could name many different species, but will confine ourselves to a few of the very best.

The *Chinese Primrose* (*Primula sinensis*) is exceedingly well adapted for the window; it

is hardly ever without flowers, which are exquisite, and its foliage keeps well. We would advise everybody to purchase a pot or two of this Primrose, and we know they will repay well for the small outlay and the little labor they require. They are fond of moisture and delight in a sunny situation. During the hottest part of the day it is better to shade them slightly, as the rays of the sun act too powerfully through glass. A six inch pot filled with moderately rich garden soil will produce an abundance of flowers for a year, if the watering is regularly attended to. After that, we would advise to replace them by purchasing new plants; but if for economical reasons the old plants are retained, they should be repotted in fresh soil. This should be done as follows: Turn the plant out of the pot, remove carefully about three fourths to four fifths of the soil, cut back the exposed roots with a sharp knife, also remove the leaves with the exception of three or four young and healthy-looking ones, near the center, and then plant firmly into a clean pot of the same size. Very good soil consists of one fourth loam, one fourth leaf mould, one fourth river sand, and one fourth old rotten manure; in the absence of some of these ingredients, good garden soil mixed with a little manure will answer the purpose. Three or four pieces of broken pot at the bottom for drainage will be beneficial. The flowers are white or lilac; the fringed are preferred. The fern-leaf variety is very popular now. There are single and double flowering varieties; the latter, however, are scarce, and as yet command high prices. Chinese Primroses may be raised from seed, but we advise our readers to purchase grown plants. The raising them from seed requires more care and watchfulness than amateurs are generally willing to devote to it.

The *Cyclamen* is another most charming house plant which will flower freely during Winter and Spring, some of the flowers being exceedingly fragrant. The *Cyclamen* is a bulbous-rooted plant and requires a season of rest during Summer. This is accomplish-

ed by gradually diminishing the quantity of water given, until the leaves begin to wither and decay. After that they should receive just sufficient water to keep the roots from shriveling and drying up entirely. During the time of rest they should be placed in a shady, out-of-the-way place. In September or October they should receive attention by taking the roots carefully out of the soil, removing the damaged or decayed parts of them, and then planting them in new soil so as to expose about one half or one third of the bulb above the surface of the soil. For about ten days put them in a shaded place and water sparingly, after which place them close to the window and give a good and regular supply of water. Plants thus treated will flower abundantly from November to May. Common light garden soil with one third of leaf mould—if it can be had—will do very well for *Cyclamens*. The colors are various shades of white, pink, and purple.

The *flowering Begonias* are also a most desirable class of plants for window culture. They delight in partial shade and abundance of moisture. Several varieties are blooming with us constantly. Those which flower most abundantly are: *B. fuchsoides*, *B. rubra*, *B. parviflora*, *B. nitida*, and *B. Sanderstonii*. The most magnificent flowers are produced from *B. Verschafeltii*, but its flowering season is short. *B. Weltoniensis* and *B. Boliviensis* are said to be very fine, but the plants are not yet sufficiently known here for us to form a proper estimate of their merits.

The flowers of which we have thus far spoken may be obtained at low prices, and everybody can afford to have them and by adding to them one or two plants of *Coleus*, which are so remarkable and pleasing for their beautifully colored leaves, and also one or two Ferns, such as the Maiden-hair, one or two double Geraniums, and a pot of *Mignonette*, we can assure our lady friends that the little necessary outlay for a small collection of this kind will be a source of continual pleasure and gratification to them. Let them try it and we are sure they will not regret it. More of this hereafter.

HINTS ABOUT WINE-MAKING & PRESERVING.

BY JACOB KRAUTH.

Read before the California Wine Growers and Wine and Brandy Makers' Association.

In my first report I mentioned that casks containing light, dry wines, should be full always, and I will only add some further explanation, so that beginners may understand it more fully.

Casks which, under all circumstances, must be clean and sweet, when first filled with wine-juice or must, cannot be kept full without loss, which should not be, especially if fermentation sets in at once, as is the case in warm weather.

The running over, if it were only oxydated ferment, without loss of wine, would be well enough. But this running over of lees and wine is very apt to sour and fill the whole cellar or room with acetic or vinegar gas, transplanting itself, which answers very well for a vinegar factory. The casks want filling only so much as to prevent this. The carbonic gas generated by fermentation will keep the casks full for the time being; the superfluous will escape through the bung hole.

In strong fermentation a light covering answers very well, but when it goes down or evolves less gas, it would appear necessary to either make the vent hole so small as to correspond with the quantity of gas generated, or to use fermenting pipes.

The first method is not practicable, for if not fully proportioned, vacancies will be created and atmospheric air—the great generator and destroyer—will have a chance to penetrate and convert such light percentage of alcohol in solution to vinegar very readily. This is a well known fact, that the thinner alcohol is spread and exposed to warm air, the sooner it will turn to vinegar; and upon this principle vinegar factories are carried on. If any one will examine the vacancy near the bung-hole he will find it coated over with a

slimy, oxydated matter, and being thin and half-dry is the very thing to start the spoliation of wine.

For these reasons I prefer the use of fermenting pipes. These consist of tin pipes (lead should never be used) or small India rubber hose, one end to go into a well-fitting bung, having a corresponding hole bored through it and fastened perfectly air-tight, the other end bent over to go into a dish or can of water, penetrating not more than one inch. In this way the water will offer very little obstruction, let the excess of gas escape, close up again and leave the cask full all the time.

If fermenting pipes cannot be had, then a very good substitute is to fill the hole bored through the bung with cotton. This will give vent to the gas, and in a measure prevent the ingress of air, only care must be taken that the wine does not reach it. Stirring up occasionally is very promotive of fermentation, because it brings the ferment in closer contact again with the sugar, and forces out the gas, to make room for more.

After fermentation is over entirely, or when it appears that the gas does not keep the casks full, then is the time to fill up with wine and close the well-fitting bung moderately tight. Fill up again, whenever necessary, and keep it full.

If the juice is of proper proportions, right temperature, and not charged with different kinds of salts, which are kept afloat by resinous matter, which most always accompanies them, or an excess of (ferment) vegetable matter not belonging or not necessary in the juice, it cannot fail to make sound, dry wine.

It is impossible to prescribe a certain way of making wine. What holds good if the juice is constituted one way, will not answer if it is otherwise. There are no secrets about the business as so many are found to believe, but all depends upon the quality of the juice itself. A fundamental knowledge and practice to ascertain what treatment is wanting, is all that is necessary, and all little important doings and fineries do not amount to much.

Rags on bungs should never be used. They act like syphons, are most always wet, and sour in a short time. This will appear evident from the vinegar flies which collect around them. Pine bungs, steeped in oil, I prefer any time to oak, because they are driven better and will not crack so easy in dry weather. I have been rather long in describing these points, but may be excused for the reason that my lines are directed to beginners only, through whose ignorance and carelessness a great deal of wine is spoiled every year, and offered for sale only to be rejected, for acetic acid is no product of the grape, but of decayed or oxydated alcohol. Wines started once that way cannot be cured entirely, and had better be stilled as soon as possible.

The practice of many, drawing wine from the same cask every day for a length of time, or boring holes in it lower and lower, should be discontinued, for it not only spoils the wine but the cask also. When a cask is partly empty for some time, in a dry atmosphere, the staves will shrink and admit air, let the bung be ever so tight. These sieve-like openings allow not only the escape of the alcohol, but that of the ether, which gives the aroma, also, the latter being even more flighty than alcohol. Such wine, when not positively soured, will appear flat, and may be considered nearly worthless.

I have been speaking all this time of fine, light, dry wines, as they should be and as they are mostly wanted, not of those strong, heady, half fermented ones, which in fact are not wines at all fit for use, and have spoiled our market East, to a great extent. These will stand bad practice longer in draught, at home, which circumstance can easily be explained, as follows: Alcohol escaping, by opening so often, gives a fresh impetus or chance for a light after-fermentation, which fills the cask again with gas, and hence the opinion of many, that this or that man's wine will keep to the last drop. But such wines cannot be sent with safety any distance, as they are liable to spoil, burst

the cask, and even a man's stomach, if it is not well bound.

Ordinary foreign wines imported very often suffer on that account. Frequently they are sent before they are ripe, and as good luck will have it sometimes, arrive safely enough, with the exception of being turbid and forcing out the corks, if sent in glass. But there is this difference: what they lack in quality they make up in price. And I may here add in conclusion, because this holds good throughout, that wines are admired for their taste and the invigorating effect they produce; taste makes their price, and not the amount of alcohol they contain.

From this it may be seen, that the producing and making of fine wines is not all that is wanting. The well keeping and handling, also, when for use, is very important, and needs correcting as much as anything else.

In giving these statements I have in view, as may well be supposed, my own experience and practice in the winery of the Orleans Hills Vinicultural Association, and it is my firm belief that I justly can do so. I have had not even one cask of wine spoiled yet, even in the warmest weather. Besides, large shipments have been made East, and never yet a complaint of anything being spoiled has been made.

FORESTRY.

We might write volumes in favor of forest and timber tree culture and would gladly devote more space and time to the subject, if we could achieve a practical result by so doing. We are convinced that the large majority of the people are by this time thoroughly convinced of the great importance of preserving and cultivating forests wherever it is practicable. That tree-growing is practicable and can be made a success almost everywhere on the Pacific Slope, is well known to men who have given the subject an earnest thought. But we are certain that the people

throughout the country will not take hold of tree-planting in earnest, unless they are encouraged by some judicious measure, such as our last Legislature was willing and ready to inaugurate, and as the legislative bodies of many other States of this Union have lately had under consideration.

The law to encourage forest and timber tree culture in California, as passed by our Legislature, but unfortunately vetoed by our Governor, is universally considered the best of the kind yet proposed, and all the arguments that have been produced against this law may be summed up in the presumption that no one could be found who could be trusted with the expenditure of a few thousand dollars under the provisions of said law. Some of our leading journals denounced and ridiculed the attempt to pass the law at the time of its introduction in our Legislature, but they failed to suggest any more potent objection, and no sooner was the bill vetoed than these same journals repeatedly published articles in favor of forest tree culture.

So long as one is striving to demolish what another is working hard to build, we cannot succeed. If the law as proposed was objectionable, why not correct the mistakes and propose something better.

All we can now do, is, to wait for a more favorable time, which we earnestly hope and believe will come sooner or later. State aid we must have, as without it our people are not prepared to embark extensively in the timber raising business. In the meanwhile we think the matter ought to be agitated among our Horticultural, Agricultural and Scientific associations, so that we may purge obtuseness from high places and may stand fully prepared, when the opportunity again offers, to enlist State aid in favor of this all-important measure.

The State Board of Agriculture on

FOREST CULTURE.

No more important subject can engage the attention of a California Legislature than the encouragement of Tree and Artificial Forest

Culture. The most wisely managed and most enterprising and prosperous countries of Europe long since saw the importance and necessity of planting and cultivating forests; and England and Scotland can boast of their thousands of acres of majestic pines, beeches, and oaks, at home, and their extensive forests of valuable timbers in their provinces abroad. Germany has large groves of our valuable California redwood growing in Government forests, in connection with other groves of valuable timbers collected from all portions of the world, and these forests are the pride as they are monuments of the wisdom of the nation. Germany has a special Bureau of the Government, devoted to the cultivation of the science and practice of artificial forest culture, and the preservation and protection of the natural forests. France, Austria, and Russia, even at an early day, gave to forest culture the countenance and encouragement of the governments, and now the artificial forests of those countries are classed among the most valuable and highly prized government property. California naturally was but a poorly timbered country, and the limited natural forests within her borders have been most recklessly destroyed. While it is one of the first duties of the State to check this reckless destruction of the natural forests, it is a matter of no less importance to encourage and foster the growth and cultivation of artificial forests.

Comments on our defeated Forest Bill.

FORESTRY LAWS.

As our reference to the California Tree Law and brief synopsis of the act, given last month, has elicited considerable inquiry, many expressing a desire to see the act itself, we this month publish the act entire. Senator Betge has, by this measure, acquired a position among the great benefactors of the race. No one move, in our opinion, has ever been made by any man in our nation that promises greater results than this. Other States will follow the example, and soon we shall find upon the statute books of every State, laws for

the growth of forest trees, having vitality, and puissant for the end desired. By the perusal of this act any observer can readily see how much more effective this law would be than those encouraging tree planters, which has been done by several of the States. What surprises us most, is, that the Governor of California should veto the bill after it had passed both houses by a large majority.

Exchange.

The *Rochester Express* thinks that California never made a wiser move than when she engaged a professional arboriculturist, at a salary of \$1,500 a year, to attend to the setting out of forest trees in different parts of the State. Our forefathers found two fancied enemies when they landed on this continent—the Indians and the forests. They at once proceeded to exterminate both, and their fury, transmitted to their children, has been nearly successful. We may find it difficult to regard the Indian as a friend, but our feelings toward the forests have changed. We want trees judiciously distributed everywhere—on the mountain side, in the field, along country roads, in front of city residences, in parks and gardens; everywhere some, nowhere too many.

GRASSES FOR FIXING A SHIFTING SOIL.

Several inquiries have recently been made for a kind of grass adapted to growth on the sandy borders of our lakes and the ocean, for the purpose of fixing the shifting sandy soil. Several kinds of long-rooted, deeply penetrating grasses seem to be well adapted to that purpose. On the shores of Lake Michigan the long-leaved *Calamagrostis* (*C. longifolia*, Hooker) takes possession of the sandy ridges, in connection with several species of low willows, and makes a permanent barrier against the encroaching waves. The sand-reed (*Calamagrostis arenaria*, Roth.) occurs on low, marshy borders, not only of the great lakes, but also of the ocean coast, both in this country and in Europe. Indeed,

in some instances the planting and preservation of this grass have been provided for by law. The roots are very tough, and are used, for making brushes and brooms, and the leaves are used for thatching, for mats, and for paper. For forage this grass is valueless, being rejected by all kinds of animals.

This subject has excited attention in Europe, as will be seen by the following extracts from an article on "The Caspian Willow and Buffalo Grass as a means of fixing blowing sand," recently published in the "*Landwirthschaftliches Centralblatt fur Deutschland.*"

The Caspian Willow has been recommended lately for fixing blowing sand. This species, however, does not come from the Caspian Sea, as one might conclude from the name, for we have never seen it there, at least on the western side; but it grows without doubt all over the Empire of Russia, and even to the interior of Siberia. Possibly its home is the sandy wastes of Southern Siberia, and from thence it came to us by way of Astrachan. At any rate we have received it through Poland. The introduction of home plants from foreign countries on account of their utility is not a new thing. The meadow-grass (*Phleum pratense*) was taken from England to North America, and there discovered to be a good fodder-plant. Englishmen found it cultivated, and took the seed back to Europe, where ever since it has been highly esteemed under its North American name. The Caspian Willow is probably a small-leaved variety of another species, which has been found in Pomerania by Wildenow, and received the name of *Salix Pommeranica*, but which is not different from the Linnean *Salix daphnoides*. Many, however—among them Wildenow—consider it as a distinctive species under the name of *acutifolia*. Besides the smaller leaves, green on the under surface, it grows more rapidly on sandy ground, does not soon become a tree, and has slender hanging branches. As a binding plant, *S. acutifolia* has the preference over the ordinary *S. daphnoides*. *S. acutifolia* also has the merit of having its branches covered with a

purplish bloom, and thus giving a charm to the landscape when seen against a dark background of evergreens. It also unites well with the red twigs of *Cornus alba* of Siberia. We can also recommend *S. longifolia*, Host., (commonly catalogued as *S. dasyclados*, Winton,) to protect sandy shores. We saw it grow luxuriantly on a sandy field belonging to the Flottbecker school of forests. The shoots attained a length of six to eight feet, and made good withes in winter, which were used in place of those that previously had to be purchased at a high price.

A grass has recently been brought into notice for the purpose of fixing sandy soil, which is widely distributed through North America, from Canada to Texas, and furnishes food for the buffaloes or bisons. From this fact it has acquired the name of buffalo-grass, but is known scientifically as *Buchloe dactyloides*. This grass makes long runners, and consequently covers the ground rapidly. It is very nutritious, which adds to its value, and if it will grow as well with us as it appears to in New Holland, we shall have a fodder-plant of more value than lupines; just the thing for the barren sands of the Mark and other northern districts.—*From the Monthly report of the Department of Agriculture.*

[It will be well for our Park Commissioners to give this matter some little attention. Two thirds of the park grounds consist of drift sands, and we cannot see how they can accomplish much good without establishing some vegetation to check the continuous drifting of the barren sand-hills. This matter is very important for this coast, and particularly for San Francisco, yet we see no effort made to experiment in this direction. Grasses and other vegetation which may answer every purpose in the East and Europe, may not be adapted to our dry climate; but we are satisfied that our drift sands can be reclaimed with little expense, if any one will demonstrate a practical method. An early experiment on the part of our Park Commissioners is very desirable.—Ed.]

[From the Melbourne Times.]

HORTICULTURE.

Being an Essay read before the Horticultural Society of Victoria, by Mr. W. H. Treen, and ordered by the above Society to be printed.

Horticulture includes, in its very extensive signification, the cultivation of all kinds of vegetables, ornamental plants, and fruits, also the formation and management of rural scenery for the purposes of utility and embellishment. The earliest efforts of the various inhabitants of different countries to emerge from barbarism was directed to the tillage of the ground. This proceeding is indeed the first act of civilization, and gardening is the first step in the career of refinement; at the same time, it was, and still is an art in which man last reaches perfection.

When the ancient warriors exchanged their wild and wandering life for the more confined and peaceful pursuits of cultivators, the harvests, herds, and flocks took the place of simple gardens. Mechanical arts were next developed, followed by commerce, and soon succeeded by manufactures. As wealth increases, ambition manifests itself in the style and beauty of residences, entertainments, and equipages: science, literature, and other arts are unfolded, when a high degree of civilization is attained. Not, however, until all this has taken place does Horticulture become cultivated as one of the ornamental arts. Even in ancient times the city of Thebes had its numerous brazen gates, stupendous pyramids and temples, the then wonders of the world, before the hills and plains were celebrated for their beautiful gardens. According to ancient history, the Queen of the East had "heard of the fame of Solomon," his fleets had brought him gold of Ophir and treasures from Asia and Africa, before he "made orchards" and delighted to dwell in gardens, and planted the vineyard of Baalhaman.

The Persian Empire had extended from the Indus to the Archipelago, when the paradise of Sardis excited the astonishment of a

Spartan General, and Cyrus mustered the Grecian auxiliaries in that spacious garden. Athens had reached the height of her glory when Cimon established the Academus, and presented it to his fellow-citizens as a public garden. Numerous others were soon after planted and decorated with temples, statues, and monuments, more particularly during the polished age of Pericles, when Plato taught philosophy in the groves and gardens. Rome had subjugated the world, and emulated Athens in literature, science, and the arts, previous to the handsome villas of Pompey, Cæsar, Crassus, and others being erected, environed by magnificent gardens.

It has been also thus with modern nations. Horticulture long lingered in the rear of other pursuits; the majority of common fruits, flowers, and vegetables which had been collected by the Romans from Asia and other climes, were successfully extended over Western Europe, but so slow and gradual was their progress that, until the reign of Henry VIII. scarcely any table vegetables were cultivated in England, the small quantities then consumed being chiefly imported from Holland.

Gardening appears to have been first brought into England for profit about the commencement of the seventeenth century. Our ordinary fruits, peaches, plums, pears, cherries, melons, etc., were luxuries but little enjoyed before the time of Charles II., who introduced French gardening at Hampton Court, and had the first greenhouse built. It was at this period that Evelyn translated the "Complete Gardener." In France, Germany and Italy, a formal but imperfect system of gardening was practiced with success, although generally Horticulture was in a languishing condition until the commencement of the eighteenth century, when it all at once attracted the attention of some of the first men in Great Britain. Eventually Bacon was the prophet, Milton the herald, and Addison, Kent, and Pope the champions of true taste. The principles which were developed in their writings were successfully ap-

plied by Bridgeman, White, Brown, and Eames, the system then becoming popular, and rapidly extended.

The history, literature, and science of gardening open a wide field for study and inquiry. The pleasure which gardens afforded men even in the earliest times, appears in the account of the Garden of Eden. The bards, scholars, and philosophers of the classic ages have transmitted descriptions of the gardens of the ancients. Passages are to be found relative to this subject in Virgil, and Horace; Pliny's "Natural History," and Columella's book on Gardens, contain the most correct information on Roman Horticulture.

Italy was, however, the first country to produce books on Agriculture and Gardening. The Germans, as in all branches of letters and science, have an immense number of books in the department of gardening, more especially on the subject of planting and forest trees. The Dutch have on the other hand, excelled more in the practice than the literature of gardening, while Russia and Poland have produced but few original works on Horticulture or Agriculture. At the same time, in St. Petersburg at the present, there is an extensive imperial botanical garden under the direction of able professors. The horticultural literature of France is of an early date, and the authors are both numerous and many of them of the highest repute.

In the United States of America have appeared, of late years, very excellent works relating to Gardening and Agriculture, highly creditable to the authors and the country; many of these works are now largely circulated and held in great estimation.

The greatest improvements in horticulture have, however, been effected within the last half century. During the age of Cicero a formal kind of gardening prevailed, characterized by clipped hedges and long avenues of trees: Pliny gave an account of his "Villa at Laurentum," and, from the description, it was more distinguished for its numerous superb edifices, extensive prospects, and the systematic arrangement of the pleasure grounds,

than for the improvements and decorations of the surrounding scenery, in accordance with those principles which are derived from a close observance of the pleasing effects of Nature. The rural residences of the Romans appear to have been mere places of temporary retreat, and were planted generally with odoriferous flowers and shrubs. During the 12th century, the monks were the only class of persons who attended to ornamental planting and gardening.

After that period the style throughout Europe consisted in tall hedges, square parterres fantastically planted, straight walks, and rows of trees uniformly placed and pruned. Improvement in horticulture was slow indeed from the time of the Emperors Titus and Vespasian until the reign of George III.

It is certainly true that Hampton Court was laid out by Cardinal Woolsey; Greenwich and St. James' Park by Le Nortre during the reign of Charles II.; and in that of George II., Queen Caroline enlarged Kensington Gardens, and formed the Serpentine; but Lord Bathurst was the first who deviated from straight lines. For a long period the Dutch system prevailed—the shearing of yew, box, and holly into horrible figures of various kinds, so that if you walked in their gardens by moonlight you were continually haunted. This was carried to such an extent that the absurdity became contemptible, and a better and more natural taste was induced.

It was, however, reserved for Kent to realize the beautiful descriptions of the poets, and carry out the ideas of Milton, Pope, and Addison. He, in fact, leaped the ancient fence, and saw at once that all Nature was a garden of itself. He bade adieu to all stiff, formal modes, dealing in none but in the true colors of Nature; the living landscape was chastened and polished, never transformed. This improved style of horticulture quickly spread, and became everywhere apparent in Great Britain, soon attracting the attention of the other nations, and English gardening became the designation of all that was charming and beautiful. Within twenty five years

of the establishment of the first London Horticultural Society, upwards of fifty similar institutions were established in Great Britain, England still maintaining the first rank in the art, with France making efforts to rival her. The first Horticultural Society established in Paris was in the year 1826. In two years afterward it had no less than 2,000 paying members, including the court and most of the nobles of distinction. Holland has been distinguished since the period of the Crusades, for her flower gardens, vegetables, and plantations of fruit trees, England being still in a measure dependent upon her florists for the most splendid varieties of bulbous-rooted plants. In the United States a like spirit has yearly become more developed, and here in Australia we are following the example, having brought our home ideas with us—determined, I trust, to make yearly our homes more beautiful and interesting.

[To be continued.]

ORCHID CULTURE.

[Continued from page 235 of last number.]

We will give a few more varieties, as described in the *Gardeners' Monthly*, by Mr. James Taplin, Manager, to Geo. Such, Esq., of South Amboy.

Lycaste Skinneri, being one of the most easy to grow and flower, is very handsome and lasts a long time in bloom. This is a South American variety, or rather species, of which there are many varieties, both in size of flower and in color. The same plant often flowers twice in the year and lasts a long time in perfection. We have a plant that has been in bloom over two months, and there are more buds coming out, so that it will probably last until the end of November. [This was written, we suppose, in October.—Ed.]

These plants are recommended for winter flowering, but we have them in flower at all seasons.

The *Lycaste* are best grown in pots, half filled with crocks, to secure good drainage,

and potted in fibre from peat, from which the fine soil has been sifted, to which add some live sphagnum moss and a little white sand. It is not necessary to raise the soil for these above the level of the pot, but do not bury any part of the bulbs; there is not any part of the year fixed for repotting, but the proper time is, when they are making young shoots and roots. They require abundance of water while growing, less when growth is complete, and never water over the flowers or they will decay, and the young shoots may also do so if water is permitted to lodge in the heart.

These plants will grow and flower in any house not lower than 45 degrees, with a slight shade from bright sun from March to October. The plants will also last a very long time in flower in a sitting-room. Frequent sponging of the leaves of these as well as of all of the Orchids is necessary, if only to remove dust.

Dendrobium nobile.—If I were limited to growing only one variety of Orchid, I think I should have most satisfaction from this variety; others may be more rare and expensive, but this one may always be depended upon for flowering well under the simplest treatment, and certainly few plants are more lovely when in flower; a well established plant in a six inch pot, will give comparatively as many flowers as a specimen of the largest size. Many growers cultivate their plants in a basket, but I consider this a mistake, for it is naturally of upright growth, and I do not recollect ever seeing plants so vigorous as when grown in pots or in a frame. I consider another mistake is frequently made with this and other Orchids by keeping them so dry that the leaves drop off and the shoots shrivel. I am aware this is done under the idea that it will make the plants flower freely, but if more flowers are produced, they are all smaller and do not last so long, and the young growth is weakened. The extra drying is not necessary at any rate for this variety, and a moderate quantity of foliage is an addition to the beauty of the plant when in flower.

The above variety being so common, there are probably many large and handsome specimens in the country, and it being a free grower, any one may get up a nice plant in a short time. I began with one of our best plants three years ago, when it was quite small, after it had been growing in an amateur's greenhouse for several years, and was getting smaller instead of increasing in size. It is now four feet in diameter, with shoots three feet long and thick in proportion; many of the shoots are covered with flowers for two feet of the length. It has been in flower now (April 8th) for six weeks, and will last for some time longer. I gathered 150 flowers from it at Easter, and they are not missed.

If the plants require repotting, do it after blooming, but large plants, properly treated, will not require fresh pots for several years. The soil I use is the fibrous part of peat and sphagnum moss in about equal parts. Fill the pots nearly full of broken pots, (not "coke" as I was made to say in my last,) shake away all of the old soil, if decayed, and fill in with fresh without breaking the roots, raise well above the pot; it will then take abundance of water, both at root and overhead during the growing season; shade from bright sun until growth is finished, then gradually expose to full sun. I have placed the plants out of doors in full sun with good results. The plants will winter in any house not below 40 degrees with only water enough to prevent shriveling, and shaded when flowers commence to open, they will last a long time. This is a plant little subject to insects if in good health.

CHANGING THE COLORS OF FLOWERS.—The *Mirror of Science* says that a case is known of a yellow primrose which, when planted in a rich soil, had the flowers changed to a brilliant purple. It also says that charcoal adds great brilliancy to the colors of dahlias, roses and petunias; carbonate of soda reddens pink hyacinths, and phosphate of soda changes the colors of many plants.

ON THE ECONOMIC VALUE
OF CERTAIN
AUSTRALIAN FOREST TREES,
And their Cultivation in California.

BY ROBERT E. C. STEARNS.

Australian forest trees propagated from the seed, with perhaps a few exceptions, thrive remarkably in California; the climate and soil appear to be nearly or quite as favorable to the growth of these exotics as of the native forest forms.

In many of the principal towns in this State, especially in and around San Francisco, in the neighboring city of Oakland and adjoining towns on the easterly side of San Francisco bay, fine specimens of many of the Australian forest species are exceedingly numerous. The most popular of these belonging to the genera *Acacia* and *Eucalyptus*, have been planted for ornamental and shade purposes; the light feathery fern-like foliage of some of the Acacias, their gracefulness, beauty and color, combined with their rapid growth, present so many advantages as to fairly entitle them to popular esteem. Of the Acacias recommended by Dr. Mueller on account of their economic value,* I am not aware of any being cultivated in this State for that object. *A. decurrens* (= *A. mollissima*) also *A. lophantha* and some other species, are frequent, and highly prized for ornamental purposes: from twenty to thirty species are enumerated in the catalogues of the principal nurseries.

The many valuable properties of the species mentioned in the foot-note, combined with rapidity of growth, would warrant cultivation on an extensive scale, which, if judiciously conducted, would be highly advantageous to the State and yield a handsome return upon the capital invested. Mueller says that the wood of *A. decurrens*, popularly known as the "Black Wattle or Silver Wattle," can be used for staves, but its chief use would be to

afford the first shelter, in treeless localities, for raising forests. Its bark rich in tannin, and its gum not dissimilar to Gum Arabic, render this tree also important.

A. homalophylla, has a "dark brown wood, is much sought for turners' work on account of its solidity and fragrance; perhaps its most extensive use is in the manufacture of tobacco pipes."

A. melanoxylon "is most valuable for furniture, railway carriages, boat building, casks, billiard tables, pianofortes (for sound-boards and actions), and numerous other purposes. The fine-grained wood is cut into veneers. It takes a fine polish and is considered equal to the best walnut." Under favorable circumstances it attains "a height of 80 feet with a stem several feet in diameter." This species requires a deeper and moister soil than *A. decurrens* and *A. lophantha*, which are especially recommended for their ability to resist drought, and therefore particularly applicable to treeless and sterile areas in the southern part of California, and the adjoining country, where the temperature does not decline below 10 degrees.

The peculiar yellow displayed in the China silks and other articles, is obtained from the yellow flowers of a species of *Acacia*, and is of an exceeding permanent character.

The Acacias are easily propagated from seed, as I have (with some species) practically tested; and it is not unlikely that the flowers of most of the species, which are yellow, might be equally as valuable for the dyer, as the variety cultivated or used by the Chinese.

Of the Eucalypti, *E. globulus* is very common in California, and easily cultivated; it is the Blue Gum of Victoria and Tasmania.

"This tree is of extremely rapid growth and attains a height of 400 feet, furnishing a first-class wood; shipbuilders get keels of this timber 120 feet long; besides this they use it extensively for planking and many other parts of the ship, and it is considered to be generally superior to American Rock Elm. A test of strength has been made be-

* *A. decurrens*, Willd, also *A. homalophylla*, Cunn, and *A. melanoxylon*, R. Br.

tween some Blue Gum, English Oak and Indian Teak. The Blue Gum carried 14 lbs. weight more than the Oak, and 17 lbs. 4 ozs. more than Teak, upon the square inch. Blue Gum wood, besides for ship building, is very extensively used by carpenters for all kinds of out-door work, also for fence rails, railway sleepers—lasting about 9 years—for shafts and spokes of drays, and a variety of other purposes.”*

Of the rapid growth of this species of Eucalyptus and the facility with which it is propagated, most people in California who have had any experience with it are familiar; but as perhaps few persons who have specimens of it growing upon their grounds or in their yards are aware of its value otherwise than for ornamental purposes, I have deemed it a matter of interest as well as of importance to quote from Dr. Mueller’s valuable paper. Having propagated the Blue Gum from the seed and raised many specimens under not particularly favorable circumstances, I can endorse the remarks of the author from whom I have quoted. An instance of rapid growth immediately under my observation, is that of a specimen purchased by me of a nurseryman, which at the time of planting (Jan. 5th, 1871) measured from the ground level to the extreme tip six and a half feet, and in about eleven months (Dec. 8th, 1871) had reached a height of a trifle over fifteen feet; the diameter of the stalk when set out was half an inch, and at the final measurement one and three quarters inches. I am prepared to hear of instances far exceeding my figures, but it should be borne in mind that we had very little rain after this tree was planted, and furthermore that the locality was upon nearly the highest ground in Petaluma. This tree was occasionally, but only moderately watered during a part of the time. Other trees of this species planted at the same time, also made a

remarkable growth; specimens raised by me from the seed, whose growth I have noted, show a gain of ten and a half inches in twenty-one days, or half an inch per diem.

The development of the lateral branches is as surprising as its perpendicular growth.

George C. Potter, Esq., of Oakland, informs me that specimens upon his grounds nine years old, show a diameter of twelve inches.

Of the large plantation of Eucalyptus of the Blue and Red species made a few years ago by Mr. J. T. Stratton,* of Alameda, I hear indirectly that the trees have done well. I hope at a future meeting to be able to learn from Mr. Stratton, and inform the Academy more definitely of the success thus far, and prospects of this highly commendable and important enterprise.†

]To be continued.]

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THIRD SESSION
OF THE
AGRICULTURAL CONGRESS,
AT ST. LOUIS.

We have before us an extensive report of the transactions of this Congress, as published in *The American Farmers Advocate*, and we give a few of the most interesting points.

It was arranged between the “National Agricultural Association” and the “Agricultural Congress” to meet together in order to consolidate the two Associations into one. This effort resulted in the establishing of a “National Agricultural Congress.”

The following officers were elected: *President*, John P. Reynolds, of Rockford, Ill.; *Secretary*, Charles W. Greene, of Jackson, Tenn.; *Treasurer*, Lee R. Shryock, of St. Louis, Mo.

* Report of the Commissioner of Agriculture, 1870, page 232.

† I do not refer to other forest plantations made in California, by Mr. Aiken or Mr. Edwards, and which I sincerely wish may be successful, for the reason that in this paper the chief object has been to call public attention to certain Australian forms.

* Vide “The Principal Timber Trees readily eligible for Victorian Industrial Culture, etc. etc., by Ferd. Von Mueller.”

A number of valuable essays were read, of which we mention: "Influence of Forests upon Rainfall," by Maj. T. W. Woodward, of South Carolina; "The Proper Sphere, Objects and Duties of Agricultural Colleges in the United States," by H. N. McAllister of Pennsylvania; "Meteorology and an International System of Crop Reports," by Comm. M. F. Maury, of Virginia.

The following Constitution was adopted:

ARTICLE I.

Sec. 1. This organization shall be called the "National Agricultural Congress."

ARTICLE II.

Sec. 1. Each State and Territory shall be entitled to two representatives for each and every State organization engaged in fostering agricultural pursuits.

Sec. 2. The United States Department of Agriculture, and each agricultural school or college with an endowment of not less than \$20,000, shall be entitled to one representative.

Sec. 3. Each regularly organized agricultural and horticultural society of not less than fifty members, which shall contribute to the support of this organization, shall be entitled to one representative.

Sec. 4. Representatives shall, in all cases, be active members of the organization they represent, and shall present credentials signed by the President and the Secretary of their respective organizations, and the certificate shall state the number of members of such body.

ARTICLE III.

Sec. 1. Each representative shall be entitled to one vote; no voting by proxy shall be permitted; all votes, except in elections, shall be *viva voce*; and one member of the Society may demand a division; ten members may demand the ayes and nays, which must be entered on the journal; a vote by ayes and nays shall be by States, and each State shall have one vote.

ARTICLE IV.

Sec. 1. A President, Secretary and Treasurer, and one Vice-President from each State and territory, shall be elected at the annual meeting, by ballot; the President, Secretary and Treasurer, on a majority of all the votes cast; but the Vice-President for each State shall be chosen by the delegates of the respective States.

Sec. 2. The term of service of the President, the Vice-Presidents, the Secretary and Treasurer, shall not expire until the close of the annual meetings of each year.

Sec. 3. The President and Vice-Presidents of this Congress shall constitute an Executive Council, and shall have vested in them the administration of the affairs of this Association. They shall serve until their successors are chosen. Five members of this council shall constitute a quorum for the transaction of business. In the absence of the President, they shall choose a chairman.

Sec. 4. The duty of transacting the business of this Association *ad interim* shall devolve upon the President and Secretary. The Secretary and Treasurer shall receive such compensation as the Council may determine.

Sec. 5. Special meetings of the Council may be held on the call of seven members thereof, twenty days' notice thereof to be given by the Secretary.

Sec. 6. In case of the resignation or removal of any member of the Council, his place shall be promptly filled by the State or Territory from which he was chosen in the same manner that representatives at large are chosen, and should they fail to appoint, the vacancy shall be filled by the President; a vacancy in any State or territory shall be filled in like manner.

Sec. 7. It shall be the duty of the Executive Council to recommend such measures as will promote the interests of the Congress.

Sec. 8. They shall provide for full and accurate records of the proceedings of the Council and the meetings of the Congress;

they shall submit them at the annual meetings, with a statement of such business as may require attention, and shall apportion to each constituent body, State or local, the assessment for the expenses of the Congress.

Sec. 9. The Treasurer shall give security in such sum as may be required by the Executive Council, in no case to be less than the amount assessed upon the constituent bodies; shall receive and account for all moneys belonging to the Congress, and collect all assessments and sums due; but he shall pay out and dispose of the property of the Congress only on a warrant of the Secretary, approved by the President. The Treasurer shall make a report at the annual meeting.

ARTICLE V.

Sec. 1. The annual meetings of the National Agricultural Congress shall be held at such time and place as a majority of those present at the previous meeting may have determined.

Sec. 2. Notice shall be given to each of the constituent bodies, by the Secretary, at least thirty days previous to the annual meeting, of such subjects as may be presented for their consideration.

ARTICLE VI.

Sec. 1. The expenses of this Congress shall be provided for in such manner as the Executive Council may determine.

Sec. 2. The Executive Council shall meet, on the day previous to the assembling, to arrange the order of business and determine the mode by which subjects may be brought before the meeting for consideration.

ARTICLE VII.

Sec. 1. This Constitution may be amended at an annual meeting by a vote of two-thirds of the delegates present.

Sec. 2. The President shall, within two months after adjournment, appoint one Vice-President, *pro tem.*, from each State and Territory not represented.

Of many important resolutions, which were passed, we mention:

WHEREAS, We recognize the agricultural

and horticultural press of our country as having a common aim and sympathy with us in advancing the interests of the agriculture and horticulture of the nation, and as being the best medium through which to disseminate the facts and principles which it is the object of this organization to promulgate. Therefore, be it

Resolved, That we earnestly recommend to the county and district agricultural and horticultural societies throughout the country, the propriety of offering copies of the best agricultural and horticultural periodicals published in their respective States, or sections, as premiums on articles for which money or silver ware, of equivalent value are usually given; and that they aid, by all other legitimate means in their power, as corporate bodies, to extend the circulation of such periodicals.

Of Committee Reports we give one on Forest Culture, as read by Mr. R. S. Elliott, of Kansas.

"The forests of the continent are rapidly passing away. Large districts in the Atlantic States are already stripped of their most valuable timber. In less than twenty-five years the accessible forests in the region of the great lakes, on the upper waters of the Mississippi, and in the British provinces adjacent, will be exhausted. The industrial progress of the Southern States is consuming trees both deciduous and evergreen at an accelerating rate. In the Rocky Mountain regions (where the hard woods are unknown) the pines, spruces and cedars are disappearing before the farmer, the miner, the architect and the railroad builder. On the Pacific coast, the immense home demand, ever increasing, together with the exportations to England, France, Australia, China, Japan, South America, Mexico and the Pacific Islands, foretell the exhaustion of the California timber trees in twenty years; and those available in Oregon and regions northward within a comparatively brief period.

The demand for the product of the forest constantly increases. The supply constantly,

and in a growing ratio diminishes, and prices constantly augment. The causes now in operation and daily gaining strength, can have but one effect, that of exhausting all the available sources of supply within the lives of persons now in existence.

This appalling prospect, the view of which becomes more vivid the more it is studied, should arouse the farmers, land-owners and legislators. It is vital to the future welfare of our people that the reproduction of our forests should at once begin, not on a small scale or in a few localities, but in a large measure, and co-extensive with our settlements. A broad statemanship in the national and State Legislatures should at once take up the subject and deal with it year by year, until the great work shall be adequately begun.

The few and hesitating experiments in isolated localities, which have been made in the growing of forest trees, have no significance, so far as the general supply of future wants is concerned; but they are of inestimable value, in so far as they teach the ease and comparative rapidity with which forest trees, useful to the farm, to the workshop and to the railroad may be produced, and in so far as they show that the agricultural men of the country have already (in advance of the men in high political life) appreciated the necessities of the present and the future. They are also of value in demonstrating, that, however remote the profit of forest culture may have been heretofore considered, it is yet true that the artificial plantation may, in a very few years, by judicious planting at first, be made to yield current returns equal to the cost of planting and care.

Modifications and ameliorations of climate, due to the destruction or extension of forests, have begun to enlist serious consideration. There can be no doubt of the beneficial influence of forest areas equal in aggregate to one-fourth or one-third of the entire area of any extensive region. But however important climatic effects may be in this connection—however desirable it may be that the crops and animal life of the farm should enjoy the

benefits of forest influence and shelter, the need of extensive forest planting is imperative enough without taking into consideration its effects on atmospheric movements, temperature or rainfall. The store, the dwelling, the shop, the factory, the railroad, the wharf, the warehouse—all these and more demand action—demand it in the name of domestic life, of farm economy, of commerce, of all the arts of our civilization. What we shall save in climate by preserving forest areas, or gain by their extension, is just so much to be enjoyed in addition to other compensations. The less violent sweep of the winds in Illinois, as compared with forty or fifty years ago, due to the obstruction caused by buildings, hedges, fences, orchards, artificial groves and wind-brakes on the prairies, speak to the understanding of plain men more forcibly than any language we can use.

There may be those who regard forest planting as a work of mystery and grandeur beyond the reach of the common farmer. This is a mistaken view. Nearly all the most important deciduous trees may be grown from seed as readily as Indian-corn. Of many species the seed may be sown broadcast and harrowed in, if the planter prefers to use the seed lavishly rather than give more care. The seeds of many trees may be planted either in Fall or Spring as may be most convenient. Some of the softer wooded trees grow from cuttings as readily as the grape; and with most deciduous trees the seeds or cuttings may, if desired, be at once planted where the trees are to stand; nor need the most unlettered farmer deny himself the pleasure and profit of the Conifers and Evergreens. The plants, furnished at prices which are insignificant in comparison with their value, are abundant at reliable nurseries, and, with the simple precaution of keeping the roots moist, and proper care in planting, are as sure to grow as any other tree or shrub.

No part of the earth is blessed with a greater variety of useful trees, both of the hard and soft-wooded kinds, than the United States; and these native trees can all be

readily grown in artificial plantations. It is not alone the Pines and Spruces and Cedars that make up our valuable timber. The harder wooded trees—the Ash, the Oaks, the Hickories, the Maples, the Walnuts and the Chestnuts—of which we have heretofore been so lavish—have a value in the arts, that no figures can estimate. They may be said to be essential to the continuance of our present civilization. New forests of these trees must be grown, or our grandchildren must depart from our modes of life. West of longitude 100° from Greenwich, the material of a common wagon does not grow on the continent, and we are fast exhausting it East of that meridian. Ohio and Indiana, Kentucky and Missouri have girdled and burnt hardwood trees, that would to-day be worth hundreds of millions of dollars. If failing springs and protracted droughts and extremes of temperature suggest replanting, the people may safely rely on a future market, more certain than that for any other product of the soil.

JOHN A. WARDER, }
 R. S. ELLIOTT, } *Committee."*
 W. C. FLAGG, }

To carry out the views embodied in this report, the following resolutions were adopted:

1. That we recommend farmers throughout the United States to plant their hilly or other waste lands, and at least ten per cent, of their farms, with trees, in such manner as to provide shelter belts or clumps of rapid growing and useful timber.

2. That we solicit the Legislatures of the several States to pass laws providing bounties for planting trees, encouraging the planting of the highways, and for the provision of State nurseries of young timber trees, and also the appointment of an arbor day for the annual planting of trees, as has already been done in the State of Nebraska.

3. That we ask the Congress of the United States to require, so far as practicable, that railroad companies and settlers hereafter receiving the benefit of the homestead and other acts donating lands, shall plant with

timber trees one-tenth of the land so donated.

4. That we urge upon the professors of agriculture in the several colleges to give their special attention and investigation to the important subject.

5. That we ask the railroad companies of the country whose necessities have led to the destruction of so large a quantity of our forests to co-operate with us in restoring the timber growth, and that they will provide for the planting of such lands as may be at their disposal and as are adapted to the purpose, with timber trees.

The Congress, which met in May last, adjourned to meet at Indianapolis, Ind., on the fourth Wednesday in May, 1873.

Editorial Portfolio.

OUR HORTICULTURAL EXHIBITIONS.

It is now almost a century since Exhibitions of Agricultural and Horticultural products were inaugurated in France. The utility and importance of such exhibitions were soon recognized by other nations, and during the past twenty years they have ranked among the most important, most attractive and most instructive features of civilization.

While nations are endeavoring to excel each other in the grandeur and magnitude of "International Exhibitions" and "World's Fairs," every State, and nearly every county in this Union, seems to be striving to have an exhibition of its own.

We have frequently expressed our opinion as to the utility of fairs and exhibitions of this kind, and we sincerely believe that they greatly stimulate the better development of new and important industries, particularly in a recently established country such as ours. They demonstrate the resources and capabilities of the regions, establish a friendly rivalry in the best productions, and bring the tillers of the soil into closer relation with each other.

We are well aware that our agricultural and horticultural exhibitions are not exactly

what they should be; such, however, may be said of many other institutions of this country. But all who are well disposed toward fostering the true interests of our State, should take more interest in the management of our agricultural and horticultural associations, and bring their influence to bear toward the most needed reforms. While the management of our fairs and exhibitions is left entirely to a few interested parties, those who neglect to take part in such management must blame themselves if affairs are carried on unsatisfactorily. Exhibitions of this kind should be the work of the people, and not of a few individuals.

These remarks are prompted at this time by the approaching of the season for fairs and exhibitions. The *Bay District Horticultural Society of California*, now nearly two years in existence, will open its Second Annual Horticultural Exhibition on the twenty-second day of August, and will maintain it for fifteen days.

The State has given aid to the Society to the amount of \$2,000, and through most strenuous efforts of some of its members, the hall at the corner of Post and Stockton Streets has been purchased in the interest of the Society for the purpose of holding exhibitions therein.

At a very heavy expense the hall, now known as the "Horticultural Hall," has been enlarged and fitted up in so pleasing a style as to entitle the managers to our warmest commendation. All that is now really requisite is, united action on the part of all our horticulturists to make the pending Exhibition one of unparalleled success. This *can* be done, and we feel every confidence that it *will* be done, notwithstanding the antagonism of the customary few who, as usual, rather tear down than build up. We are confident that *all* are welcome to take part in the enterprises of the Society; nevertheless, there are some who strive to discourage by saying, "It will not pay." We do not advocate the getting up of exhibitions for the sordid purpose of making money out of them; we think

there should be a higher ambition than merely *exhibiting for pay*.

The purpose of horticultural exhibitions is, to afford opportunity for friendly competition and the display of patient skill in raising the varied products of orchard and garden; and premiums are offered to stimulate exertion and to compensate, in some degree, for the extra expense and labor incurred in special preparation, which is frequently considerable; it being found that while with some competitors of generous nature, the fact of success is sufficient recompense for their exertions, with others, some tangible reward must be offered to induce an effort. This competition promotes friendly intercourse between cultivators, and stimulates to greater care, ingenuity and skill in raising their specimens, and necessarily improves general cultivation. Another purpose is, to display to the general public these varied products under the most favorable circumstances and to the best advantage; to familiarize them with many products of the nurseries, greenhouses and gardens, which but for such opportunities would be known but to very few; to demonstrate how easily and at what small expense their homes may be gaily, even superbly decorated with Nature's sweetest products, and thus foster a taste for one of the purest delights that can be enjoyed at home in the bosom of a family.

It is necessary to charge fees for admission, as very considerable expenses are incurred in the indispensable preparations for such exhibitions. The premiums amount to a large sum in the aggregate, frequently exceeding the amount of State aid; and the current outlays at such times are large, while the revenues of the Societies are derived solely from the subscriptions of the horticulturists themselves, and from some few friends who take an interest in their efforts. When balances in their favor accrue to the Societies from these exhibitions, they are devoted to adding to their libraries and similar laudable purposes.

The effort to establish a Horticultural So-

ciety, with its Horticultural Hall, Reading-room and Horticultural Exhibitions, deserves great credit, and we hope that the people of San Francisco and of the State at large will heartily indorse the invitation by filling the hall, to its full capacity, from the opening day to the closing one. We can assure the public that the exhibition, and all the arrangements connected therewith, will be managed in the most satisfactory manner. Rich and poor, young and old, all ought to devote some time to the pleasurable inspection of the various horticultural products of our soil, the result of our patient and skilled labor!

LOQUAT FRUIT.

Through the kindness of Col. Warren, of the *California Farmer*, we have been presented with some fruit of the *Loquat* (*Eriobotrya Japonica*, syn. *Mespilus Japonica*, also popularly called *Japanese Medlar*.) This fruit has ripened at Col. Warren's garden on Pacific Street, San Francisco, and is, we believe, the first ever ripened in this city. Some two months since we were presented with some of the ripe fruit grown at the garden of E. B. Crocker, Esq., of Sacramento, which shows evidently that the fruit will ripen earlier in a warmer locality.

This fruit is roundish, the size of a small Crab Apple, of a pale orange color, flavor agreeable and not very unlike the Pine Apple; we think it might become a very desirable and popular dessert fruit, certainly excellent for jellies, etc. There are now many trees of the *Loquat* growing around San Francisco and throughout the country, but the trees are young yet and therefore very few in bearing. The tree itself is very ornamental and perfectly hardy wherever the Orange will grow in the open air, *i. e.*, in our valleys and along our coast-range.

The *Loquat* was introduced into France in 1784, by Thunberg, yet but few are under cultivation and those principally for ornament. The flowers of the *Loquat* appear in

Autumn, and as we have no severe winter in California, the fruit in most cases will be apt to ripen here.

Its leaves are evergreen, large, oblong, of a rough appearance, bright green above and downy underneath.

We think that the *Loquat* may be cultivated successfully, and perhaps profitably in California.

MARKETING GRAPES, PEACHES, And Other Soft Fruits.

It is very evident that fruits are not offered for sale in our markets in the best condition. This fact must be attributed:

1st, To the gathering before the fruit is ripe;

2d, To the rough handling in the gathering; and,

3d, To the careless packing.

It seems to us that the fruit-growers do not understand their own interests; we know, and in fact every body knows, that superior fruit in good condition brings a better price than poorer fruit, and such as arrives in the market in a bruised and otherwise damaged condition; yet we rarely meet with fruit in a perfectly sound state, or if so, it has been picked green and is not fit to be eaten. We fully understand that ripe and over-ripe fruit is difficult to ship to any distance, without damaging its appearance; but, certainly, a little more care in handling and picking, would modify the difficulty to a great extent.

Peaches are generally picked green, and allowed to ripen in the boxes. This is carried so far, that four-fifths of the Peaches offered in San Francisco are unfit to eat. Of late we have taken much pains to find some fine Peaches in our market—for we love them dearly—but we hardly ever succeed in obtaining them palatable, and if we do eat them, it is simply because they are called Peaches. We love all kinds of fruit when it comes to us in a ripe and perfect state, but, indeed, we care very little for it, when it comes half ripe, bruised and half decayed;

and we are certain, there are many who feel as we do in this matter. Good fruit pays well, but a poor quality is a drug in the market.

Blackberries are easy to gather, and they may be shipped in small boxes without difficulty; but when we see them half black and half red, we know they have been picked in an unripe state and cannot be palatable.

Grapes, generally, reach us in ripe condition, but they show sometimes very rough handling in the gathering, retaining very little of the perfect form and the tempting bloom, which adds to the beauty of the Grape on the vine. For this abuse in gathering and packing, there is no excuse—it is all carelessness, and the grower is the loser.

Apples and Pears invariably show signs of rough handling, full of bruises, and unfit to keep for any length of time.

The *Boston Journal of Chemistry*, in speaking of the Grape, says: "Grapes of the greatest excellence of their kind will be found in the long run to prove the most profitable. Let the bunches which are the most perfect in form, color and flavor, be put up by themselves, and those of a second quality by themselves. In this way they will sell for a much larger price than if the best and second qualities were together." The same journal advises dipping the end of the stem, immediately after cutting, into a little gum shellac dissolved in alcohol. This could be done instantaneously, almost, and would tend to prevent the fruit from shrinking, and thus prevent the deterioration which it is almost certain to undergo, if this precaution is not attended to. If treated in this way, it is said, that Grapes will keep two or three weeks beyond the usual time.

THE ARTESIAN WELL on the land of Emill Kower, in Fruit Vale, throws up about two hundred gallons per minute, or 288,000 gallons in twenty-four hours. It is four hundred and eighty-four feet deep, and the pipe rises two feet above the surface of the ground.

SHIPPING OF PLANTS.

If plants of any kind are to be shipped to distant points, it becomes necessary that they should be packed well. In the East and in Europe the packing of plants has almost become a science, and is carried to great perfection. Plants, as packed by responsible dealers, will go in safety for several thousands miles, tied up in damp moss, and enveloped in a sheet of brown paper; they are put in in layers—one on top of the other—and each layer of plants is well secured by a cross stick fastened by a nail at each end, so that the plants cannot move. With the exception of Camellias and a few other choice Evergreens, it is not to be expected that the plants should arrive at their destination in full vigor, and covered with flowers; all that can be reasonably anticipated is, that the plants are actually alive. How different do we find things here! Our florists and nurserymen are requested to forward plants in open boxes—and purchasers expect to see them arrive in full bloom, or they think that they are swindled. The packing of plants in open boxes should be abandoned, except in a few rare cases; open cases are difficult to handle, and they are subject to various mishaps. Our people should become accustomed to receiving plants in closed-up packages, even if they lose a few leaves; if the plants are in sound condition, they will soon, under judicious treatment, recover their foliage, etc. Express companies can afford to ship tied boxes much cheaper than open ones; and, if forwarded by mail, they must be sent in closed-up packages, giving postmasters an opportunity, however, to examine the package.

One serious difficulty in packing plants here, will be the extreme scarcity of packing material, which can be had in abundance at the East. To furnish Moss, for such purpose, would be too expensive with us, and we do not know of any special material so well adapted for packing. As we must sooner or later inaugurate a simple, cheap and safe system of packing plants, we should like to

hear from some of our florists what sort of material may be obtained in California that will answer the purpose?

WORK FOR AUGUST.

In the Orchards and Vineyards the entire time is now consumed in harvesting, gathering and packing of fruit. In another column of this number we offer a few suggestions to fruit-growers in regard to the packing of fruit, etc. Growers will find it to their advantage to pay some regard to our suggestions, and to deliver their fruits in our markets in as perfect condition and as well assorted as possible; the additional labor and care are very trifling, and the returns will prove vastly more satisfactory.

There being a deficiency of farm-laborers this year, little time can be given just now to other work. Wherever irrigation of young Vineyards or young Orchards is practiced, this should be done thoroughly once more during the present month in order to secure a good growth, and to allow the young wood to ripen well, before the Winter season approaches.

In the Vegetable Garden the beds filled with early Vegetables should be cleared off, thoroughly watered, manured and prepared for late Vegetables. Lettuces, Turnips, Carrots and Beets may be successfully sown for Fall and Winter use; also, Cabbage and Cauliflower, for Fall planting. Cabbage-lice are again very destructive; we know of no better remedy than a diluted solution of whale-oil soap sprinkled over the leaves once or twice a week. The same solution will also destroy many other insects, and may be applied very successfully as a wash for all kinds of plants thus infected.

Particular attention should be paid to the frequent mowing of lawns; the best, quickest and cheapest method to do it, is by using the well-known lawn-mowers, which may be handled by any one.

Evergreen-trees and Hedges are apt to

grow out of shape, and this is a most favorable time to clip them, as sufficient growth may yet be obtained to give them a fresh and neat appearance for the rest of the season. Pinch off the shoots of running Vines so as to secure more lateral branches, and secure them to their proper places.

If you will take the trouble to cut back your Rose-bushes, in the same way that is generally done in Winter, a profusion of flowers may be obtained in another month, if occasionally watered. The frequent cutting back of Roses as soon as the new wood is ripe, will secure a more desirable shape to the plants and a greater quantity and a better quality of Roses.

The Shrubs of our Gardens generally lack neatness; they are allowed to grow too rank and out of all proportion. The impression which seems to prevail generally is, that it is sufficient to engage a gardener once a year to trim up the trees and shrubs—this is very erroneous: to secure a neat and uniform growth and a greater quantity of flowers throughout the year, the pruning-knife should be used at least every two or three months with Evergreens and such flowering Shrubs as produce their flowers monthly.

Flowering Bulbs—such as Hyacinths, Tulips, Narcissus, Anemones, Ranunculus, etc., may now be taken up, dried in a cool and shady place and stored away to be planted again after our first Autumn rains. These bulbs, with the exception of Tulips, seem to do better here if replanted, although we think this may be done once only every two years. Tulips may remain in the ground for several years, unless it be desirable to divide the groups. If transplanting, shifting or dividing of the roots is contemplated, this is the proper season to take them up.

Fuchsias, Geraniums, Pelargoniums, Heliotropes, Petunias and other soft-wooded flowering plants should now be propagated. Although we may do this successfully at any time in this climate, the present season is considered the most favorable, particularly where the young plants are intended to be

offered for sale during the next Winter and Spring.

Camellias have now formed their flower-buds, and should be kept cool and well watered. There is no utility in forcing them at the present time for early flowers, as the result will be a second growth which will surely prove injurious to the flower-buds. If forcing is deemed necessary, it should be done in early Spring and at no other time.

Calceolarias require great care now to save them from damping off. Be very cautious in watering them; water frequently and moderately; not a drop of water should be allowed to stand on the foliage. The plants should have plenty of pot room; and the pots should be well drained, and be placed in an airy situation, free from draft. Insects are very hard on *Calceolarias*, and they should be carefully watched and kept clean. This is a most interesting class of plants; but we seldom have seen good and healthy specimens in California, with the exception of the Shrubby *Calceolaria*, which has proved perfectly hardy in our gardens, and produces a great abundance of flowers.

Cyclamens, which are so well adapted for window-culture, should now be allowed to rest, and only sufficient water—say once a week—should be given, to keep the bulbs from shriveling up.

If *Gladiolus* bulbs can yet be obtained from our florists, we would advise to plant once more, in order to have them flower late in Autumn.

NEW WAY OF PROPAGATING ROSES.

European Horticulturists have lately adopted a mode of making Rose-cuttings root with more certainty, by bending the shoot and inserting both ends into the ground, leaving a single bud uncovered at the middle and on the surface of the ground. The cuttings are about ten inches long, and are bent over a stick laid flat on the ground, holes being dug on each side of the stick for the reception of the ends of the shoot. The roots form only

at the lower end of the shoot, but the other end being buried prevents evaporation and drying up. A correspondent of the *London Garden* states that he has tried this, along with the old mode, and that while the weaker cuttings of the latter have shown symptoms of drying and failure, all the former have grown vigorously.—*Journal of the Farm.*

[Rather hard for us to find a good supply of cuttings 10 inches long.—Ed.]

BAY DISTRICT HORTICULTURAL SOCIETY.

At a late meeting of the Society, the following Extra Premiums were offered at the coming Horticultural Exhibition:

Best and largest exhibit of Californian-grown Seeds.....	\$10 00
Best and largest exhibit of California Dried Fruits.....	10 00
Best and largest exhibit of California Preserved Fruits and Jellies..	10 00
Best California White Wine.....	25 00
Best California Red Wines.....	25 00
Best California Dessert Wines.....	20 00
Best California Port Wine.....	10 00
Best exhibition of Silk Cocoons and Reeled Silk	25 00

Charles Mohr, of White Sulphur Springs, (Vallejo) was duly elected a Regular Member of the Society.

The vacancy of Trustee and Vice-President of the Society, occasioned by the prolonged absence of E. J. Hooper, Esq., was filled by the unanimous election of C. Stephens, Esq., as Vice-President, and C. Schuman, Esq., as Trustee.

The President and Secretary were authorized to invest the sum of \$1,500, out of the funds of the Society, in stock of the Horticultural Hall Association.

STRAWBERRIES.—One hundred and thirteen tons of Strawberries came into the market here in one day in the month of June, and the range of prices obtained was from 6 to 11 cents per pound.

OREGON STATE FAIR.

The opening of the Oregon State Fair has now been fixed for Monday, September 30th, to continue for six days.

HORTICULTURAL FAIR IN PORTLAND, (Or.)

The Second Annual Fair of the Horticultural Society, held Thursday, Friday and Saturday of last week, was a very pleasant affair. The exhibition in all the departments was very good. The attendance, though not large, was, we believe, sufficient to defray expenses. It should have had better patronage though, as great pains had been taken to render the exhibition pleasant and entertaining for spectators. The exhibitors deserve great credit for the tasty display made.

With good management the Horticultural Fair may develop into an exhibition which will rival the State Fair itself. This latter institution is now run almost exclusively by the horse jockey element, to the disgust of sensible people. If the Horticultural Fair will only enlarge its sphere of operations so as to include exhibitors of all departments of labor, it will arouse an interest in its behalf which will make it a gratifying and permanent success.—*The New North West.*

CINCINNATI INDUSTRIAL EXPOSITION.

The managers of the Industrial Exposition which is to open in Cincinnati on September 4th, are making every exertion to render it a complete success. We received a communication from the Chairman of the Horticultural Department, stating that besides the many and most liberal prizes which are offered for exhibits of every product of Horticulture and Floriculture, a gold medal will be awarded to the best State display of fruits and vegetables. The managers would like California to compete and say "that nothing would add more to the general interest than an announcement that the Golden State would be represented." We should be pleased if some of our horticulturists would move in the matter.

VACAVILLE FRUIT GROWERS' ASSOCIATION.

The Fruit Growers of Pleasant Valley held a meeting, on June 22d, for the purpose of forming an association. A number of practical men were present and inaugurated a Society under the name of "Vacaville Fruit Growers' Association," of which O. Bingham was elected President and H. H. Lewis, Secretary. We hope it will prove a complete success.

A BOTANICAL GARDEN PROPOSED FOR NEW YORK.

Several gentlemen of New York City have projected the establishment of a Botanical Garden on Madison Avenue, and the erection of a substantial and ornate glass and iron structure for the reception and exhibition of plants from all parts of the world. It is proposed to make this not only a perpetual plant exposition, and hence a place of public resort, but to establish, in connection therewith, a School of Botany. The aim is to make it a means of instruction as well as a place where the senses may be gratified by the sight and fragrance of beautiful plants and flowers. So says the *Rural New Yorker*.

OUR EXCHANGE TABLE.

We have received the "*Country Gentleman*," which is issued weekly, and is designed to include every department of Agriculture, Stock-raising, Horticulture and Domestic Economy; now in its 37th volume. It is published by Luther Tucker & Son, Albany, N. Y. Price \$2.50 per annum, in advance.

Farmer and Gardener; a semi-monthly journal of Southern Agriculture, Horticulture and Rural Life. It is published by E. H. Gray, Augusta, Ga. Terms of subscription, \$1 per annum.

The Poultry World; for the Fancier, Family and Market Poulterer, exclusively devoted to Poultry. It is a monthly publication,

nically illustrated. Published by H. H. Stoddard, Hartford, Conn. Subscription price, \$1 per year.

National Live Stock Journal; devoted exclusively to Improvement in Live Stock and to the interests of Stock-raisers and Dairy-men; finely illustrated. Published monthly by Geo. W. Rust & Co., Chicago, Ill. Terms, \$2 per annum.

The Farm and Fireside Journal; devoted to the Culture of the Soil and the Cultivation of the mind. A new monthly, published in New York at the exceedingly low price of 50 cents per year. This should be in the hands of everybody. It is a model of typographical elegance, and its contents are interesting and instructive. We wish it success.

The Overland Monthly, for August, has come to hand. It is now in the 9th volume of its successful career. This Magazine has become universally recognized as the best exponent of the Social, Literary and Material Progress of the Pacific Slope, and deserves the reputation it has so well established for itself. The present number is one of the best ever published. John H. Carmany & Co., publishers and proprietors. Terms, \$4 per annum, in advance.

The American Land and Law Adviser; a weekly journal, devoted to Real Estate, Finance, and Building and Popularization of Law. Published in Pittsburg, Pa. Subscription price, \$2.50 per annum.

FAVORS RECEIVED.

From the Department of Agriculture in Washington, "List of Agricultural Colleges and of Farmers' Clubs, and Agricultural, Horticultural and Pomological Societies of the United States."

"Premium List, Rules and Regulations of the Twelfth Fair of the St. Louis Agricultural and Mechanical Association, to commence Thursday, October 3d, and close Sat-

urday, October 12th." Competition is invited from the whole Union. We notice a long list of premiums offered for Fruit, Vegetables and Flowering Plants of all descriptions. Address G. O. Kalb, Secretary.

"Transactions of the Nebraska Horticultural Society for the year of 1871." Thanks to R. W. Furnas, the President of the Society. The pamphlet is interesting, and we shall refer to it again.

"Colt's Illustrated Scientific and Family Magazine; an Eclectic of Choice Reading for the Family."

"For Everybody." The July number of this favorite illustrated family paper is on hand.

"The Science of Health." The August number of this new monthly lies upon our table.

We have received the "Premium List" of the Sonoma and Marin District Agricultural Society, for the Sixth Annual Exhibition, to be held at Petaluma from Monday, September 9th, to Saturday, September 14th, 1872.

Also to hand, "List of Premiums, Rules and Regulations," of the Kansas City Industrial Exposition and Agricultural Fair, to be held in Kansas City, Mo., September 25th to September 28th inclusive, 1872.

We are under special obligations to the Managers of the State Agricultural Society for a complimentary ticket to the State Fair. We shall certainly make good use of it during the Fair, which promises to be a perfect success.

CATALOGUES RECEIVED.

C. L. Allen & Co's *Wholesale Catalogue of Hyacinths, Tulips, Crocus, Lilies, French Hybrid Gladiolus, etc., for Fall and Spring of 1872-73.*

Wholesale Catalogue of Dutch Bulbs, Flower Roots, Tuberculous Plants, etc., offered by E. H. Krelage & Son, Haarlaem, Holland. B. Raoux, of New York, is the agent for the United States.

Catalogue of Vegetable, Agricultural and Flower Seeds, Young Plants of Fruit and Forest Trees, and Shrubs cultivated by J. Monnier & Co., of Trelazé, France.

Chambersburg Nursery Association's *Descriptive Catalogue of Fruit and Ornamental Trees, Roses, Shrubs, Greenhouse and Hardy Plants.* T. B. Jenkins, Superintendent, Chambersburg, Pa.

NEW BOOKS, ETC.

THE MODEL POTATO.—An Exposition of its Proper Cultivation; the Cause of its Rotting; the Remedy therefor; its Renewal, Preservation, Productiveness and Cooking. By Dr. John McLaurin. Edited with Annotations, by R. T. Trall, M. D. 12mo, 102 pp. Price 50 cts. S. R. Wells, Publisher, 389 Broadway, New York.

A work in which every farmer, every gardener, and every reader is interested. Any effort made to improve this universally used tuber is worthy of commendation. Here are new views on the subject of Potato Culture, and a plan to prevent its rotting and 'running out.' The work is the result of twenty years' experience and observation.

THE SCHOOL OF CHEMICAL MANURES, OR ELEMENTARY PRINCIPLES IN THE USE OF FERTILIZING AGENTS.—From the French of M. George Ville, by A. A. Fresquet, Chemist and Engineer. The work is published by Henry Cary Baird, Industrial Publisher, 406 Walnut Street, Philadelphia. For the small sum of \$1.25, the book will be mailed postage paid.

Heretofore the people of California have paid but very little attention to the use of manures, depending too much on the natural fertility of the soil. This cannot go on much longer in this way; it is evident that our fields and gardens are being exhausted and are less and less productive every year. It becomes necessary that we inform ourselves upon this subject.

INDIGENOUS SUGARS AND DIRECTIONS FOR MAKING SUGAR FROM MELONS.—Compiled and Original, by W. Wadsworth. Published and for sale at the *Pacific Rural Press* office, San Francisco. Price, post-paid, 50 cts.

NEW AND RARE PLANTS.

Nyctocalos Thompsoni. This, the *Rural New Yorker* says, is a beautiful climbing plant, sent to the Kew Gardens (England) from the Calcutta Botanic Garden, six or seven years ago.

The plant is a tall, rapid climber, with slender branches, with leaflets four to six inches long. Flowers stand erect, four to five in a cluster, borne on terminal pendulous peduncles, and of (according to an illustration in the *Rural New Yorker*) about two and a half inches in diameter. The flowers are succeeded by a pod six inches long by two broad, and quite flat. This beautiful climber would not be hardy in our climate, but must be well worthy of a place in a conservatory where it could be trained to the rafters or upon ornamental trellis-work. We do not know that any of our florists have as yet any plants for sale; but as all the *Bignoniaceae* are readily propagated by seeds or cuttings, we presume it will soon be abundant—at least, there is no good reason why it should not be.

[We have very little doubt, that this plant as described above, will prove perfectly hardy in California, and would be quite an acquisition to our list of valuable climbers.—Ed.]

Bronze Ivy-leaved Pelargonium.—Mr. Grieve, of Culford, says the *Gardeners' Chronicle*, has sent us examples of a Bronze Ivy-leaved Pelargonium, an entirely new strain, of singular beauty. It was obtained by fertilizing an Ivy-leaved variety by pollen of a Bronze Zonale, and the result is a well-marked gold and bronze Ivy-leaved variety, of robust and compact habit, which promises to be equally useful in the flower garden and as a pot or vase plant. The flowers are crimson, and the leaf of a rich golden tint, with a bronze zone, the older leaves becoming tinted with red at the margin. We look upon it as a great acquisition.

CURRENT CULTURE.—In Alameda County 621 acres are devoted to Currant Culture.

REPORT ON THE FRUIT MARKET.

Our Markets are overflowing with the abundant supply of Fruits and Vegetables, which are now displayed in profusion and of very superior quality; and although Cherries, Strawberries, Gooseberries, Currants and Rhubarb have passed out of season—and Raspberries nearly so—their places are supplied in rich abundance by various other fruits.

Raspberries are now nearly out; what few remain sell at, per lb., 20 cts.

Blackberries are fine, retail at, per lb., 8 cts.

Apricots and Nectarines, retail at, per lb., 8 cts.

Peaches are very abundant, and retail at, per basket, from \$1 to \$2; the choice varieties have not yet made their appearance.

Plums are in great variety and sell at from, per lb., 3 cts. to 8 cts.

Grapes, in variety and plentiful, sell at, per lb., from 5 cts. to 25 cts.

Apples are not yet plentiful, sell at, per box, \$1.50 to \$2.50.

Pears (Bartlett) sell at, per lb., 8 to 10 cts.

Melons (Cantelopes) extremely plentiful; according to size and quality, 12½ cts. to 25 each.

Watermelons are also very plentiful, sell at, each, 12½ cts., 25 cts., to 37½ cts.

Tomatoes, very plentiful, sell at, per lb., from 2 cts. to 3 cts.

Huckleberries, sell at, per lb., 20 cts.

Pie Squash, sell at, per lb., 1 ct.

Pineapples and Bananas are scarce.

Oranges are in moderate supply, at, per dozen, 75 cts.

Lemons are scarce, sell at, per dozen, \$1.

Limes are plentiful, sell at, per doz., 25 cts.

VEGETABLES in every variety are now very cheap and abundant.

MESQUIT.

Some two years since the Mesquit grass was introduced into this county direct from Texas. L. Harbine, of Sebastopol, states that in bottom land it is a complete success, and does well, also, on uplands of certain kinds of soil. He has nine acres of this grass now on his

land, and intends to sow more. Some of it is six feet high, and the field averages four-and-a-half feet high.—*Russian River Flag.*

YELLOWSTONE PARK,
(Our National Park.)

The Geyser region of the Upper Yellowstone, which Congress has wisely made sacred to the people, is unquestionably the most astonishing combination of natural wonders, and imposing, beautiful scenery in the world. The forthcoming official report of Professor Hayden, United States Geologist, who visited that region last summer and returns this season, will fully demonstrate this fact. When this Park is rendered easily accessible by railroads—say two years hence—I predict that it will become the great summer resort and sanitarium of the continent.

For sight-seers and lovers of the wonderful and picturesque, it will have more attractions than Niagara, Yosemite and the White Mountains combined. There is the best reason to believe that the myriads of hot and mineral springs in the Yellowstone region possess valuable curative properties. The summer climate of the region is delightfully cool, bracing and healthful. To reach them from the Northern Pacific line, a short branch will be needed, and this, it is understood, will be built as soon as the main line reaches the proper point. At present the Geysers are only accessible by horsemen traveling circuitous paths.—*Gen. B. F. Potts, of "The West."*

WINE OVERLAND.

The Central Pacific Railroad Co. proposes to ship Wine overland as follows: Wine in wood, in car loads, from Santa Rosa to Chicago, St. Louis and New York, \$2.21 per 100 pounds; in quantities less than car loads, \$3 per 100 pounds. To Indianapolis, Cincinnati, Boston, Philadelphia and Baltimore, \$2.46 per 100 pounds in car loads, and \$3.46 in less quantities.

THE ARMY WORM.

The Army Worm has made its appearance in the northern parts of the State.

The *Appeal* of June 25th says: "They have made their appearance on an island which is and has been completely surrounded by water, hence the theory of their reaching localities by traveling, is pretty much exploded. They could not reach this place by crawling, and must have been bred and born there. They are sweeping everything green before them. The alfalfa fields especially afford them a rich repast, and they are eating it to the ground."

The Grass Valley Union of the 25th says: "Great armies of worms, organized in companies, regiments, brigades, divisions and so on, are at present doing great mischief on Wolf Creek, below this place, and near Dodge's ranch. Mr. Dodge informs us that the worms devour everything green that they come to, and that there is no use in fighting them. The army was, at last accounts, heading toward Grass Valley."

RAISING FLOWER SEEDS.

This is becoming a very important business, and the extent of some of the "flower farms" is enormous. James Vick's *Verbena* bed at Rochester (New York) measures three quarters of an acre; the *Asters* cover twice as much ground; the *Phloxes* and *Dahlias*, each two acres; *Lilies*, one acre; *Tuberoses*, about the same; and so on, until about seventy-five acres are included in the fragrant category. Such a farm must be a brilliant and beautiful sight, and no less delightful to the olfactory sense, if the sweetness be not overpowering. And how many flower gardens, through the length and breadth of the land, will these blooming acres furnish, or reinforce! It is a pleasant employment thus to scatter blossoms, like the classic Flora, and one to which every lover of the beautiful will heartily wish success.—*Boston Journal of Chemistry*.

ERROR.—On page 258, tenth line, article "Decorative Plants," sub-head "Palms," for *magnificent*, read *insignificant*.

Correspondence.

July 8th, 1872.

Editors California Horticulturist and Floral Magazine.

GENTLEMEN :

Being a constant reader of your valuable Magazine, and having noticed several articles concerning the management of Lawns, the best Grass Seed, the best mode of Sowing, etc., I will again presume to take up the subject, which is certainly one that should have special attention at our Horticultural and Agricultural Society meetings; and the question, "Which are the best Grasses to stand our long and arid summers?" should be thoroughly debated. I have noticed an article in Vol. II, N^o 2, of the CALIFORNIA HORTICULTURIST AND FLORAL MAGAZINE, stating that Kentucky Blue Grass and White Clover make the prettiest lawn, although the most expensive, and requiring the most care.—That we are willing to admit at present; but certainly next comes the Italian Rye Grass. I am happy to be able to corroborate what has already been said of the Italian Grass, and wish to inform you and all whom it may concern, that it should be more strongly recommended than it is, for cheap and large country lawns. I sowed in rather a shady situation, on the 16th February, 1872, a few pounds of Italian Rye Grass, and in three weeks it was fit for the mowing machine, although I cut it with the scythe, and continued to cut regularly every two weeks up to the present time. The grass has a neat appearance thus far. Therefore I feel confidence in saying that the Italian Rye Grass can be kept green four months of the year without water. It should be cut frequently, say every two weeks. I would recommend that all varieties of grass be sown early in the rainy season. As soon as the first rain falls, the ground should be got in order and the seed sown; don't wait for all the heavy rains to come or you cannot work

your land until Spring, when your grass seed will be late unless forced by abundance of water.

There are many complaints that grass cannot be grown in this country, but it is the people's own fault and negligence in not taking advantage of the rainy season, and not sowing in the proper time or in the proper manner. Cannot some more experienced and qualified voice re-echo in the ears of the members of our Agricultural and Horticultural Societies the admonition to make experiments, and prove whether we cannot have some other grasses and herbage to survive on the rich and beautiful hillsides of California, besides the wild oats and other herbage which Nature herself has sown? I hope this will be satisfactorily proved, and that the time will come, when tourists who come to visit us and to speculate in our golden fields, will not have the opportunity to say, when they return to their native homes, that all kinds of grass and clover are almost unknown in this Queen of Countries—California. So no more for the present on the Grass question.

Your sincere friend,
P. J. FORD.

Editorial Gleanings.

LOSS OF EVERGREENS IN THE EAST.—The wholesale destruction of Evergreens, in the East, is attributed, by a writer in the *American Agriculturist*, to the following causes: The unusual depth to which the soil was frozen; the unusual cold, (zero, or near it) in March, following a mild spell in February; the unusual dryness of the soil, during the Winter, and the prevalence of drying winds. I think that a combination of the last two causes produced the results. Some curious cases appear difficult to account for. With trees, apparently just alike, standing side by side, one was taken and the other left unharmed; also, one half of a tree would be killed, and the other half left untouched.

CHESTNUT TREES.

We do not see why Chestnut trees are not more extensively cultivated in California; we are certain they will do well here if properly cared for while young—they will take care of themselves after two or three years. The Chestnut succeeds best in a dry and even rocky soil. If planted in autumn and after the first rains and heavily mulched, they will even live during the first year without irrigation. Yet we advise moderate irrigation, if water is convenient, for a year or two, in order to advance this growth more rapidly.

By the way, it is a well established fact, that the Chestnut can be grafted or budded on the Oak in the proper season, which with us, is in Spring before and during the time the sap rises. Budding may also be performed in late summer if trees can be found in proper condition for the operation, that is, if the bark will separate easily from the wood.

It seems to us that it would be advisable to experiment on this suggestion. There are plenty of young spare Oaks in the country, and it would cost nothing to try it. We know it has been done successfully in Germany, and it is there sometimes practiced by nurserymen.

ALASKA CEDAR.

The Oregon *Herald* speaks well of this new species, and says:

On the last trip of the steamship *Gussie Telfair* from Sitka, there were brought several pieces of Alaska Cedar, that, when finished, are equal to the laurel. We are informed that two or three of our prominent citizens forwarded orders to Sitka, by the last steamship up, for several hundred feet of the cedar. We are also informed that it is the intention of a party in San Francisco to manufacture cedar lumber on an extensive scale from the timber secured in Sitka.

THE GRAPE CROP.—While the Grape Crop throughout the mountains will be above the average, the yield of Los Angeles will probably be less than last year's.

CHERRY CURRANTS.

J. A. Wilcox, at his experimental garden, two miles north-westly from Santa Clara, is now supplying the market with from twelve hundred to fifteen hundred pounds (of Cherry currants) per day. He is also shipping about double this quantity to San Francisco daily—and this in the commencement of the fruitage. By next week his shipments will exceed 6,000 pounds a day. His bearing plants are two years old. The Cherry currant grows in immense clusters attached to the main stalk, and commences fruiting close to the ground. To preserve its bright scarlet color, it must ripen in the shade of its own foliage. It can only attain perfection by thorough cultivation of the soil and abundant irrigation. By this means Mr. Wilson has brought his fruit to a state of perfection truly remarkable. In Alameda County, the lack of irrigating facilities is severely felt; the plant makes less foliage and the color of the fruit is more or less dimmed by the sun.—*San Jose Mercury*.

DESIRABLE PLANT FOR A DRY COUNTRY.—In a tract of country in the north-western part of Africa, distinguished for its dry and rich soil, the *Boston Journal of Chemistry* says, a gigantic perennial melon has been discovered, which is a most deliciously wholesome fruit, and which is largely consumed by the native inhabitants as food. In order that this melon should flourish, it is necessary that it should strike its roots through the sand 30 feet to reach permanent moisture. This it does, and grows in great luxuriance where all else is shriveled and parched with the heat. But this is not all. If it was simply a huge melon, with smooth and delicate skin, every one would be destroyed by wild beasts before coming to maturity. To prevent this, Nature has armed its outer rind with a covering of long, sharp, terrible thorns, which so lacerate the mouth and nose of animals that they are glad to let them alone in all their tempting freshness. Man, with his hands and sharp knives, finds little difficulty in

opening the luscious fruit. The natives have no necessity for putting fences about their melon patches, for the plants are self-protective.

CARE OF FORESTS.—Forests are guarded with especial care in Russia. The use of wood fuel on railways is interdicted. At the rate of destruction now going on, California will be destitute of timber in twenty years; and if the predictions of meteorologists be of any account, it will effect a terrible revolution in our climate, that will reduce our farm lands to a low valuation.—*Alla California*.

PARADISE OF FLOWERS.—A lady writer in the *New York Observer*, says: "Who knows the value of a garden of flowers? Like music, they possess magic power. The one adds to our happiness by beauty and fragrance—the other by melody and harmony, by which the sentiments are refined, and the virtues of the heart stimulated and strengthened. All surrounding objects exert an influence upon the mind, and a correspondence always exists between outward objects and the inner feelings of the heart. Where flowers are cultivated, the dispositions become sweet and the affections purified. Homes are constituted paradises when made so attractive that both parents and children find them the center of earthly bliss."

IMPROVEMENT.—The San Joaquin Agricultural Park is being improved in a most creditable manner.

REMOVED.—The tea plantation of Samuel Brannan near Calistoga is being removed from the low lands to the hillside.

CALIFORNIA CAULIFLOWERS, have been shipped from Sacramento to New York, and arrived there in apparent good condition.

☞ We have made arrangements to supply the *Overland Monthly*, together with the *California Horticulturist*, for \$1.50 per annum. Subscriptions at this rate should be for one year, and should be paid in advance. Orders directed to F. A. Miller & Co., box 128, Post Office, San Francisco, or to the office of the *California Horticulturist*, 622 Clay Street, will receive prompt attention.

THE

CALIFORNIA HORTICULTURIST

AND FLORAL MAGAZINE.

VOL. II.

SEPTEMBER, 1872.

No. 10.

DECORATIVE PLANTS

FOR OPEN-AIR CULTURE.

(Continued from page 259 of last number.)

Next to the Palms, we consider the *Dracoenas* the most desirable class of Decorative Plants—many of their kind being perfectly hardy with us, and thrive better in the open air than under glass. The *Dracoenas* are subdivided into several classes; however, the classification seems to be as yet a little mixed. The principal subdivisions are the *Cordylines*, *Charleswoodias*, *Dracoenopsis*, and *Dracoenas*.

The *Cordylines* have long, lanceolate leaves, which are drooping, particularly as the plant grows older; they make graceful and symmetrical trees of about fifteen feet in height, in their native country. In our estimation they look best when about two to three years old. If grown in the open air, they retain their dwarfish habit for some years, and have a most pleasing effect upon the lawn; they are, also, admirably adapted for large vases. The most desirable varieties are *Cordyline indivisa*, *C. congesta*, and *C. stricta*, all of which we can strongly recommend for decorative purposes. They are satisfied with almost any kind of soil, but require moisture. Plants may be had at our nurseries, at reasonable prices. They are natives of Australia and Java, and are easily raised from seed, if a little bottom heat is employed.

Of the *Dracoenopsis* we would particularly

mention the *D. Australis* (sometimes called *Cordyline Australis*), which is grown here with so much success. The sword-like leaves are distributed all around the stem, and give the plant a very symmetrical appearance. It is a native of Australia; but we have some very large trees growing here, which already furnish any amount of seed. These plants are satisfied with any kind of soil, and require less moisture than the *Cordylines*; they also withstand our heavy winds admirably.

Of the *Dracoenas* proper, we will only mention the *D. draco*, which is known here as a valuable Decorative Plant; The leaves of the *D. draco* are much fleshier than those of the other *Dracoenas*, and are of a more upright, but slower growth. Plants are easily grown from seed in a warm-house; it is, however, difficult to obtain good seed.

We will now say a few words of the *Yucca*, which is also a very desirable Decorative Plant.

The *Yucca aloefolia* is a native of Jamaica, Vera Cruz, Carolina, and Florida. It is a beautiful variety; the foliage is erect, of a light green, and serrated. It will grow to the height of from ten to twelve feet and upward. The flower-stem rises above the foliage in a large spike with beautiful white flowers, the outside shaded with purple; it is superior to *Y. gloriosa*.

Y. angustifolia is found on the Missouri

River; its narrow, sword-like leaves are of a grayish green, with white edges, with long, white threads pendent from their margins, which give this plant a fine appearance.

Y. draconis, resembling *aloeifolia*, is found in South Carolina, but has its smaller leaves drooping, the upper part erect; they are lancet-shaped, three feet long, and sharp pointed; the flowers form a fine pyramid of a greenish white—a very desirable variety.

Y. filamentosa is a very fine variety; it is well known, and should be in every garden. It is a native of Virginia and Carolina.

Y. glaucescens, without stem, is a fine variety, with large, white flowers.

Y. longifolia is found in Mexico. This is a very fine variety; foliage two feet long, ending in a long, black, sharp, needle-like point.

Y. superba. This is one of the best varieties; foliage two to three feet wide; flower-stem carmine; flowers pure white, bell-shaped, the outside of the flower purple-striped.

Y. rubra variegata, *Y. variegata*, and *Y. quadricolor*, also, *Y. Americana variegata*, are the gems of this tribe of Decorative Plants, and should not fail in any collection.

Phormium Tenax linea, fol. variegata, is known here under the name of New Zealand Flax. This beautiful plant created quite a sensation about four years since, in Europe, and is as yet very scarce and valuable. Three years since we saw a large-grown plant at Mr. Heineman's Nursery in Europe (Erfurt). It was six or seven feet high, and its foliage from three to four inches wide; we never have seen anything more beautiful. The lines in the foliage were very distinct, and the first impression it made upon us was that they were painted; the leaves are lined with five distinct colors: yellow, white, pink, brown, and green. It is of good habit, a strong grower, and a magnificent sight to behold.

Arundo Donax variegata, is a very ornamental, hardy-foliaged plant; it will grow to perfection when planted out in the ground,

and will reach the height of six to eight feet in one season. It is propagated by dividing the roots, and by cuttings.

Agave Americana. A very nice tribe of plants; they are best suited for vases, and may be used for rockery also; they are of easy cultivation, and will stand any amount of dryness.

Agave Americana variegata, *A. crachystachys*, *A. stricta*, *A. tepida*, *A. concinia*, and *A. elegans*, are some of the very best varieties, and should be in every collection.

Pittosporum undulatum. A native of Australia; is a fine Decorative Plant; perfectly hardy out of doors.

Ficus Australis; hardy in our climate; is a beautiful plant, and is grown from seeds and cuttings.

Corynocarpus laevigata; New Zealand; is a beautiful tree; foliage resembling *Magnolia grandiflora*; hardy out of doors; flowers white, resembling *Legustrum Japonica*.

Sanguinaria Pattersonii, or *Ligustrum Pattersonii*, is a fine dwarf-tree, perfectly hardy here: the flowers, of pure white, come in spikes on the end of each branch.

Aucuba Japonica has a beautiful foliage of spotted yellow; it is commonly called the "Gold-dust Plant;" it will thrive out-doors when planted in the shade.

Aucuba maculata is also a fine and newer variety; it is hardy, and will grow easily from cuttings.

The *Banksias* are all natives of New Holland, and are hardy Decorative Plants. Their peculiarly shaped foliage affords a great and pleasing contrast when intermixed with other plants. They are grown from seeds, which can be obtained from Australia. The following are some of the best varieties: *Banksia macrophylla*, *B. serrata*, *B. speciosa*, *B. paludosa*, *B. Australis*, *B. Cunninghamii*, *B. dentata*, *B. coccinia*, and *B. quercifolia*.

Aspidistra Jap. lurida variegata is a beautifully foliaged plant from Japan. It is well worthy of cultivation; it has no stem, and its leaves spring up from its roots. They are from one foot to two feet long, and from

four to six inches broad. This is a beautiful, hardy Decorative Plant. Sometimes the leaves will come half white, half green; others will be striped; but will never lose its variegation. It is hardy, and will do well as a border-plant.

WINDOW GARDENING.

BY L. K. BOWDITCH.

The amateur's great difficulty in the management of plants in rooms, is, from the dryness of the atmosphere. This may be obviated in part by having the stands on which they are placed made with ledges, and covering with about an inch of sand, on which place the pots; the sand should be kept moist.

The leaves of the plant must be kept clean, and frequently sprinkled with water or washed with a plant-syringe, which not only keeps off the insects, but clears the leaves of dust and opens the breathing pores.

Watering plants, whether in a room or greenhouse, must be regularly attended to. Never allow the soil to become so dry that it will crumble under the pressure of the finger; at the same time avoid a constant dribbling of water, as in either case it is sure to terminate fatally, with more or less of the collection. Never water unless the plant really needs it, and then give freely, observing that the surplus runs out at the bottom. If water stands on the surface, it is an indication of insufficient drainage, and should be at once remedied. When saucers are used, the water must be removed from them as soon as it has drained through the pots, as nothing can be more injurious to the roots of most plants than to have the pot they grow in kept standing in water. There are some exceptions, however, to this rule, such as all kinds of *Mimulus*, *Hydrangeas*, *Calla*, *Æthiopica*, *Lobelias*, and all such as require an abundance of water. Plants in a state of bloom or vigorous growth require more water than at other times. Here the amateur's judgment must be exercised, as scarcely any two plants require the same quantity of water at all times. Never use cold water; but let it conform, as near as possible, with

the temperature of the room. Over-potting is also a fruitful cause of sickly plants. In transferring a plant to a larger pot, never advance more than one size at a time. The novices in plant-culture, when they find their plants becoming sickly, usually resort to over-feeding—namely, over-potting, with the use of stimulants, such as guano or liquid manure—where an opposite course is necessary. By an observance of the above hints, nearly all greenhouse plants may be grown successfully in a room.

In the care of hanging baskets, considerable discretion must be used not to let the soil get dry, as there is nothing so injurious to plants, whose roots are so much exposed, as to be allowed to get so dry as to wilt—too frequently the case with hanging baskets. In watering, it is best to souse the basket in a bucket or tub, and hang it in the cellar or yard to drip, before removing back into the room; but do not over-water: keep the soil in a moderately damp, but by no means soaking condition. Sprinkle or wash the foliage of the plants every day. Plants should never be sprinkled or watered on the foliage when the direct rays of the sun are upon them, or it will burn and blister the foliage.

When gas is used in the room where plants are kept, a light article of paper or muslin should be well dampened and laid over them during the evening, as there is nothing more injurious to vegetable life than gas. Where hot-air furnaces are used, the same precautions would greatly assist the plants, if practiced during the night and two or three hours of the morning.

The best means of wetting the foliage of plants is a light syringe, for, if properly used, the object may be effected without injury to the room or carpet, thereby not rendering it necessary to remove the plants for this purpose.

If the above simple rules are followed, the most unsuccessful can soon become experts at this beautiful pastime of the culture of flowers.—*Ladies' Floral Cabinet*.

The Tea Plantation of Calistoga has, we regret to say, proved an entire failure, but six specimens remain of half a million planted.

[From the Melbourne Times.]

HORTICULTURE.

Being an Essay read before the Horticultural Society of Victoria, by Mr. W. H. Treen, and ordered by the above Society to be printed.

[Continued from page 269 of last number.]

It is only necessary that information should be disseminated, examples presented, and experiences communicated to remove the too common prejudice that gardens are costly and useless appendages, requiring great labor, and greater expense, without adequate profit or satisfaction. At the same time there is not a farmer, or an owner of a piece of land, who will not be enriched and gratified by devoting a portion of his industry to the tillage of a garden.

Personal attention with judicious arrangements will accomplish much. Many of the most valuable products of agriculture were first introduced, and their qualities tested in a garden. If, therefore, says the learned Poiteau, "We would ascend to the origin of agriculture, it is in the garden that her cradle will be found." There, like young Hercules, she first tried her powers, and prepared, like him, to overrun the world, which she speedily cleared of monsters, and brought to civilization. In all ages and countries flowers have been universally cherished. "Who," asks Boursault, "does not love flowers?" They embellish our gardens, and give more brilliant lustre to our festivals; they are the interpreters of our affections; we present them to those to whom we are under obligations; they become necessary to the pomp of our religious ceremonies and great entertainments; therefore, happy are those who love and cultivate them. We are told that the bouquet of flowers was daily renewed upon the table of Lord Bacon, while composing the volumes of his sublime philosophy; the great Descartes prosecuted with equal ardor the study of astronomy and the culture of flowers.

But to ourselves and our own doings. The proceedings of our own Society, representing

as it does the chief horticultural society in Victoria, are naturally watched somewhat keenly by those who really take an interest in the growth and improvement of horticulture; more so by those who have the interest of the Society at heart. No doubt the majority of our members, from many causes, trouble themselves but slightly about horticulture, taking just so much interest in the Society proportionate to the advantages they derive from it, viz., an afternoon's outing twice a year. Some members, doubtless, care very much for horticulture, but very little about the Society itself; while others again, we have evidence of, have horticulture really at heart, and the success of the Society also, looking upon it as one of the best agencies for improving and extending the progress of their favorite pursuit. Therefore it behooves the workers of our own Society to do all they can in every way to promote and further its interests. Our non-horticultural members contribute equally to the funds, and deserve every encouragement. But it is to our practical horticulturists that we must look, to make our exhibitions a success, for without them our efforts we fancy, would be very few. Therefore, we hail with delight the encouragement given this season to our growers by the liberal prizes offered for competition at our next Spring Show, for without exhibitors we can have no show, and the laborer is worthy of his hire. I therefore congratulate our cultivators on the more hopeful prospects open to them for the coming season. I have also pleasure in noticing that our usual monthly meetings have been more largely attended, and greater interest felt therein. The value of this cannot well be overestimated, and I believe they are looked upon with favor by the majority of our members. The floral and fruit committees have done good service, although perhaps the work has not been quite equally distributed, the burden falling on the most willing ones rather more than it should, but it is somewhat difficult to avoid this. The great thing is for the working members to stick together, and

pull one way, all having but one aim in view—the promotion of Horticulture, and the well-being of the Horticultural Society of Victoria. It is but natural for us to hope that the Society may derive considerable benefit from our Spring Exhibition. At the same time my own opinion is, to make a great success, we must hold our exhibitions in town, availing ourselves of the splendid Town-hall and its organ, where plants can be displayed to the best advantage, where hundreds can attend who cannot leave town, where we are in a measure independent of the weather, and where we are not obliged to shut up at six o'clock.

We have certainly made many strides in the right direction, and doubtless this matter will receive due attention. We have found a number of gentlemen who have willingly responded to the call for special prizes, while again others have readily become members of the Society, thereby benefiting the cause we all espouse.

In conclusion, gentlemen, I would say, let us all with one heart and one hand endeavor by all means in our power, either directly or indirectly, to secure the promotion of Horticulture, yielding allegiance, in the first instance, to Horticulture and its associate arts, and, secondly, to this Society as the best agent for promoting the progress of our favorite pursuit.

TREES AS PROTECTORS OF CROPS.

Prof. Bolander, State Superintendent of Public Instruction, and one of the editors of the *California Teacher*, makes a suggestion of great importance in the September number of that periodical. Referring to the burning of valuable grain-crops, when ripe, by accidental fires, he says that the planting of rows of Monterey cypress, subdividing the grain-fields, the rows running at right angles to the prevailing summer winds, will be an effectual barrier to the spread of flames. This cypress, as Prof. Bolander says, is easily raised from seed, making a growth of thirty to forty feet in four years, even in poor, dry

soil, spreads so widely as to make a sure shelter against wind and fire, and if not trimmed—as for this purpose it should not be—forms a dense and impenetrable thicket.

It is free from insects, and stands firmly against the wind, for it takes a firm hold in almost any kind of soil, if the final transplantation is made in the first year of its growth. It thrives in every part of the State, except in the higher and colder mountain regions, attaining a height of 150 feet, with a stem of nine feet in circumference. Prof-Bolander says:

“Large grain-fields should be subdivided, and the boundary lines planted with a row of this tree. The heat of burning grain is not sufficient to set it on fire. Thus planted, it would also prove an excellent shelter against the heavy north winds in spring. At first, these trees should be planted closely, and gradually thinned out as they grow up. We have seen this experiment successfully tried. There is no better shelter known. It is contrary to rural economy to buy a quantity of cypress-trees necessary to encircle the subdivisions of grain-fields; they should be raised on the farm. Seeds of any kind of trees are best sown in portable boxes three feet long, two wide, and about four inches deep. The soil should be a mixture of two-thirds of fine sand and one-third of loam. Upon this mixture of sand and loam spread sawdust to the depth of half an inch, and wet the whole thoroughly. This being done, sow the seeds upon the sawdust; cover it with a sheet of paper, or better still, with a layer of moistened moss. Keep the box in a shady place, and the ground moist, but not wet. As soon as the seeds have germinated and developed their leaves, they should be left uncovered, and gradually exposed to light. When the plantlets have attained the height of eight or twelve inches, they should be taken up, one by one, with a dull knife, and planted in the open field in a similar manner as cabbage. By sowing the seeds about the 1st of September, the plantlets will have attained the proper size for transplantation after the first rains have fallen.”

We have no doubt that the extensive planting of hedgerows of cypress, both for the outer inclosure and subdivision of grain-fields, would not alone prevent the extensive fires which occur when there is no natural

obstacle to check their spread, but would also serve to break the force and dessicating effect of winds, and exercise a modifying influence on the climate of our interior valleys. Planted along roadways they would be a cheap and lasting fence, as well as an ornament to the landscape. In many instances, where large tracts are not to be permanently used for grain alone, it will be found preferable to substitute other trees for the cypress, such as the eucalyptus, which is a rapid grower, a graceful ornament, and valuable for its timber, to say nothing of its medical qualities; or the walnut and other nut trees, with the mulberry, where its leaves can be used to feed silk-worms. Without extending these hints in this place, it is enough to say that the appearance of our large interior valleys could be beautifully transformed, the winds and heats to which they are subjected much modified, their salubrity enhanced, and the precipitation of rain sensibly increased, by the general planting of trees upon a rational plan.—*Bulletin*.

SELECT PLANTS

(Exclusive of Timber Trees) readily eligible for Victorian Industrial Culture, with Indications of their Native Countries and some of their Uses—an Enumeration Offered

BY BARON FRED. VON MUELLER.

[From the similarity of our climate to that of Victoria (Australia), we are induced to believe that selections, from time to time, from this list, may be useful and highly suggestive to our intelligent farmers and gardeners.—Ed.]

ACACIA FARNESIANA, Willd.—Dioscorides' small Acacia. Indigenous to South Asia; found westward as far as Japan; a native also of the warmer parts of Australia, as far south as the Darling River; found spontaneously in tropical and sub-tropical America, but apparently not in tropical Africa. Prof. Fraas has recognized in this Acacia the ancient plant. The scented flowers are much sought after for perfumery. This bush may

also be utilized as a hedge plant, and a kind of Gum Arabic may be obtained from it.

ACHILLEA MILLEFOLIUM, L.—Yarrow; or Millfoil. Europe, Northern Asia, and North America. A perennial medicinal herb of considerable astringency, pervaded with essential oil, containing also a bitter principle (Achillein) and a peculiar acid, which takes its name from the generic appellation of the plant.

ACONITUM NAPELLUS, L.—The Monk's Hood. In the colder, especially the mountainous parts of Europe and Northern Asia. A powerful medicinal plant of perennial growth, but sometimes only of biennial duration, variable in its forms. It was first introduced into Australia, together with a number of other Aconites, by the writer of this communication. All the species possess more or less modified medicinal qualities, as well in their herb as in their root; but so dangerously powerful are they, that the plants can only be administered by the exercise of legitimate medical practice. Napellus root, according to Professor Wittstein, contains three alkaloids: Aconitin, Napelin, and Narcotin. The foliage contains also a highly acrid, volatile principle, perhaps chemically not unlike that of many other Ranunculaceæ. Aconitin, one of the most potent of any of the medicinal substances in existence, can likewise be obtained from the Nepalese *Aconitum ferox*, and probably from several other species of the genus.

ACORUS CALAMUS, L.—The Sweet Flag. Europe, Middle and North Asia, North America. A perennial pond or lake plant. The somewhat aromatic root is used as a stomachic, and also in the preparation of confectionery, in the distillation of gin, and in the brewing of some kinds of beer. The flavor of the root depends mainly on a peculiar volatile oil.

ACTEA SPICATA, L.—The Baneberry. On forest mountains, mainly in limestone soil of Europe, North Asia, and North America. A perennial medicinal herb. Its virtue depends

on peculiar acrid and bitter, as well as tonic principles. In North America, this species, and likewise *A. alba*, are also praised as efficacious antidotes against ophidian poisons.

ADESMIA BALSAMICA, *Bertero*.—The Jarilla of Chili. A small shrub, remarkable for exuding a fragrant balsam of some technic value.

ÆSCHYNOMENE ASPERA, *L.*—The Solah of tropical Asia. A large, perennial, erect or floating swamp plant, probably hardy in the warmer tracts of our Colony. Introduced from the Botanic Garden of Melbourne into the tropical parts of Australia. The pith-hats are made from the young stems of this plant. The Solah is of less importance for cultivation than for naturalization.

AGAVE AMERICANA, *L.*—The gigantic Aloe of Central America. It comes here into flower in about ten years. The pithy stem can be utilized for some of the purposes for which cork is usually employed, for instance, to form the bottom of insect-cases. The honey-sucking birds and the bees are very fond of the flowers of this prodigious plant. The leaves of this and some other Agaves, such as *A. Mexicana*, furnish the strong Pita-fibre, which is adapted for ropes, and even for beautiful textile fabrics. The sap can be converted into alcohol. Where space and circumstance admit of it, impenetrable hedges may be raised in the course of some years from Agaves.

AGROSTIS ALBA, *L.*—The Fiorin or White Bent-grass. Europe, North and Middle Asia, North Africa, and North America. Perennial, showing a predilection for moisture. It is valuable as an admixture to many other grasses, as it becomes available at a season when some of them fail. Sinclair regards it as a pasture grass, inferior to *Festuca pratensis* and *Dactylis glomerata*, but superior to *Alopecurus pratensis*. The variety with long suckers is best adapted for sandy pastures, and helps to bind shifting sand on the sea-coast, or broken soil on river banks.

ALETIS FARINOSA, *L.*—The Colic root of

the woodlands of North America. This pretty herb is of extreme bitterness, and can be medicinally administered as a tonic.

ALKANNA TINCTORIA, *Tausch*.—On sandy places around the Mediterranean Sea. It yields the Alkanna root, used for dyeing oleaginous and other substances. It might be naturalized.

ALLIUM SCHÆNOPRASUM, *L.*—The Chives. Europe, Northern Asia, and North America. Available for salads and condiments. This species of *Allium* seems not yet so generally adopted in our culinary cultivation as *Allium Ascalonicum* (the Shallot), *A. Ceba* (the ordinary Onion), *A. fistulosum* (the Welsh Onion), *A. Porrum* (the Leek), or *A. sativum* (the Garlic). *A. Scorodoprasum*, or the Sand Leek of Europe and North Africa, resembles both Garlic and Shallot.

ALOE FEROX, *Mill.*—This species yields the best Cape Aloe, as observed by Dr. Pappé. The simply inspissated juice of the leaves of the various species of this genus constitutes the Aloe drug. It is best obtained by using neither heat nor pressure for extracting the sap. By re-dissolving the aqueous parts in cold water, and reducing the liquid through boiling to dryness, the Extract of Aloes is prepared. All species are highly valuable in our Colony, where they are hardy, and can be used, irrespective of their medicinal importance, to beautify any rocky or otherwise arid spot.

ALOE LINGUIFORMIS, *Miller*.—South Africa. According to Thunberg, from this species the purest gum-resin is obtained.

ALOE PLICATILIS, *Mill.*—South Africa. The drug of this species acts milder than that of *A. ferox*.

ALOE PURPURASCENS, *Haworth*.—South Africa. Again one of the plants which furnishes the Cape Aloe of commerce.

ALOE SOCOTRINA, *L.*—Hills of the Island of Socotra. Also cultivated in Barbadoes and elsewhere, thus yielding the Socotrin Aloe.

ALOE SPICATA, *Thunberg*.—South Africa.

This aloe provides Cape Aloe. It is an exceedingly handsome plant.

ALOE VULGARIS, *Lamarck*.—The Yellow-flowered Aloe. Countries around the Mediterranean Sea, also Canary Islands, on the sandy or rocky sea-coast. Such places could also here readily be utilized for this and allied plants. Dr. Sibthorp identified this species with the "*Aion* of Dioscorides; hence it is not probable, that *A. vulgaris* is simultaneously also of American origin, although it is cultivated in the Antilles, and furnishes from thence the main supply of the Barbadoes Aloe. In East India this species is also seemingly only existing in a cultivated state. Haworth found the leaves of this and *A. striata* softer and more succulent than those of any other aloe. It is said to be the only species with yellow flowers among those early known. It is also this species only, which Professor Willkomm and Professor Parlatore record as truly wild in Spain and Italy.

ALOE ZEYHERI, *Harvey*.—South Africa. A magnificent, very tall species, doubtless valuable like the rest.

ALOPECURUS PRATENSIS, *L.*—Meadow Fox-tail Grass. Europe, North Africa, North and Middle Asia. One of the best perennial pasture grasses. Though so extensively cultivated for years in our Colony, it is mentioned, for completeness' sake, in this list. It attains to its full perfection only after a few years of growth, as noticed by Sinclair. For this reason it is not equal to *Dactylis glomerata*, for the purpose of changing crops. Otherwise it is more nutritious than the latter, although the annual return in Britain proved less. Sheep thrive well on it. Sinclair and others found that this grass, when exclusively combined with white clover, will support from the second season five ewes and five lambs on an acre of sandy loam. But this grass, to thrive well, needs land not altogether dry. In all permanent artificial pastures, this *Alopecurus* should form one of the principal ingredients, because it is so lasting and nutritive. In our Alpine regions

it would also prove prolific, and might convert many places there gradually into summer-runs. It is early flowering, and likes the presence of lime in the soil.

ALSTONIA CONSTRICTA, *F. v. M.*—Warmer parts of East Australia, particularly in the dry inland districts. The bark of this small tree is aromatic, bitter, and regarded valuable in ague, also as a general tonic.

ALSTREMERIA PALLIDA, *Graham*.—Chili. Palatable starch can be obtained from the root of this plant, which, for its loveliness alone, deserves a place in any garden. The tubers of others of the numerous *Alstroemerias* can doubtless be utilized in a similar technic manner.

ALTHEA OFFICINALIS, *L.*—The real Marsh-Mallow. Europe, North Africa, North and Middle Asia. A tall, perennial herb, with handsome flowers. The mucilaginous root and also the foliage are used for medicinal purposes. The plant succeeds best on damp, somewhat saline soil.

AMELANCHIER BOTRYAPIUM, *Candolle*.—The Grape-Pear of North America. This fruit-tree attains a height of thirty feet. The purplish fruits are small, but of a pleasant taste, and ripen early in the season. This bush or tree will live in sand-soil; but it is one of those hardy kinds particularly eligible for our Alps.

AMYGDALUS COMMUNIS, *L.*—The Almond-Tree. Countries around the Mediterranean Sea and Orient. Both the sweet and bitter Almond are derived from this species. Their uses, and the value of the highly palatable oil, obtained by pressure from them, are well known. This oil can well be chosen as a means of providing a pleasant substitute for milk during sea voyages, etc., by mixing, when required, with it half its weight of powdered gum-arabic, and adding then successively, while quickly agitating in a stone mortar, about double the quantity of water. Thus a palatable and wholesome sort of cream for tea or coffee is obtained at any moment. There exist hard and soft-shelled

varieties of both the sweet and bitter Almond. In time, they should form an important article of our exports. Almonds can even be grown on sea shores. The crystalline Amygdalin can best be prepared from bitter Almonds, through removing the oil by pressure, then subjecting them to distillation with alcohol, and finely precipitating with æther. The volatile bitter Almond oil—a very dangerous substance—is obtained by aqueous distillation. Dissolved in alcohol, it forms the Essence of Almonds. This can also be prepared from peach kernels.

OPENING OF THE HALL OF THE BAY DISTRICT HORTICULTURAL SOCIETY.

SECOND ANNUAL EXHIBITION.

On the twenty-second of last month, the Bay District Horticultural Society opened their New Hall, on the corner of Post and Stockton streets, for their second Annual Exhibition.

This Hall, which they have purchased from the Skating Rink Association, has been refitted at a very considerable expense, for the purposes of the Society, and although some incongruities exist in the decorations attributable possibly to crudity of taste in the Hall Committee, yet it presents altogether a very creditable appearance.

Owing to the want of sufficient publicity being given to the hour of opening, there were not so many in attendance as might have been otherwise expected. There was, however, quite a respectable sized assemblage present, when Professor H. N. Bolander arose and delivered the following speech of welcome :

*“Ladies and Gentlemen :—*It behooves me, as President of the Society, to make a short and brief statement of its history.

Having recognized the necessity of a society whose object and design should be to bring before the public, from time to time, as it were in a collective view, useful and ornamental vegetable productions of our own

as well as of foreign lands, and whose aim should be to disseminate useful knowledge on objects of the vegetable world, that might contribute to increase the minor and larger industries of our State—we organized this Society, to fill this want, in October, 1870, and incorporated it in 1871.

The original members were thirteen in number, they increased, however, steadily ; and the Society consists to-day of seventy regular, five life and ten honorary members.

In 1871, we held, in connection with the Mechanics' Institute, our first exhibition, which was an acknowledged success. A suitable library has been established, containing over 200 volumes on agriculture, horticulture and systematic botany. In the Society's reading-room are constantly kept on file, for the use of its members, thirty different leading periodicals on agriculture and horticulture.

In a financial point of view, we must confess the Society is still weak ; it is in need of a more general support of a generous public to become more useful and more influential. Our library should be increased, and an herbarium of useful and ornamental plants should necessarily be established.

The last State Legislature generously appropriated \$2,000, for the years 1872 and 1873, each. This timely support will help materially in carrying out the Society's legitimate object and design.

Under the auspices of the Society is also published a monthly journal, devoted exclusively to the interests of horticulture, floriculture and forestry.

The want of a suitable hall for holding our exhibitions was keenly felt. Fortunately the Society had, among its own members, men of enterprising spirit, who came cheerfully forward and bought and fitted up this spacious and beautiful hall. This new Society, within our own, was organized and duly incorporated three months ago, and is known as the Horticultural Hall Association.

All this is the work of two years ; due to the energy and enterprise of a few members,

firmly devoted to a noble and edifying cause.

In future, it is intended to hold annually two exhibitions, one in Spring, and one in Fall."

The Professor then introduced Dr. E. A. Carr, Professor of Agriculture and Horticulture to the University of California, who delivered the following eloquent opening address :

PROF. CARR'S ADDRESS.

It is a matter for congratulation that the people of the Pacific Coast, and especially of San Francisco, have learned so to esteem their displays of art and industry as to warrant such annual exhibitions as will most fully illustrate our performance and possibilities. It was a happy conception to adapt the European winter garden, a place combining instruction and innocent amusement, to our local circumstances, our more modest and humble beginnings, and to make the competitive Horticultural Exhibition its chief specialty.

For so great a public benefit I have no doubt the public will show substantial appreciation, but the results of the effort will not all show in your columns of profit and loss; the most valuable of them are found in tangible influences by which Beauty proves her divine origin and claim to our homage and devotion. Far excelling our expectations, it shows not only what nurserymen and florists can do, in the way of enlarging the boundaries of Nature, and making her obedient to the demands of Art, but it shows that where yesterday the miners' cabins dotted these barren sand hills, there is growing up a substantial civilization.

There is always a moral significance in a scene like this, a promise of better things to come, which is worth more than the objective reality. What is the meaning of Nature, and what the meaning of Art? "Heavenly capital and earthly labor make the firm called Providence," and neither partner is seen comprehensibly without the other. I think this sublime partnership is never seen to such advantage as when some noble edifice or in-

stitution, some public park or art museum, is opened to the uses of religion, or charity, or education.

Every stone in the temple, every polished panel on which is written the record of the tree's life, the luscious fruits which displace the worthless wild product, the multiplied petals of the Rose, are witnesses of Nature's welcome to the hand that unfolds her secret store of uses.

We live, we are told, in a godless age, the tendency of which is toward materialism. The application of machinery to our industries, the thousands of inventions which emancipate men from the bondage of toil, are, we are told, of questionable advantage. There is a maudlin sentimentality in these moans over the degeneracy of our own times, and I notice that these mourners make the smallest investments in things of an immaterial value. They invest in cheap prayers, cheaper than Sir Godfrey Knellers', who "prayed on canvass," cheaper than Mozart's or Handel's, who prayed as David did, on stringed instruments and organs.

There is no worse infidelity than that which refuses to see the infinite, wonder-making builder, in the houses which he has fashioned with human hands, as well as in the wondrously carved outlines of the eternal hills. There is a tendency to exalt nature and natural beauty far above the products of human intellect and skill. It is the last enfranchisement of thought to see in art the higher nature, and, that man is not man until he is cultivated.

"Earth proudly wears the Parthenon
As the best gem upon her zone,
And morning opens with haste her lids
To gaze upon the pyramids.
For, out of thought's interior sphere,
These wonders rose to upper air;
And Nature gladly gave them place,
Adopted them into her race;
And granted them an equal date
With Andes and with Ararat."

It is easy to see how much art has had to do in developing humanity out of the creature man, who may be studied to-day in all his

primitive naturalness, a fit companion for the bison of the plains. First, we see his superiority to the brute, not in provision for food or shelter, but in the decoration of his person. In colors warranted not to run, the Polynesian dandy still struts in his Dolly Varden skin, a parrot tattooed on one side and a palm tree on the other. By and by his love of finery will yield to a desire for comfort, his ear-rings, his feathered head-dress and his paint will be made over to the female of his species.

Now, all the hints of nature are decrees. This savage adornment puts the gratification of taste above the merely animal wants, and all that we see as exterior or brute nature is built up with reference to man's higher necessities and powers. This is our warrant for art. The universe is not a gallery of living pictures, a sublime mystery to move our awe and wonder; it is a storehouse of the noblest supplies for our industry and our holiness (for holiness simply means wholeness): it is a school for the development of our whole being.

The stones lie in the quarry in smooth plates, ready, almost, for the builder's hand, or to be ground into food for trees and flowers. Buried under the roots of the mountains, or crumbling into soils, or wrought into cathedrals, or carved into statues of the gods, they are pure use, and are as natural in one place as in another.

You remember the story of the shipwrecked Phœnician sailors, who, stirring the embers of the fire they had built on the sea shore, discovered the fused particles of sand and alkali which we call glass. It shared the aboriginal fate of things for a long period, that is, became a personal ornament, but after this apprenticeship, became, first, solid air, and then in the mirror, solid space, and finally, in the telescope and the microscope, it became the All-Seeing Eye, revealing a world in every star and a world in every atom! This is what it is the nature of sand and alkali to become when it is married to art. This truth is illustrated at every step

in our lives. It is a wonderful pursuit,—this following of nature into her realized spirit—realized forms and services. The silkworm weaves its cocoon, winding-sheet and cradle for the life that belongs to its race, but does not exhaust thereby the uses of its lovely manufacture, which in royal robe and brodered banner comes into still higher service.

Here is a volume—leather, cotton or flax, oil and soot are its materials; but in these the soul of Shakespeare or of Dante has been caught and imprisoned. There is no end to these transfigurations. We can never know that we have reached the last or best use of anything. We plant the Eucalyptus for timber, shade and fuel, and then find it a cure for malarious disease. We burn the coal, which gives us the light and heat it gathers in elder ages, and the very smoke reappears in delicate perfumes and gorgeous dyes.

The old definitions of art are becoming obsolete through the advancement of the sciences. A more universal knowledge of these will give a new impulse to the fine, as already it has to the useful arts, and to none more certainly than this youngest art of landscape gardening and its handmaid horticulture. Every principle of art is founded on science, and how much more scientific knowledge is needed by him who works with living materials, and on a grand scale, than by him who operates on canvas or a single block.

It is claimed that Architecture is the highest of the fine arts, as it employs Painting, Sculpture and Music, and if this be so, I think there is a higher still, which includes Agriculture also, which takes a segment of the Earth's surface and makes it a fit abode for Earth's sovereign. This art, by whatever name it may be called, is in its infancy, and will be slow in growth, for it depends upon much that is not strictly within the domain of art—upon the general culture and the development of a true social spirit.

My house may be lined with cedar and camphor wood, its courts may be paved with mosaics richer than those of the Alhambra,

Aphrodite may rise in the spray of my fountains, and Morpheus scatter poppies in my luxurious chambers of rest; crystal domes and walls may enclose as with a new heaven some new tropic earth for my delight, but it can never be the "House Beautiful" while there is a beggar or an outcast at the gate.

At Chatsworth, the residence of the Duke of Devonshire, the Arboretum is filled with trees from every part of the world. The conservatory covers an acre of ground, in which seven miles of pipes are used to distribute heat, and forty miles of glazed sash to keep out cold; from its gallery you can look down into a forest of tropical foliage, palms and ferns, orchids and cacti, the royal lily of the Amazon, the lotus and papyrus of the Nile. This is a grand showing of what Aristocracy, which has tried many costly experiments for us, can accomplish in the hereditary home of a family. For a thousand years its high park fences have enclosed high-bred men and women, noble architectures and millennial trees, through periods when ignorance was a standing threat against order.

Nearer home, at Lewellyn Place, near Orange, New Jersey, we have what I consider the most perfect example of what coöperation and association will do under a democracy. Only time is needed to produce results equal to those at Chatsworth, and the hundred owners increase the interest, pleasure and advantage an hundred fold.

In our country the public park shows what estimate the people put upon beauty; it has a very different and greater value than Kew, or the garden of plants at Paris.

A number of families may combine to create a paradise of rural enjoyment, every member of which would increase his individual capital in contributing to the enjoyment of all. This is democracy, social and constructive. The meaning of that word is continually enlarging. Our forefathers said it meant liberty and equality, and that equality meant the equal standing of man, as man, before his Maker. Now we mean by it "the quality of

the quantity, the whole, the royalty, the imperial attributes of the people."

The idea of perfected manhood inheres in this of popular sovereignty, and here is our warrant for education. Our sovereign is not merely a biped animal, twenty-one years of age, nor yet one further endowed with intellectual gifts, enabling him to secure every selfish end. Manhood only is attained when these are dominated by the sovereign soul—"open on all sides." This "freeman" will make a home suited to his character, enriched with all the treasures of nature and art.

"To learn what is beautiful is the first step; to live it is the second."

Art has its political relations—it is fostered by liberty, and all its tendencies are towards peace. "Bowie knives are the thorns on the human crab-apple tree, which disappear when civilization reclaims it to sweetness." The four and a half millions of soldiers which make up the peace establishment of Europe—the annual cost of them, and loss through them, applied to industry, would fill the land with plenty. Applied to education it would make war impossible. Universal education in art would of necessity create a higher civilization.

If the subject were not too large for the hour, I would like to show what Horticulture especially might do in reference to popular refinement. It has created the rural beauty of England, it has recovered Holland from the sea. Originally there was only one variety of coniferous tree in Great Britain—the Scotch Fir. Now there are a hundred. The sea coasts of France, covered like so much in this vicinity with shifting sand, has been reclaimed by the culture of the Pinaster.

LEGISLATIVE PROTECTION.

One of the recognized objects of an association of this kind should be to keep the duty of legislative protection and promotion of Arboriculture before the people. And I hope to see much accomplished through the University, where they have ample

facilities for growing every useful tree and plant which our climate will sustain. I expect to see our railroad tracks made green with turf, and pleasant with trees, instead of dismal stretches of noxious weeds, and their stations beautified with rural surroundings.

I expect to see villages grow up in which inequality of surface and crookedness of streets and "eccentricities" of building will be tolerated. For the Germans, our masters in æsthetics, to whom flowers are as necessary as corn, will add their old world culture to our new world vigor and strength.

A small part of the money that has been expended in so-called improvements, which are but costly violations of taste, would make San Francisco one of the most picturesque of cities.

Enough is wasted in shoddy display to enclose our shifting sands with walls of verdure, thus modifying our climate, tempering our winds, and making it as healthful as beautiful. And enough is worse than wasted to build and sustain our temples of art and learning, our parks and public gardens, and make the fairer Athens of which the poet dreamed.

We only need to feel that these things, just as much as our banks and railroads, are factors in civilization. Nor can we boast of what Nature has done for us until she is justified of her children—

"Who toil to leave as their bequest
An added beauty to the earth."

Schlott & Smidt's band was in attendance and discoursed some most excellent music, and at the close of Prof. Carr's oration, after the President had announced the Hall duly opened, the company dispersed and promenaded to the sweet strains, around the exquisite groups of choice plants and fragrant flowers.

VANCOUVER'S ISLAND. — We hear that two Agricultural Fairs will be held on this island during the coming month.

THE EXHIBITION.

In glancing over the various collections of Evergreens, Plants, Flowers, and Fruits, which have been displayed at the Horticultural Exhibition, it was evident that they were, in every respect, far superior to those exhibited last year; the number of varieties was much greater, and the plants, on an average, far better than on former occasions; yet there were many specimens which did not present sufficient merits to entitle them to be placed in such an exhibition. Exhibitors should always bear in mind, that a plant for exhibition should be well grown and in perfect condition. This evil can be remedied by a more careful guarding in the preparation of the Premium List. Too much attention was paid to the offering of premiums on "*largest collections.*" We would suggest, in the future, that superior quality should have the preference of quantity.

The general collections of *Flowering Plants in Bloom* were not what might have been expected; but this was more particularly attributable to the very cold and unfavorable weather which San Francisco had experienced during the month preceding the exhibition; however, there was a decided improvement visible, compared with the exhibits of last year. The Hydrangeas, Begonias, Lantanas, Polygalas, Agapanthus, Ericas, Gloxinias, Zonale Geraniums, Hoyas, Sollyas, Bouvardias, Liliium auratum, Grassulas, Valottas, and Lobelia cardinales, were well represented. There were, in all, three collections exhibited. The Evergreens indigenous to Australia were very numerous, although but one exhibit was made, by Mr. Reimer. The collection contained over 200 varieties, the most prominent of which were: *Acacia pycnantha*, *A. umbricata*, *A. salicifolia*, *A. longifolia*, *A. pulchella spinosa*, *A. decipiens*, *A. pendula*, *A. armata speciosa*, *A. cardifolia*, *A. linearis*, *A. conspicua*, *A. molissima*, etc. *Grevillea robusta*, *Ficus elastica*, *Eucalyptus* (26 varieties), *Haakeas*, *Dracoena draco*, *D. nigricans*, *D. latifolia*, *D. Brasiliensis*, *D. stricta*,

D. Haagenii, etc. *Yucca rubra variegata*, *Y. Americana*, *Y. quadricolor*, *Y. filamentosa*, *Y. longifolia*, *Y. gloriosa*, *Maranta* (in var.), *Phormium Tenax fol. var.*, etc. *Pittosporum undulatum*, *P. nigra*, *P. Tobira*. *Psoralea pinnata*, *P. Australis*. *Tristania macrophylla*, *Leptospermums* (in var.), *Corynocarpus*, *Fabricia lævigata*, *Escallonia rubra*, *E. floribunda*, *Podalyria*, *Melaleucas*, *Chorizemas*, and many others.

The Exhibit of *Coniferae* was also very creditable, and the only collection of foreign and native species numbered over 350 varieties. We will also mention *Cupressus glauca*, *C. glauca pendula*, *C. excelsa*, *C. Gunnii*, *C. ericoides*, *C. Australis*, and several others. *Pinus tuberculata*, *P. ponderosa*, *P. contorta*, *P. Lambertiana*, *P. Canariensis*, *P. Benthiana*, *P. maritima*, *P. monticola*, *P. monophylla*, *P. Sabiniana*. *Picea grandis*, *P. amabilis*, *Sequoia gigantea*, *S. sempervirens*, *Abies Douglassii*, *A. Menziesii*, *Araucaria Cunninghamii*, *A. glauca*, *A. Bidwellii*, *Juniperus Canadensis*, *J. excelsa*, and others; *Cedrus Lebani*, *Cedrus deodora*, *Larix*, *Thuja compacta*, *T. gigantea*, *T. Chinensis*, etc. *Thuyopsis borealis*, and many other species too numerous to mention.

Greenhouse and Conservatory Plants were numerous, three collections having been entered by Messrs. Reimer, Lüdemann, and Meyer. We also particularly noticed Ferns, in considerable variety: *Marantas sanguinea*, *zebrina*, and *discolor*; *Fittonias*, *Gesnerias*, *Begonias*, *Coleus*, *Caladiums*, *Euphorbias*, *Daphnes*, *Eranthemums*, *Gardenias*, *Hoya carnosa*, *Hoya bella*, ; a number of Palms, *Achyranthus*, *Sanchesia*, *Diosma*, *Althernantheras*, *Smilax*, *Bambusa gracilis*, *Primula Chinensis*, *Bignonias*, *Forfugium*, *Azalea Indica*, *Bouvardias*, *Ericas*, *Camellias*, etc. Mr. Reimer carried off the first prize, and Messrs. Lüdemann & Co. the second.

Of *Bedding Plants* there was but one exhibit, that of Mr. E. L. Reimer, comprising about seventy-five varieties.

The exhibit of *Hardy Ornamental Foliage*

Plants was very interesting. Two collections were entered by Mr. Reimer and Messrs. Lüdemann & Co.; the former obtained the first prize. Of his collection we mention *Agave Americana variegata*, four varieties of variegated Grasses, *Arundo donax variegata*, *Aspidrista var.*, *Phormium tenax*, *Phormium tenax fol. var.*, *Dracoena Australis*, *D. indivisa*, *D. draco*, *Ficus Australis*, *Mespilus Japonica*, *Cordylines* (in var.), *Veronica variegata*, *Gesnerium argenteum*, *Euanymus Jap. variegata*, etc.

Tender Ornamental Foliage Plants. This was, in our opinion, the most meritorious exhibit, and attracted the attention of every visitor. Mr. Brown, of Woodward's Gardens, competed with Messrs. Lüdemann & Co., and the first prize was very justly awarded to Mr. Brown.

We call the attention of our readers to the following specimens in this choice collection of rare and beautiful plants.

Eranthemum pictum, *Fittonia argyrea*, *F. Verschaffeltii*, *Hibiscus Cooperii*, *Maranta zebrina*, *M. discolor*, *M. paradina*, *M. lineata rosea*, *M. sanguinea*, *M. tuberspatha*, *Passiflora trifasciata*, *Gesneria amabilis*, *G. cinnabarina*, *G. refulgens*, *Croton pictum*, *C. discolor*, *C. carcascaria*, *Canna zebrina*, *C. grandis*, *C. nigricans*, *Alocasia esculentum*, *Costus zebrinus*, *Caladium pictum*, *C. alba maculata*, *C. bicolor*, *C. marmoratum*, *C. regale*, *C. Smitzii*, etc. *Begonia Rex*, *B. Marshallii*, *B. Mad. Stuart*, *B. Empress*, *B. Silver Chain*, and others. *Cissus discolor*, *Columnnea Shediana*, *Cacalobia platyclada*, and many others.

Truly this group has been very effective and one of the great features of the Exhibition, and we regret to notice that some of the most delicate specimens suffered severely from the effects of gas and the insufficiency of ventilation.

The collections of *Bulbous-rooted Plants* were meagre, and might have been much better. Perhaps it was not well considered to restrict the exhibit, in this class, only to those which were in flower, as at this season

of the year not many can be found in bloom. Gladiolus, Liliun auratum, Valotta purpurea, Achimenes, Gloxinias, Cannas, Crinum, Tuberoses, and Cyclamens were the best specimens. The first prize was awarded to Miller & Sievers, and the second to F. Ludemann & Co.

The Tropical Group exhibited by T. Brown, of Woodward's Gardens, was one of the most effective displays, and deservedly merited and received general admiration.

The *Cycas revoluta*, *Corypha Australis*, *Chamaerops humilis*, were exceedingly fine; and when we add the various *Cordylines*, *Dracoenas*, a Lemon-tree in bearing, several species of *Musa*, all in thrifty condition, we think that Mr. Brown has succeeded admirably in his exhibit, and well deserved his first prize.

The collections of *Climbing Plants* were unusually well filled, and the contest between Mr. Reimer and Messrs. Ludemann & Co. was close. The number of varieties decided in favor of Mr. Reimer for the first prize—the collection of Ludemann & Co. being inferior only in numbers. We mention a few of the most remarkable specimens: *Hederas* (varieties of), *Physianthus*, *Tecomis*, *Maurandias* in var., *Clematis* in var., *Lophospermum scandens*, *Clerodendron Balfourii*, and *Cl. Thompsonii*, *Bignonia venusta*, *Stephanotis floribunda*, *Cissus discolor*, *Hoya carnosa*, *Sollya Drummondii*—a new climber, with exquisite foliage and beautiful blue flowers—adapted for greenhouse culture as well as for our gardens, *Jasminum*, double and single, *Myrsiphyllum asparagoides* (popularly known as *Smilax*)—one of our best decorative climbers, and many others.

Of *New and Rare Plants* we might have expected larger collections. There seems to be a mistaken idea, among our nurserymen and gardeners, as to the term “new and rare plants.” We know that they might have exhibited numerous collections of plants, which to our people are both “new” and “rare.” The idea that a plant must have been imported or produced within a year, in

order to be “new” or “rare,” is certainly erroneous.

Two collections were exhibited—one by Miller & Sievers, who obtained the first prize—and the other by F. Ludemann & Co., who received the second one. In the collection of the former, we noticed *Adamia versicolor*, *Eranthemum tuberculatum*, *Torre- nia Asiatica*, *Richardia maculata*, *Begonia Wel- toniensis*, *B. Boliviensis*, *B. Sambo*, *Acorus Japonica*, variegated *Ivies* in var., *Sedum azoidum* var., *Ampelopsis Veitchii*, *Sanche- sia nobilis* var., *Amaranthus salicifolius*, *Dracoenas* of var., etc.

Messrs. Ludemann & Co.'s collection contained a number of very interesting plants. We noticed in particular *Allamanda Hender- sonii*, *Daphne odorata* var., *Crotons* of varie- ties, *Orchids*, *Hibiscus splendens*, *Sanche- sia nobilis* var., *Erythrinis*, *Lisianthas*, *Anthi- gonums*, etc.

Of *Plants for Hanging Baskets and Rock- work*, there was but one collection, entered by Mr. E. S. Reimer, who obtained the first prize for his very numerous exhibit.

The *Exhibit of Ferns* was one of the most meritorious; and we found that much more interest is being manifested among our people than has hitherto been the case. We are glad that the lovers of floriculture are so rapidly advancing in their taste for this interesting and most pleasing class of plants. Three collections of Ferns were respectively entered by Miller & Sievers, E. Myer, and Theo. Brown of Woodward's Gardens. The most numerous collection was that of Miller & Sievers, who showed some forty varieties, and obtained the first prize. In this collec- tion we call particular attention to the fol- lowing species: A very fine specimen of the Australian Bird-nest Fern; also, an exceed- ingly fine *Platynerium grande* (Stag-horn Fern), *Pteris argyrea*, *Asplenium Fabianum*, *Cyrtonium falcatum*, Australian Tree-ferns, *Lastria glabella*, *Gymnogramma tomentosa*, *Polypodium postulatum*, *Adiantum culpodes*, *A. diaphanum*, *A. cap. Veneris*; the follow- ing California Ferns: *Adiantum Chilense*,

Woodwardia radicans, Polypodium Calif., Pellaea acuminata, P. Andromedæfolia, Cryptogramma triangularis, Adiantum pedatum, Aspidium argenteum.

Mr. Meyer's collection contained many very good specimens of rare Ferns, particularly natives of Japan. The finest specimens, however, were exhibited by Mr. Brown, although the number of varieties was limited.

The *Exhibit of Roses* was quite showy, but inferior to that of 1871. The mildew, which has of late attacked Roses with so great severity in this neighborhood, is the cause of this. Roses always form a very important feature in an Exhibition of this kind, and many visitors were disappointed in their anticipated pleasure. Mr. Reimer, as usual, had the finest exhibit, and produced some fifty varieties in good condition.

Coleus were well represented, and they always form a pleasant feature in floral shows. Their rich and varied foliage is always pleasing, and they are admired by all. Three collections were entered—one by Messrs. Ludemann & Co., who had thirty-five varieties, and obtained the first prize. The next prize was awarded to Miller & Sievers.

The competition in *Fuchsias* was lively and very close. Three entries were made: by Messrs. Ludemann & Co., Mr. E. L. Reimer, and Messrs. Miller & Sievers. The first prize was awarded to F. Ludemann & Co., their collection containing sixty-four distinct varieties. Mr. Reimer, whose collection contained many well-grown specimens—and mostly of the very choicest varieties—received the second prize.

Double Geraniums were exhibited in three collections, and Messrs. Ludemann & Co. received the first prize; their collection comprised sixteen varieties.

The Exhibit of *Variiegated Leaf Geraniums* was very creditable; the first prize was awarded to E. L. Reimer. The most remarkable of his collection were Reimeriana, a seedling of great beauty—perhaps the best

of all the variegated leaf Geraniums: Sophia Cussack, Lady Cullum, Mrs. Pollack, Mountain of Snow, Beauty of Oulton, Duke of Edinburgh, Sunset, Silver Pheasant, Cloth of Gold, etc. The second prize was awarded to Ludemann & Co.; also, a very beautiful collection of many varieties of great promise, and not yet generally cultivated.

Zonale Geraniums are not well adapted for exhibition, as their flowers fade too quickly; however, there was a much greater variety to be seen than in former exhibitions. Mr. Reimer obtained the first prize, and Miller & Sievers the second.

The Show of *Flowering Begonias* was very poor indeed, and could hardly be expected to be otherwise at this time of the year. Ludemann & Co. were awarded the first prize; and of their collection we mention: B. nitida, B. parvifolia, B. semperflorens, B. hybrida multiflora, B. Sandersonii, B. Verschaffeltii, B. Fuchsioides rubra, B. incarnata, B. speciosa odorata.

Of *Variiegated Leaf Begonias* we noticed but one collection, exhibited by Mr. E. Meyer, and containing a goodly number of choice and rare varieties; the first prize was awarded to Mr. Meyer.

Auriculas and *Primroses* could not very well be expected in flower at this time, although a small collection of them was exhibited by Miller & Sievers, who obtained the first prize.

Some very fine *Pansies* were shown; Miller & Sievers received the first prize.

Of *Verbenas* there were two collections, which might have been much better. We attribute this deficiency to the fact that florists keep but very few *Verbenas* in pots during the summer. The first prize was awarded to Miller & Sievers.

Of *Pinks* two fine collections were shown by Messrs. Ludemann & Co. and Mr. E. Meyer; the former carried off the first prize.

The *Petunia* Show was extremely poor, and the less there is said about it, the better. The same must be said of the *Cactus*.

Plants in three-inch Pots were exhibited by

Mr. Reimer. The collection was very numerous, and contained many valuable plants.

Of *best-grown Plants* (so-called Specimen Plants) two entries were made—one by Mr. E. L. Reimer, and the other by Mr. E. Meyer. Mr. Reimer's collection well deserved the first prize; and if we had the space we should give a very minute description of his many well-grown specimens. We notice in particular the following: *Thujopsis dolabrata*, *T. borealis*, *Erica persoluta*, *E. citriodrica*, *Crinum Asiaticum*, *Luniera Jap. variegata*, *Adiantum*, *Arundo donax variegata*, *Clyanthus Damperii*, *Laurus Indica*, *Magnolia grandiflora*, *Russelia juncea*, *Cupressus funebris*, *Juniperus virginica*, *Ferugium*, *Cordyline indivisia*, *Dracoena draco*, *Yucca longifolia*, *Taretia ectinodendron*, *Tradescantia bicolor*. In the collection of Mr. Meyer the fine specimen of *Araucaria imbricata* found many admirers.

The collection of *Plants indigenous to California* was meagre; and we express our surprise that not more attention is paid to the cultivation of our many valuable and beautiful flowering Plants, Shrubs, and Trees, which are becoming so popular abroad. In the collection exhibited by Miller & Sievers, we found the *Darlingtonia Californica*, ten varieties of native Ferns, three species of California Lilies, two species of *Sedum*, *Pentstemons*, *Diplacus glutinosus* (*Mimulus glutinosus*), *Aplopoppus*, etc. This collection received the first prize.

The Display of *Cut-flowers* was better than in the previous year; but not so good as might be produced by giving some little more attention to careful selection and proper care. The general display of *Cut-flowers* was made by Mr. Reimer and Messrs. Ludemann & Co., the latter winning the first prize. The space set apart for the purpose was too limited, and others were unable to exhibit.

Of *Gladiolus* there was a grand show, which would have been creditable to any country. Three collections were entered—one by Mr. Thompson of Napa; another by

Miller & Sievers, and a third by Mr. E. A. Upton. The first prize was awarded to Miller & Sievers; their collection numbered about seventy varieties. The second prize was awarded to Mr. Thompson, who showed some forty varieties; and Mr. Upton, who had some very beautiful spikes, received the third prize.

The Show of *Cut-roses* was good. Mr. E. L. Reimer had about 120 distinct varieties, and received the first prize. The second prize was awarded to Miller & Sievers.

For *Pansies* the first prize was awarded to Miller & Sievers, and the second to Messrs. Ludemann & Co.

In *Dahlias* there was a grand rivalry. Mr. E. A. Upton had again his magnificent collection on the stand, and won the first prize; while Mr. Malmgren exhibited some rare and most exquisite varieties, perfect in form, and obtained the second prize.

The Exhibit of *Phloxes* and *Hollyhocks* was meagre.

The *Bouquet Show*, we are sorry to say, was not worthy of an Exhibition held in a country so favorable to the growth of fine flowers as California is. There seems to be but very little interest felt in arranging a creditable Bouquet Show, and we cannot refrain from remarking, that this year's exhibit of Bouquets was sadly inferior to that of last year. We hope most sincerely, for the reputation of our florists, that they will cast aside this indifference in the future—or the public, who know they have the flowers, will say they lack both taste and skill.

The Display of *Hanging Baskets* was grand. Mr. E. L. Reimer had not less than twenty-one well-arranged Baskets on exhibition, which were suspended from the Arches of the Hall, and were most effective in decorating the Galleries. Mr. Reimer received the first premium.

Two *Miniature Gardens* were entered—one of which was arranged as a permanent arrangement by the Hall Association, and received the first premium.

The Exhibit of *Wire-Work*, adapted to

Gardens and to Floriculture, by Messrs. Gruenhagen & Co., was a credit to the Exhibition and to the manufacturers, who merited the first prize and obtained it.

This is the first time that efforts have been made to exhibit Rustic work, which has hitherto received but very little attention on this Coast. We were pleased with the creditable display made by Mr. S. S. Tonnar of San José, and Mr. Hill of Napa; both of whom show skill in their work; and we hope they will persevere in their efforts to produce such work in this line as will be both serviceable and ornamental.

But one design for a Suburban Garden was entered, by F. A. Miller, who received the first prize. Mr. Mohr of Vallejo entered a design for a Public Plaza, and received the second prize.

Mr. E. Meyer had on exhibition a Fern Case, which was well arranged, and developed a decided taste for Fern culture.

Under the head of "Rockery," Mr. Reimer and Mr. Meyer entered the two Grottoes which formed such an important and popular feature of the Exhibition; and, although these Grottoes are intended as a permanent decoration of the Horticultural Hall, the Committee awarded to them the first prize for the best Rockery; the point, we think, was well taken.

The Display of *Cones of Coniferæ*, by Mr. C. Stephens, was very creditable. Between twenty and thirty varieties were exhibited in his collection, which received the first prize.

The Exhibit of *Vegetables* did not meet the general expectation—it was exceedingly poor for San Francisco and the State at large; this must be attributed to the fact, that our vegetable gardens are exclusively in the hands of a class of people who take no interest whatever in exhibitions of this kind, and who fail to see any corresponding benefit to be derived from them.

We now come to the Exhibit of *Fruits*, which was acceptable, but by no means as brilliant as our orchards and markets would warrant us to expect. But few of our fruit-

growers take the desired interest in our Horticultural Fairs, although a better feeling for the exhibition of fruits is growing up. Some have done well; others might have done much better.

For the *Best and Largest Collection of Fruit*, there was but one entry made—by Mr. Z. W. Moore, of California Market, a commission merchant, and although the propriety of awarding a premium to a party who did not himself grow the articles exhibited, was called in question, he received the first premium, more, we believe, on account of the display and the taste of the arrangement, than on account of the number of varieties. His display certainly deserved a reward.

Three *Collections of Apples* were entered, of which the collection of Mr. A. S. Greenlaw, of Sacramento, received the first prize. This Exhibit comprised the following varieties: Yellow Bellflower, White Bellflower, Yellow Newtown Pippin, Autumn Strawberry, Roxbury Russet, Rhode Island Greening, Tompkins Co.'s King, Vandevere, Spitzenburg, Maiden Blush, Fall Pippin, Vandevere Pippin, Jonathan, Peck's Pleasant, Baldwin, Hooper, Gloria Mundi, White Pippin, Buckingham, Wine Apple, American Golden Russet, Swaar, and others.

Mr. John Rock, of San José, received the first prize for the *Best Twelve Varieties of Apples*. This collection was very good, and contained the following varieties: White Winter Pearmain, Esopus Spitzenburg, Nicajack, Alexander, Yellow Newtown Pippin, Gravenstein, Yellow Bellflower, Summer Pearmain, Wine Sap, Jonathan, Golden Pippin, Gloria Mundi, etc.

The Collection of Apples of Mr. Woodward was also numerous and creditable. We noticed among them, in particular, the following varieties: Tulpehocken, Es. Spitzenburg, White Winter Pearmain, Porter Spitzenburg, Canada White, French Pippin, Vandevere, Smith's Cider, Williams' Favorite, and many others.

Of *Pears*, Mr. R. B. Woodward presented the finest and most numerous collection from

his farm in Napa County, for which the first prize was awarded. We name the following varieties: Onondaga, Glout Morceau, Marie Louise, St. Lawrence, Gansel's Bergamot, Seckel, Louise Bonne de Jersey, and about twenty-four other varieties.

The first prize for the *Best Twelve Varieties of Pears*, was awarded to John Rock, of San José. We mention: Beurre, Gris d'Hiver, Easter Beurre, Flemish Beauty, Doyenne d'Alencon, Winter Nelis, Beurre d'Anjou, Beurre Bosc, Beurre Superfine, Beurre Hardy, Beurre Clairgeau, Seckel.

Nectarines. Were but few brought in, on account of the lateness of the season. John Rock was awarded the first prize.

Of *Prunes and Plums*, Mr. Rock had a very fine and numerous collection, and obtained the first prize. We noticed the following varieties: Coe's Late Red, Damson, German Prune, Bradshaw, Coe's Golden Drop, Red Gage, Duane's Purple, Fellenberg Prune, Quackenboss, Lombard, Victoria, Columbia, Washington, Reine Claude de Bavay, St. Martin's Quetsche, Fulton, and General Hand.

Mr. Rock also received the first prize for the *Best Quinces*. We recognized the Portugal, the Orange, and the Angers.

Of *Grapes*, four entries were made, and the Exhibits were very good, and creditable to our Grape interests. West Bros., of Stockton, received the first prize for the largest and best collection of Grapes. We subjoin a list of the varieties which were represented by beautiful and well-formed bunches: Black Prince, Black Olive, Rose Chasselas, Black Malvoise, Reine de Nice (Flame Tokay) White Malaga, White Frontignan, White Muscadine, Deacon's Superb, Black Hamburg, Purple Damascus, Large Holland, Zibeba (Italian Wine Grape) Black Burgundy, Red Frontignan, White Tokay, Zinfundal, White Chinese, Chasselas Musque.

Mr. J. H. Carrington, of Sacramento, had some beautiful specimens of Grapes on exhibition, and received the second prize.

For the *Best Six Varieties of Table Grapes*,

Mr. R. B. Woodward obtained the first prize. In his collection we found the Black Morocco, Black Prince, White Nice, Muscat Hamburg, Bowood Muscat, Muscat of Alexandria, Black Hamburg, and Golden Chasselas.

Mr. J. Rutter, of Florin, near Sacramento, received a Diploma for his meritorious Exhibit of Grapes.

West Bros., of Stockton, also received the first prize for the *Best Collection of Wine Grapes*, of which they exhibited sixteen varieties.

It is a well known fact to all Californians, that the immediate surroundings of San Francisco are not well adapted to the growing of fruits; however, under favorable circumstances, we have frequently met with very good success in producing not only fine specimens of fruit, but also of very fair flavor. Some very good fruit was presented from the residence of the late Hon. H. H. Byrne, corner Thirteenth and Howard Street, in this city. This fruit would have been a credit to almost any part of our State. The people of San Francisco should bear in mind that if fruit-trees are planted in a sheltered position, where they can also have the full benefit of the sun, say for five to six hours per day, very fair fruit may be produced, and perhaps better in flavor than three-fourths of the fruit offered in our markets in a half-ripe or stale condition.

Among other interesting features of the exhibition, we noticed some very fair specimens of *Cotton Plants*; one from a field of 250 acres, raised by Buckley Bros., of Hope-ton, Merced County. From the appearance of the plant exhibited and from the information given us by Mr. Buckley, we should judge that their enterprise is a very successful one.

Another fine plant was exhibited by the California Cotton Growers' and Manufacturers' Association, and was raised on their extensive farm in Bakersfield, Kern County, from Dixon seed, planted May 21, 1871, which gives also conclusive evidence of the

success of this company in making cotton-raising practicable and profitable.

Mr. Sevin Vincent entered a very fine and large assortment of *California-grown Seeds*, of his own production, and received the first prize.

Mr. L. A. Gould, of Santa Clara, exhibited an excellent collection of *Dessicated Fruit*, which he introduces as a new process of drying fruits, retaining its natural flavor remarkably well. He received the first prize for California dried fruits.

California Wines were entered by the United Anaheim Wine Growers' Association, and by Geo. West, of Stockton.

The former obtained the first prize for *California White Wine*, and a Diploma for the best *Red Wine*.

George West received the first prize for *California Port Wine*.

Dr. J. Strentzel, of Martinez, received a Diploma for a fine Exhibit of *Oranges* and *Lemons* grown on his farm.

The display of *Preserved* and *Artificial Flowers* was very remarkable, and probably the best ever made on the Pacific Coast; although the Horticultural Society offered no premiums for anything of this kind.

The following special awards have been made for Preserved and Artificial Flowers:

First prize for *Preserved Flowers*, to Mrs. A. O. Cook. First prize for *Artificial Flowers*, to Mrs. Cotter. Special premium for *Water Lilies in Wax*, to Miss Bessie M. Harrold. A Diploma for *Autumnal Foliage*, exhibited by Mrs. A. O. Cook; and to the same lady, also, a Diploma for *Wax Flowers*.

Miss Romanse had some very creditable *Paintings of Flowers and Fruits* on exhibition, and was awarded a Diploma.

As we have already stated, the Exhibition was a success, and in many respects better than the one of 1871, although in the way of arrangement the Society had a much greater latitude last year. Grass-plots and Lawns, which could not be had this year, formed a most attractive feature of the preceding Exhibition. On the other hand, the Hall this

year was so judiciously decorated and ornamented, that the general effect was much more pleasing to the eye. The imitation of the palm-tree as a centre-piece, was a noteworthy attempt to create effect; but the mechanical execution of the attempt was open to severe criticism. The Grottoes were well arranged, and credit is due to the designers. The Towers, we presume, were intended as a portion of the Rock-work; but the idea was but crudely carried out, as they were not in harmony.

As a whole, we may congratulate the Society on its successful consummation of so large and praiseworthy an undertaking, in which it was so well and materially assisted by the Horticultural Hall Association.

Financially, we claim for the Society a complete success. Young and without means to speak of, destitute of resources, the Exhibition resulted in an acknowledged triumph. We do not know exactly what the financial condition is, but we are authorized to say, that the net proceeds were over \$1,200. Many and costly fixtures had to be prepared, which will be useful for future Exhibitions, and the expense for the proposed Spring Exhibition will be comparatively very light.

The public showed a remarkable degree of gratified appreciation. The visitors to the Fair were, almost exclusively, of the very best class of our population. During the Exhibition, many encouraging letters were received by the officers of the Society, with many kindly words of encouragement; and as the efforts of the Society are, or should be, directed less to money-making than to the creating of taste and obtaining a fair appreciation of its efforts to foster Horticulture, the Exhibition of 1872 must be considered as one it may well be proud of.

One of the most popular and pleasing features was, the distribution of small plants among the children who visited the Fair. The little ones were delighted with the privilege of going to the tables—covered with hundreds of plants—and selecting for themselves. Their happiness was plainly visible;

and this fact suggested to us that the rising generation will in time show a fair appreciation of the fascinating pleasures of Floriculture.

The Exhibition was kept open entirely too long; it is next to impossible to keep up a

good show of perishable articles for three weeks and a half. To continue a Horticultural Exhibition for nine days, is all that can reasonably be expected; and we hope that the Horticultural Society will act wiser in this respect in the future.

PREMIUMS AWARDED AT THE HORTICULTURAL EXHIBITION.

Class I.—Plants.

Largest and best collection of Flowering Plants in Bloom, to F. Lüdemann & Co.....	\$50 00
Second largest and best collection of Flowering Plants in Bloom, to E. L. Reimer.....	30 00
Third largest and best collection of Flowering Plants in Bloom, to Miller & Sievers....	15 00
Collection of Evergreens indigenous to Australia to E. L. Reimer.....	20 00
Largest and best collection of Coniferæ, native and foreign, to E. L. Reimer.....	40 00
Best and largest collection of Greenhouse and Conservatory Plants, to E. L. Reimer....	30 00
Second best and largest collection of Greenhouse and Conservatory Plants, to F. Lüdemann & Co.....	15 00
Best and largest collection of Bedding Plants, to E. L. Reimer.....	15 00
Best and largest collection of Hardy Ornamental Foliage Plants, to E. L. Reimer.....	20 00
Second best and largest collection of Hardy Ornamental Foliage Plants, to F. Lüdemann & Co.....	10 00
Best and largest collection of Tender Ornamental Foliage Plants, to Th. Brown of Woodward's Gardens.....	20 00
Second best collection of Tender Ornamental Foliage Plants, to F. Lüdemann & Co....	10 00
Best and largest collection of Bulbous Rooted Plants, to Miller & Sievers.....	10 00
Second best collection of Bulbous Rooted Plants, to F. Lüdemann & Co.....	5 00
Best and largest collection of Tropical Plants, Th. Brown of Woodward's Gardens.....	25 00
Best and largest collection of Climbing Plants, to E. L. Reimer.....	15 00
Second best collection of Climbing Plants, to F. Lüdemann & Co.....	10 00
Best and largest collection of New and Rare Plants, to Miller & Sievers.....	30 00
Second best collection of New and Rare Plants, to F. Lüdemann & Co.....	20 00
Best and largest collection of Plants for Hanging Baskets and Rockwork, to E. L. Reimer,	10 00
Best and largest collection of Ferns, to Miller & Sievers.....	20 00
Second best collection of Ferns, to E. Meyer.....	10 00
Best and largest collection of Roses, in pots, to E. L. Reimer.....	30 00
Second best collection of Roses, in pots, not less than twenty varieties, to F. Lüdemann & Co,	20 00
Best collection of Coleus, to F. Lüdemann & Co.....	10 00
Second best collection of Coleus, to Miller & Sievers.....	5 00
Best and largest collection of Fuchsias, to F. Lüdemann & Co.....	30 00
Second best collection of Fuchsias, to E. L. Reimer.....	20 00
Third best collection of Fuchsias, to Miller & Sievers.....	10 00
Best and largest collection of Double Geraniums, to F. Lüdemann & Co.....	20 00
Second best collection of Double Geraniums, to E. L. Reimer.....	10 00
Best and largest collection of Variegated Leaf Geraniums, to E. L. Reimer.....	20 00
Second best collection of Variegated Leaf Geraniums, to F. Lüdemann & Co.....	10 00
Best and largest collection of Zonale Geraniums, to E. L. Reimer.....	10 00
Second best collection of Zonale Geraniums, to Miller & Sievers.....	5 00
Best and largest collection of Flowering Begonias, to F. Lüdemann & Co.....	10 00
Second best collection of Flowering Begonias, to Miller & Sievers.....	5 00
Best and largest collection of Variegated Leaf Begonias, to E. Meyer.....	10 00
Best and largest collection of Auriculas and Primulas, to Miller & Sievers.....	10 00
Best collection of Pansies, to Miller & Sievers.....	10 00
Second best collection of Pansies, to F. Lüdemann & Co.....	5 00
Best and largest collection of Verbenas, to Miller & Sievers.....	10 00

Second best collection of Verbenas, to E. Meyer.....	5 00
Best and largest collection of Pinks, to F. Lüdemann & Co.....	10 00
Best and largest collection of Petunias, to Miller & Sievers.....	10 00
Best and largest collection of Cactus, to Miller & Sievers.....	10 00
Second best collection of Cactus, to E. Meyer.....	5 00
Best collection of Plants, in 3 inch pots, to E. L. Reimer.....	10 00
Best collection of best grown Plants, not less than 25 varieties, to E. L. Reimer.....	20 00
Second best collection of same, not less than 10 varieties, to E Meyer.....	10 00
Best collection of Plants indigenous to California, to Miller & Sievers.....	25 00

Class II.—Miscellaneous.

Best arranged Pair of Rustic Hanging Baskets, to E. L. Reimer.....	15 00
Best arranged Pair of Wire Hanging Baskets, to E. L. Reimer.....	10 00
Best arranged Wire Flowerstand, to E. Meyer.....	10 00
Best Miniature Garden, to Reimer & Meyer.....	75 00
Second best Miniature Garden, to Miller & Sievers.....	40 00
Best Exhibition of Wirework for Flower Culture, to G. H. Gruenhagen & Co.....	Diploma.
Best Exhibit of Rustic Work, to S. S. Tonnar.....	20 00
Best Design for a Suburban Garden, to F. A. Miller.....	20 00
Second best Design for a Suburban Garden, to C. W. Mohr.....	10 00
Best arranged Fern Case, to E. Meyer.....	20 00
Best Rockery, to Reimer and Meyer.....	50 00
Best collection of Coniferæ Cones, to C. Stephens.....	10 00

Class III.—Cut-Flowers.

Best and largest Display of Cut-flowers, to F. Lüdemann & Co.....	15 00
Second best Display of Cut-flowers, to E. L. Reimer.....	10 00
Best collection of Gladiolus, to Miller & Sievers.....	10 00
Best collection of Roses, to E. L. Reimer.....	10 00
Second best collection of Roses, to Miller & Sievers.....	6 00
Third best collection of Roses, to F. Lüdemann & Co.....	3 00
Best collection of Pansies, to Miller & Sievers.....	3 00
Second best collection of Pansies, to F. Lüdemann & Co.....	1 00
Best collection of Dahlias, to E. A. Upton.....	15 00
Second best collection of Dahlias, to N. Malmgren.....	5 00
Best collection of Phloxes, to F. Lüdemann & Co.....	5 00
Best collection of Hollyhocks, to F. Lüdemann & Co.....	Diploma.

Class IV.—Fruits.

Best and largest collection of Fruits, to Z. W. Moore.....	50 00
Best and largest collection of Apples, to A. S. Greenlaw, of Sacramento.....	20 00
Best 12 varieties of Apples, to John Rock, of San Jose.....	10 00
Best and largest collection of Pears, to R. B. Woodward, of Napa.....	20 00
Best 12 varieties of Pears, to John Rock, of San Jose.....	10 00
Best and largest collection of Plums, to John Rock.....	10 00
Best collection of Nectarines, to John Rock.....	5 00
Best collection of Prunes, to John Rock.....	5 00
Best collection of Quinces, to John Rock.....	5 00
Best and largest collection of Foreign Grapes, to W. B. & G. West, of Stockton.....	20 00
Second best collection of Foreign Grapes, to Carrington, of Florin.....	10 00
Best 10 varieties of Wine Grapes, to W. B. & G. West.....	10 00
Best 6 varieties of Table Grapes, to R. B. Woodward.....	5 00

Class V.—Bouquets.

Best 2 Baskets of Flowers, to A. Duhem with Miller & Sievers.....	15 00
Best Pyramid Bouquet, to E. L. Reimer.....	5 00
Best 2 Round Bouquets, to W. Robertson.....	5 00
Best 4 Table Bouquets, to W. Robertson.....	10 00

Best 2 Wedding Bouquets, to A. Duhem, with Miller & Sievers.....	6 00
Best Funeral Wreath, to W. Robertson.....	10 00
Second best Funeral Wreath, to E Meyer.....	5 00
Best Cross, to W. Robertson.....	10 00
Second best Cross, E. Meyer.....	5 00
Best Floral Decoration, to A. Duhem, with Miller & Sievers.....	Special Premium.

Additional Premiums.

Best and largest exhibit of California grown Seed, to Sevin Vincent, of San Francisco...	10 00
Best and largest exhibit of California dried fruits, to L. A. Gould, of Santa Clara.....	10 00
Best California White Wine, to United Anaheim Wine Growers' Association.....	25 00
Best California Red Wine, to United Anaheim Wine Growers' Association.....	Diploma.
Best California Port Wine, to Geo. West, of Stockton.....	Diploma.
Oranges and Lemons, to Dr. J. Strentzel, of Martinez.....	Diploma.
Preserved Flowers, to Mrs. A. O. Cook.....	10 00
Best specimen of Ferns, to Th. Brown, of Woodward's Gardens.....	Diploma.
Artificial Flowers, to Mrs. Cotter.....	5 00
Wax Fruit, to Mrs. Cotter.....	Diploma.
Water Lilies of Wax, to Miss Bessie M. Harrold.....	5 00
Paintings of Fruit, to Miss Romanse.....	Diploma.
Rustic Work, to M. Hill, of Napa.....	Diploma.
Autumnal Foliage, to Mrs. A. O. Cook.....	Diploma.
Wax Flowers, to Mrs. A. O. Cook.....	Diploma.

THE PRINCIPLE OF IRRIGATION.

Remarks of Mr. Thomas Meehan before the Colorado Farmers' Club, at Greeley, August, 1871.

We extract from the *Gardener's Monthly*, for August, 1872, the following valuable remarks on Irrigation, by the talented editor of that magazine, considering them especially worthy the perusal of many of our readers.

"In the East some people say that your system of irrigation is a humbug, but it has often been my privilege to defend this system, and to say, as I do to-night, that so far as the very best results are considered, agriculture by irrigation is capable of producing better results than any other. I came here, therefore, rather prejudiced in its favor, and instead of expressing surprise, as some do at your great results, will say you have not yet come up to what the system is capable of, for this system is so excellent that you hold in perfect control all the elements of plant nutrition and growth; these are, namely, heat, air, light, and water. In the East we have all these it is true, but unfortunately

in our seeding time there is often too much water; corn-planting is delayed for weeks by cold rains; and oats, instead of being sown in March, frequently remain out of ground until May, when, if a hot season follow we have but half a crop. In short, we are famous in the East for mildews, moulds and rusts, and various diseases, most of which are due to too much water in the soil at one time or another during the growth of plants. Here you have light, air, and heat as we have, and you have water with the valuable addition of having the water under complete control. You can give the crops the water just as they need it, and cut it off the moment they have had enough; and, gentlemen, I am not surprised that you equal us in your agricultural productions. It would be to your shame if you did not, and I shall expect you to excel in what you now show us. Few persons have an idea of the great value of holding well in hand the great powers of nature, and especially this one of water. It has been my fortune to be interested during my life in horticulture as well as agriculture, to work in the garden as well as on the farm, and it is well known that the garden will at

any time, excel the farm in the value of its productions. In fruit culture, for instance, we build a vinery, and produce grapes under glass far superior to any which the most noted vignerons of this country or Europe can raise in the open air—so of other fruits and vegetables. The peach, pine-apple, cucumbers, or salad—all attest the superiority of this kind of culture over the productions of the field—and why? Chiefly because we have all the conditions of success under complete control, and especially this of water.

“But I would say to you that the common assertion that water is the food of plants, is to be received with some qualification. Water is rather an enemy than a friend, when given as water. We find water in plants, but it is drawn into their system rather in the state of vapor than as water. Indeed it is watery vapor which the roots of plants feed on, and not water. I make bold to say that very few crops, except such as rice, that live in water, would stand to have all their roots entirely submerged for twelve hours in water and not suffer. In fact, and it is a curious subject for those interested in philosophy to study, only those plants which need little water in their structure, grow in water. If you cut across a bulrush, or any other like plant, you will find its structure made up of dry pith, or otherwise dry and hollow, while if you take a milkweed, cactus, or other of the weeds which grow about you on these dry hills, and cut them across, you will find the moisture flowing freely. So we come to the conclusion that it is in open, porous soil, aided by the gases of the atmosphere, that the roots of plants are able to take up, in the state of vapor, the moisture they contain.

“You will thus see in your system of irrigation your danger will be that the roots will get too much water. Instead of planting, and then pouring the water on, it will be a wiser policy to prepare the soil deeply to hold moisture in the shape of vapor; introduce the water before planting, then plant after this well-prepared soil has become moderately dry.

“I have said that the roots of plants suffer if for twelve hours they are entirely submerged in water. This is even more true of trees than of other plants, and perhaps more so of grape-vines than of any other woody thing. We find by practical observation that this fruit does best on the driest hills, where the soil is so arid that corn-stalks will dry to shavings, here the vine flourishes; and the driest seasons have always proved the best grape years.

“But, ladies and gentlemen, I am reminded by this matter of water in the soil, that I have been asked to say a few words to you about evaporation. Of course, you know that all the water taken into a plant's system by the roots does not stay there, but is as rapidly given off into the atmosphere, and that the dryer the atmosphere the more is given off. This evaporation takes place from every portion of the plant, from the branches and the twigs, as well as from the green leaves, and in winter as well as summer. Indeed, it is in proportion to the extent of surface exposed. There is more moisture lost by a tree in winter than in summer. You know how it is, gentlemen, or if not, these ladies, accustomed to the laundry, can tell you that washed linen will dry much faster by a cold, dry wind in winter, than under an average summer sun, and you will thus see the great advantage of sheltering your farms and gardens from the scorching effects of wintery winds.

“You can, by looking at nature around you see the great value of shelter from winds. While exploring these mountains to the back of you, I find a large variety of rare coniferous trees which we in the East give high prices to possess. I found that wherever these were growing in sheltered valleys, or warm, cosy cañons, these noble specimens were clothed with foliage from summit to the ground: but on the hills, exposed to the bleak winds of winter, rich as they were, they seldom reached half the size of those in the other places. But you may say, how can there be evaporation in winter, when the

trees are at rest? If the moisture escapes from the branches how is it restored by the roots? Now the roots are collecting moisture all through the winter season. It makes no difference how frozen the soil may be, the little rootlets thaw the hard clod just about them and take up the watery vapor, by their own internal heat, and thus supply the needed material for waste through the branches.

"I may, perhaps, offer a few suggestions as to the kind of trees to plant. Everything depends on getting them rapidly down into the sub-soil, where the roots can be away from the drying influences of the atmosphere, Nature offers some hints. Only those plants grow here now which have the power of throwing their roots deeply down. I notice that in the mountains the prevailing deciduous tree is the oak, and the whole oak family are proverbial for the depth of their roots. Your oak is not a large growing tree, but botanically it is nearly allied to the English oak of Europe, and I am quite sure that this English oak would do remarkably well in this country. It is, moreover, a rapid grower, and I have seen it make five feet in one year. In all you choose I would take, therefore, the deep tap-rooted sorts—even in the matter of hedging-plants, I would do this. I noticed to-day that you are growing the osage-orange, but I should think the honey-locust has a much deeper rooting tendency, and would be a better plant for this purpose.

"Again, ladies and gentlemen, I would say, you need not stop to defend your irrigating system of agriculture. It is the system which best holds in control the elements of success. Have a care to keep your soil filled, not with water, but with watery vapor, and guard your crops from evaporation by planting shelter belts, and not even these beautiful specimens of cereals and vegetables, which you have on this platform to show us, will satisfy you—for you will excel your best expectations."—*Gardener's Monthly*.

THE first Annual Exhibition of the Napa and Solano District Agricultural Society will commence October 8th.

ON THE ECONOMIC VALUE
OF CERTAIN
AUSTRALIAN FOREST TREES,
And their Cultivation in California.

BY ROBERT E. C. STEARNS.

[Continued from page 272 of last number.]

The many valuable properties of the Eucalyptus attracted the attention of the French Government several years ago. A specimen in the *Jardin d'Acclimatation* at Algiers excited the admiration of the Emperor while on a visit to that place, and upon measuring the tree it was found, according to the *Paris Moniteur*, to have made "a height of thirty feet and a diameter of six inches in two years." Since that time it has been extensively cultivated in Algiers, and of late it has been stated that it "is making rapid progress in the south of France, Spain and Corsica, especially on account of its alleged virtues as a remedy for fever. It furnishes a peculiar extractive matter, or alkaloid, called Eucalyptine, said by some to be as excellent a remedy against fever as quinine.

"In Spain its efficacy in cases of intermittent and marsh fevers has gained for it the name of 'Fever Tree.' It is a powerful tonic and diffusible stimulant, performs remarkable cures in cases of chronic catarrh and dyspepsia, is an excellent antiseptic application for wounds, and tans the skins of dead animals, giving the fragrance of Russia leather. The tree prefers a marshy soil, in which it grows to a great height very rapidly. It dries the earth under it by evaporation from its leaves, and shelters it from the sun, thus preventing the generation of marsh miasm."*

Of the medicinal properties of *E. globulus* we have additional testimony in a recent number of the *Practitioner*,† where Dr. M. C. Maclean relates the results of his experiments on patients in the Hospital Wards at Netley, England. He says, in connection with certain cases of chest aneurisms and cardiac

* Harper's Magazine, of March, 1872; *Scientific Record*, page 630.

† No. XLI, p. 268, Nov., 1871.

asthma, "With the exception, perhaps, of the subcutaneous injection of morphia, I know no remedy so efficacious in allaying pain, restoring dyspnoea, calming irritation, and procuring sleep in such cases, as to be compared to *E. globulus*." He also refers to the use in Germany of a tincture made of the leaf, which "has been used successfully in two-drachm doses in the treatment of intermittent fevers." It appears that it is not only used medicinally in form of a tincture, but also that cigars are made from the leaves, and its palliative influence obtained by smoking.

"German physicians, as appears from medical journals, have found a tincture of the leaves of the *Eucalyptus globulus*, or Australian gum-tree, to be a remedy for intermittent fever. Dr. Lorimer gave it to fifty-three patients, of whom forty-three were completely cured. In five others there was a relapse, owing to a failure in the supply of the tincture. In eleven of the cases quinine had been used without effect, and nine of these were cured by the *Eucalyptus*."*

Other species of the Eucalypti, of great value and well worthy of consideration, are recommended by Dr. Mueller.

E. amygdalina, Labill, which is sometimes met with 400 feet in height; one specimen in the Dandenong ranges measured 480 feet, † surpassing in altitude the gigantic Sequoias of our own State; the wood of this species is said to be well adapted for "shingles, rails, housebuilding, for the keelson and planking of ships, and other purposes;" in rapidity of growth it equals *E. Globulus*, but is not so easily satisfied with any soil.

E. diversicolor, F. v. Mueller, a native of S. W. Australia, sometimes reaching 400 feet in height, with a proportionate growth of stem. The timber is excellent, and young trees are reported as doing well even "in dry exposed localities in Melbourne." It is regarded by

Dr. Mueller as a valuable shade tree for avenues, as it makes a dense growth.

The *Eucalyptus citriodora*, Hooker, a native of Queensland, "combines with the ordinary qualities of many Eucalypts the advantage of yielding from its leaves a rather large supply of volatile oil of excellent lemon-like fragrance."

M. gomphoccephala, Candolle, grows to a height of "fifty feet, wood close-grained, hard and not rending."

Eucalyptus marginata, Smith. "The Jarrah or mahogany tree of S. W. Australia, famed for its indestructible wood, which is attacked neither by Chelura nor Teredo nor Termites, and therefore so much sought for jetties and other structures exposed to seawater, also for underground work, and largely exported for railway sleepers. Vessels built of this timber have been enabled to do away with copper-plating. It is very strong, of a close grain and a slightly oily and resinous nature; it works well, makes a fine finish, and is by shipbuilders here considered superior to either Oak, Teak or indeed any other wood." The tree does not grow as rapidly as the Blue Gum in the neighborhood of Melbourne, but Dr. Mueller expresses the opinion that it would make a rapid growth in a more favorable locality.

The *E. rostrata*, Schlecht, the Red Gum of Victoria, is a very valuable species for the "extraordinary endurance of the wood underground, and for this reason highly valued for fence-posts, piles and railway sleepers; for the latter it will last a dozen years, and if well selected much longer. It is also extensively used by shipbuilders, for mainstem, sternpost, innerpost, deadwood, floor timbers, futtocks, transoms, knightheads, hawspieces, cant, stern, quarter and fashion timber, bottom planks, breasthooks and riders, windlass, bowrails, etc. It should be steamed before it is worked for planking. Next to the Jarrah from W. Australia," this is the best wood for resisting the attacks of seaworms and white ants. This species reaches a hundred feet in height, which is

* Annual Record of Science and Industry, 1871, page 586.

† Trans. and Pro. of the Royal Society of Victoria, Part I, Vol. VIII, p. ix.

also the height of the next and last of the Eucalypti referred to herein, viz: *E. sideroxyylon*, *Cunn.*, which produces a wood of great strength and hardness, and desirable for carpenters, shipbuilders, and wagon-makers, being suitable for wheels, treenails, belaying pins, and is considered the strongest wood in the colony; also valuable for railway sleepers, underground work in mines, etc.

The wood of the Gums is "so soft at first as to render the felling, splitting, and sawing up of the tree, when green, a very easy process, but when thoroughly dry becoming as hard as oak."*

THE PLANTING OF TREES ON PRIVATE PROPERTY.

From the Report of the Royal Commission of Victoria, Australia, on Foreign Industries and Forests.

For the promotion of this object the same idea, which has lately been carried out in New Zealand, seems to have suggested itself to some of your correspondents, namely, the granting of land in proportion to the extent successfully planted with exotic or native trees. The several proposals amount to this, that land certificates be offered to every owner of five, ten, twenty, thirty, or more acres of healthy growing trees, planted out three, or four, or five years, as may be deemed fit, the proportion of land to be so offered varying with the fancy of the writer. Some propose acre for acre; others, more liberal or better acquainted with the cost of planting, would give five acres of bush land for every acre planted. Premiums of other sorts are also named, including prizes offered by agricultural societies; but these last would scarcely suffice for inducement to plant, unless the ordinary amounts of such prizes are greatly increased. One suggestion is, that the young trees should be raised at forest nurseries, under the care either of local boards or the Inspector of Forests, and that money premi-

ums should be offered to the successful growers of certain numbers of these for five or seven years. The raising of such trees at public nurseries seems to be a favorite idea—these to be either given away or sold at cost price. It is stated that many owners of land, who can not afford to pay the prices asked by nurserymen, would plant and take care of trees, if they could obtain them at a low rate; and this view of the case is put in different forms. Some would not only have the trees given away, but they require, in addition, full instructions for planting and tending them, together with particulars as to the future value of the sorts recommended, at different periods of their growth. Others more reasonably ask that information of this kind be first distributed through the country, and that the young trees be in due time distributed, at cost price, to all such as may require them. Others, again, ask for information and a free distribution of the seeds of such trees as it may be desirable to grow, whether native or exotic. It is pointed out that the cost of collecting seeds here is not much, and as these are so highly valued in other countries—France, for instance—that we could obtain cheaply all the seeds we would require to import by establishing a system of exchange. But this would have to be conducted through a Government department, or entirely trustworthy agents. Then, as many farmers, who can not afford to buy them, would like to have young trees to plant out for shelter, it is suggested that persons farming their own land might have a certain number of trees from the forest nurseries, in proportion to every acre cultivated. One idea is, that owners of land by the side of wide roads should be allowed to fence in a certain width of the land reserved for the road, if they would undertake to plant this. And as to the roads generally, it is suggested by many of your correspondents, that the local managing bodies, whether councils or forest boards, should be compelled to plant trees along them every year, the numbers so planted to be in proportion to their revenue

* Baird's Dict. Nat. Hist., p. 235.

from forests or other sources, the distance of the trees apart to be regulated by some general rules. Common suggestions are, also, that plantations of anything over an acre in extent should be exempt from rates or charges of any kind, and that trees planted by selectors should be liberally estimated, when valuing their improvements. The bulk of the recommendations are, however, to the effect that young trees of useful kinds should be raised in large quantities in forest nurseries, by competent men in the service of the State, or of local boards; these to be afterward planted out according to the mode experiment may prove most desirable. If owners of land would not buy them, they might be given away; or, as was done in France once with mulberries, even a premium might be offered for successfully growing the sorts most valuable to the country. But the necessity for not sending out the young trees until they have attained to a good size is strongly insisted on. The sending out of young trees of considerable size to distant localities is not only too expensive, but in many respects an impossibility, especially as regards the evergreen sorts. Hence the necessity for local nurseries.

THE BRAZIL NUT.—(*Bertholletia excelsa*).

The *Revue Horticole* says the fruit of the *Bertholletia excelsa* is commonly called "Monkey's Pot," which name is also given to the *Lecythis ollaria*. This arises from the fact, that its form suggests that idea, and because the monkeys eagerly devour the seeds contained within it, drawing them out through an opening at the top of the fruit, which they enlarge, if necessary. The fruit, which seldom reaches us entire, is surrounded by a kind of green shell, at the bottom of which is an exceedingly hard woody covering, enclosing a number of irregularly triangular seeds not unlike a slice of melon cut away a little on one end. These seeds are shut up in a woody, wrinkled, brown coat, which though rather thin, is very tough. When fresh they

are good to eat, having a flavor somewhat like that of the hazelnut or walnut; but as they become old the decomposition of the large amount of oil they contain causes them to taste rancid.

According to Humboldt and Bonpland the fruit is about the size of a child's head, being from three to five inches in diameter. Some are oval-shaped, and others rounded but depressed above and below. The fruit consists of a woody capsule, valveless, covered with a thick, fleshy rind, which shows slight traces of four or five rounded angles that it had in its ovarian state. The lid at the top is very small, and unlike that of the fruit of the *Lecythis*, falls inside the capsule instead of outside. When the fruit is ripe, and the partitions of the cells are gone, there appear sixteen to twenty bony, wrinkled, kidney-shaped seeds, a little flattened on the inside. The kernel consists of a fleshy, whitish, inseparable, homogeneous substance.

In December, 1821, "I saw the *Bertholletia* flowering at Cayenne. This was the second time it had flowered, but no fruit arose therefrom, which was most likely due to the youth of the plant, although it was then twelve years old and forty feet in height. There are but few homes in Cayenne which have not some of these trees. The fruit which I have examined and drawn came from Brazil. The Portuguese of Para send yearly a large quantity of the seeds of the *Bertholletia* to Cayenne under the name of Touka, and this name has been also given to the trees which have sprung from them. These seeds are sold at the Cayenne market. As long as they are fresh they are equally as good as our sweet Almonds, but they turn rancid very quickly." These fruits, which are called also Brazil Chestnuts, and to which the natives give the name of "Invia," furnish a very large amount of oil for burning.

This is what M. Bonpland has to say about it:—"We have been very fortunate, M. Humboldt and I, in finding some of these kernels during our voyage upon the Orinoco. For three months we lived only on some bad

chocolate, on rice cooked in water, always without butter and often without salt, until at last we got a large number of the fresh fruit of the *Bertholletia*. It was in June, and the Indians had just made a harvest of them. These kernels are of a most exquisite flavor, especially when they are fresh. The tree came originally from Brazil, but it is also to be found in Spanish America, where it forms forests upon the banks of the Orinoco."

Moore's Rural New Yorker.

Editorial Portfolio.

We have to apologize to our subscribers for the delay in the publication of our magazine this month, as well as for the omission of Fairs, Favors Received, New Plants, etc., Monthly Work, Fruit Market Report, etc., etc. We can only offer in extenuation, that the late Horticultural Exhibition in this city, and the preparation of our report of it, engrossed so much of our time and attention that the delay, though much regretted by us, was unavoidable.

FAVORS RECEIVED.

Premium List of the Kansas City Industrial Exposition and Agricultural Fair, to be held in Kansas City, Missouri, September 23d.

List of Premiums to be awarded by the Sonoma and Marin District Agricultural Society, to be held at Petaluma, from September 9th to September 14th, 1872.

We acknowledge the receipt of a Complimentary Ticket, to the Fair of the Bay District Agricultural Association, at the Agricultural Park, San Francisco.

Thanks to the President and Secretary of the San Joaquin Valley Agricultural Society for a Complimentary Ticket to their exhibition.

We have received the Report of the Commissioner of Agriculture for the year 1871,

of which we will speak hereafter. It is finely illustrated, and worthy of careful perusal.

We are indebted to the officers of the Contra Costa County Agricultural Society for a Complimentary Ticket to their Twelfth Annual Fair.

We have received, in pamphlet form, the proceedings of the Annual Convention of the South Carolina Agricultural and Mechanical Society; also the Premium List of said Society for their Fourth Annual Fair, to be held in Columbia, S. C.

Our thanks to Baron von Mueller, Director of the Botanical Gardens of Melbourne, Australia, for his valuable pamphlet entitled "Select Plants (exclusive of Timber Trees) eligible for Victorian Industrial Culture."

We are under obligation to Carmany & Co. for the October number of *The Overland Monthly*—altogether an excellent number. We read with interest the very acceptable article on the "Colorado River;" also "Japanese Wrecks in American Waters." "Hawaiian Fun-Beams" is amusing; other articles are good. Although enthusiastic admirers of *poetry*, 'tis irksome unless good; this installment of "Isles of the Amazons" is more attractive than the first. Remarks on Current Literature and the Arts are to the point.

We have received a neat volume entitled "Window Gardening," which is devoted especially to *The Culture of Flowers* and Ornamental Plants for indoor use and parlor decorations. Edited by Henry T. Williams, the well known writer on Horticulture. We can highly recommend this valuable publication to all who love flowers and floral decorations. Mr. Williams says in his preface to the above work: "The taste for Window Gardening, and the plant decoration of apartments, is becoming almost universal; scarcely a cottage or villa but has its attempts, whether simple or elaborate, to decorate the windows, the porch, and the balcony with some few

flower-pots or climbing vines; it is a sign of healthy sentiment, for the presence of flowers always aids in the development of refinement and an elevated taste." We fully indorse this. The "Window Gardening" is finely illustrated, and many practical ideas may be derived from it. The price for the work is only \$1.50, and it can be obtained of the publisher, Henry T. Williams, New York, or we will furnish it to parties who desire it, at the same rate.

OUR EXCHANGE TABLE.

The following valuable additions have been made to our Exchange Table:

The Western Planter, devoted to the interests of the Farmer, Mechanic, and Merchant. Published weekly by R. H. Stone & Co., Kansas City, Mo.; price, \$1.50 per annum.

The Science of Health, for September, contains much practical matter and useful information. Published by Samuel R. Wells, New York; price, \$2.00 per annum.

For Everybody is one of our welcome visitors; it is a finely illustrated family paper, published monthly by Henry H. Sage, Buffalo, N. Y.; price, \$2.00 per annum.

The Western Ruralist, a monthly publication, devoted to the interests of the Rural Districts of the West. Published by F. C. Wood & Co., St. Louis; subscription, 1.00 per year.

Western Agriculturist, a neatly illustrated monthly, devoted to Agriculture, Horticulture, and Household Reading. Published by T. Butterworth, Quincy, Ill.; subscription price, \$1.00 per annum.

Whitaker's Milwaukee Monthly, for September, is as interesting as ever; many able contributions make it a cheap and valuable monthly for the family. Published by T. J. Gilmore, of Milwaukee.

The Southern Agriculturist, a monthly, devoted to the Farm, the Garden, the Orchard, and the Stock-yard; to Manufacturing and

the Mechanical Arts; published by Thomas J. Key, Louisville, Ky.; terms, \$2.00 per year;

The North American Bee Journal, a monthly periodical, devoted to Bee Culture, has just now appeared for the first time, and is of very neat appearance; price, \$2.00 per annum. Address "North American Bee Journal," Franklin, Simpson Co., Kentucky.

Turf, Field, and Farm, a weekly review of the Turf, the Field, and Aquatic Sports; it also takes cognizance of Agriculture, Art, Literature, Chess, Natural History, etc., published by the "Turf, Field, and Farm Association," 37 Park Row, N. Y.; subscription price, \$5.00 per annum.

American Working People, designed as a first-class journal for workmen and their families, containing valuable reading matter of the most instructive and entertaining character. Published monthly by the Iron World Publishing Co., Pittsburgh; price, \$1.50 per year.

The Ladies' Floral Cabinet and Pictorial Home Companion, a handsome illustrated journal, devoted to the culture of flowers for outdoor and indoor decoration, and to historical home literature; subscription, 75 cents per annum. Published monthly by H. T. Williams, New York.

CATALOGUES RECEIVED.

Wholesale Catalogue of Trees, Plants, etc., for sale by Mahlon Moon, Morrisville, Pa.

Wholesale Price List of Bryant's Nurseries, Princeton, Illinois.

Semi-Annual Trade List of Heike's Nurseries. Dayton, Ohio.

Gould Bros. Wholesale Catalogue of Fruit and Ornamental Trees, Shrubs, Roses, etc. Rochester, N. Y.

Catalogue with Illustrations of Rustic Work manufactured and for sale by James King, of New Haven, Conn.

Vick's Illustrated Catalogue of Hardy Bulbs, by James Vick, Rochester, New York.

Briggs Bros. Illustrated and Descriptive Catalogue of Hardy Bulbous Flowering Plants. Rochester, N. Y.

Hooper, Brother & Thomas, Cherry Hill Nurseries, Westchester, Pa. Semi-Annual Trade List for Autumn, 1872.

Trade List for Fall of 1872, of Fruit Trees, Seedlings, etc., for sale by A. & J. Hammond, Geneva, New York.

Wholesale Catalogue of the Mount Hope Nurseries, Rochester, New York, Ellwanger & Barry, Proprietors.

Wholesale Trade List of Fruit and Ornamental Trees by Sears, Henry & Co., Geneva, New York.

Catalogue of Choice Flower and Vegetable Seeds, for sale by Henry A. Dreer, Philadelphia, Pennsylvania.

Germantown Nurseries, Philadelphia, Thos. Meehan, Proprietor. Wholesale Price List (for the Fall of 1872) of Rare, Ornamental and Fruit Trees, and Tree Seeds.

Descriptive and Illustrated Catalogue of Bulbous Flower Roots, etc., for sale by Ellwanger & Barry, Mount Hope Nurseries, Rochester, New York.

Descriptive Catalogue of Plants for the Greenhouse, Conservatory and open ground, for sale by Ellwanger & Barry, Mount Hope Nurseries, Rochester, New York.

Descriptive Catalogue of Ornamental Trees, Shrubs, Roses and Flowering Plants, for sale by Ellwanger & Barry, Mount Hope Nurseries, Rochester, New York.

BIG WORK.—A gardener in the employ of Peter Henderson, a well-known florist in the East, will pot 5,000 to 7,000 cuttings in a day of ten hours. One of his old foremen has planted as high as 10,000 cabbage and lettuce plants in a day, while the work of an ordinary man is but 2,000 to 6,000.

Editorial gleanings.

STAKES AND SUPPORTS FOR THE GARDEN.—A correspondent informs the *Technologist* that he has now in his possession stakes for flowers and shrubs which have been in use for over nine years, and their points are yet perfectly sound. "I take, he says, common coal tar and bring it to a boiling point in a kettle some ten to twelve inches deep; I then place the lower part of the stake in the boiling tar, immersing it as deeply as the pot will allow. After remaining therein about ten minutes, I take it out, allowing the surplus tar to drain off, and roll the tarred portion in clean sharp sand, covering every part of the tar. After they have become perfectly dry, I give them another coat of tar, completely covering the sanded part." He keeps the upper parts well painted.

FLOWERS AS DISINFECTANTS.—Prof. Mantegazza has discovered that ozone is developed by certain odorous flowers. A writer in *Nature* states that most of the strong smelling vegetable essences, such as mint, cloves, lavender, lemon and cherry laurel, develop a very large quantity of ozone when in contact with atmospheric oxygen in light. Flowers, destitute of perfume, do not develop it, and generally, the amount of ozone seems to be in proportion to the strength of the perfume emanated. Prof. Mantegazza recommends that, in marshy districts, and in places infested with noxious exhalations, strong-smelling flowers should be planted around the house, in order that the ozone emitted from them may exert its powerful oxidizing influence. So pleasant a plan for making a malarious district salubrious only requires to be known to be put in practice.

REMEDY FOR SLUGS.—An application of slacked lime will generally cause slugs to disappear, but will not kill them. If, however, lime is slacked on the spot and applied hot, it is certain destruction to them. We have not tried it, but we are assured that it is a successful remedy.

SCALE INSECTS ON TREES.—Dr. Wm. P. Gibbons, of Alameda, delivered a very interesting lecture before the Oakland Farming, Horticultural and Industrial Club, some time since, on the subject of scale insects on trees. The Doctor exhibited a drawing, many times enlarged, of one species of scale insects which is making sad havoc with the fruit trees in this vicinity. It is somewhat of the shape of a half pea, and varies in size from the size of a half pea down. When lifted from the tree with a knife, it appears like a hollow case filled with a downy substance. They have antennæ, generally with ten joints and three legs on each side. Outside of the antennæ there are fourteen spires encircling the body, which, he at first believed, were used for breathing, as the insect has no mouth. Each foot, or rather termination of the leg, has three bristles, which adapt themselves to any surface and urge the insect along. In reply to a member of the Club, the Doctor said a strong solution of caustic potash was an unfailing remedy for their extermination.—*Alameda Encinal.*

THE CHAMPION TREE PLANTER OF NEBRASKA. J. D. Smith, who lives four miles west of Lincoln, has the championship for tree planting on "Arbor Day." He planted at the rate of one tree per second, for nearly ten hours. The result was 33,550 forest trees. To Mr. Smith must be awarded the medal. It can not be possible, that another man in Nebraska outnumbered the immense forest of Mr. Smith. If there is, let him advise us of the fact, and we will gladly publish it to the world, giving proper credit and applause. Thus far, Mr. J. D. Smith is the champion tree planter of Nebraska's "Arbor Day." So says the *Nebraska Herald.*

BEAUTIFY THE FARM.—You can so beautify your premises that travelers will have to love it as they pass, study the points that attract, and carry in their minds ever after, the recollection that it was a home of outward beauty,

made so by the presence of inward taste and happiness. But to your own mind will come the greater good. Life will be the brighter and happier to you. Your children will grow up to love the home you have rendered so attractive to them, and its beauties will ever act as educating influences for good upon their minds and hearts. The dull routine of hard labor will be relieved by the rational enjoyments which come from the surroundings, whenever brought under their silent power, and you will grow into purer life and a nobler manhood in consequence.—*Maine Farmer.*

INFLUENCE OF VARIOUSLY COLORED LIGHT ON VEGETATION.—As the result of a series of experiments upon the influence of variously colored light upon vegetation, Dr. Bert has arrived at the following conclusions: 1. That green light is almost as fatal to vegetation as darkness. 2. That red light is very detrimental to plants, though in a less degree than green light. 3. That though yellow light is far less detrimental than the preceding, it is more injurious than blue light. 4. That all the colors taken singly are injurious to plants, and that their union in the proportion to form white light is necessary for healthy growth.

The author has examined the transmitted light from the leaves of various plants, and finds that there is a slight difference in the rays which different leaves absorb and utilize; and this, he believes, explains the fact that certain plants flourish in the shade of trees, while others will scarcely exist; in the former case it is supposed that the rays required by the plant are not absorbed by the leaves of the trees, but in the latter they are.—*Monthly Report of the Department of Agriculture.*

POTTING ORCHIDS.—Henderson says, that the best material he ever found for potting Orchids, was a very fibrous kind of turf found in a dry part of a fresh water swamp, and mixed with *sphagnum* and charcoal.

THE
CALIFORNIA HORTICULTURIST
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No. 11.

MARANTA.

At our late Horticultural and Floral Fair, the various specimens of Marantas attracted universal admiration ; and as ornamental foliage plants, they have few if any superiors. As this class of plants seems to thrive well in our climate, under ordinary treatment, we would urge their cultivation, wherever a space in the window or in the conservatory will permit.

We believe the Marantas are all natives of tropical America ; but they are cultivated in the East and West Indies for the starch contained in the roots, or tubers. The arrowroot of America is the product of Marantas ; which term, according to the "Treasury of Botany," is derived from the fact, that the native Indians used the roots of these plants as an application to wounds inflicted by poisoned arrows. The starch is extracted from the tubers when about a year old.

But as our readers doubtless care less for the utility of the Marantas than for their exquisite foliage, we will give a few hints for their proper cultivation as decorative plants. They are fond of a moist atmosphere, and therefore thrive best in a greenhouse or conservatory, where this can be produced without much inconvenience ; yet, we believe our San Francisco atmosphere retains sufficient moisture to insure a good and healthy growth of the Marantas, wherever they can be

protected from the cold and chilly winds. A moderately-warm situation ; frequent airing, if cultivated in the open window ; careful removal of dust and impurities from the foliage by a soft sponge, and frequent watering, are essential points for the successful growth of the Marantas. There are many varieties, of course, which require artificial heat ; but we know a number of excellent varieties which will thrive well under ordinary treatment.

As a proper soil, we would recommend equal parts of leaf-mold, peat, and sand ; in the absence of peat, our black loam, which is so abundant here, will answer the purpose.

We see frequent mistakes made, by giving too large pots. This is wrong ; comparatively small pots, and good drainage, are preferable. During winter, it is advisable to water them less, and allow the plants to rest. If they are watered too much during our rainy seasons, the roots are apt to decay ; a sure indication of such decay is, the rolling up of the ends of the leaves.

Marantas are propagated by division of the roots. This must be done in the spring of the year, unless they are cultivated in proper greenhouses, when it may be done almost at any season. If no artificial heat can be had for the divided plants, they are apt to decay before they have time to establish themselves.

The following varieties are desirable, and

will do quite well under ordinary treatment :

Maranta zebrina—leaves oval-shaped, one to two feet long, when well developed ; above, shining velvet, with broad light and dark green stripes ; below, of a purple-violet color. This is one of the oldest, and also one of the handsomest ; a native of Brazil.

M. bicolor—leaves or stems green above, with whitish spots ; purple velvet below. This is also a very fine *Maranta*, and of easy culture, but slower in growth than the former ; also a native of Brazil.

M. lineata rosea (*M. ornata*), is a very good variety, but, we think, not so easy of culture as the above-named varieties. Leaves shining green, striped rose-and-white ; but, unless proper treatment is given (including artificial heat and moist atmosphere), the rose-colored stripes are apt to run out.

M. Warszewiczii is of the very best. Leaves oblong ; above, velvety green, striped light and dark green, and flamed yellowish green ; below, of a brownish, velvety red. This, also, requires a warmer situation than the first-named varieties ; but will do well under ordinary treatment in the greenhouse, during the warmer season of the year.

M. eximia, *M. amabilis*, and *M. sanguinea*, are all very desirable varieties.

The most of the above-named varieties may now be purchased of florists in this city, at reasonable prices. Every year new and fine varieties are introduced, and are sold in the east, and in Europe, at high prices.

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PRESERVING CUCUMBERS.—The Cucumbers are washed, placed in a barrel in layers with herbs, such as Fennel, Parsley, Tarragon, Onions and Rose Leaves intermixed. Sometimes Allspice or long Pepper is added. When the barrel is nearly full, a solution of salt (one pound to 123 litres of boiling water) is poured, when cold, into the barrel through a small hole in the top, which is afterwards tightly corked. The barrels are kept in a cellar or in a house, and when required for use the Cucumbers are sliced and sent to the table.—*Revue Horticole*.

SELECT PLANTS

(Exclusive of Timber Trees) readily eligible for Victorian Industrial Culture, with Indications of their Native Countries and some of their Uses—an Enumeration Offered

BY BARON FRED. VON MUELLER.

[Continued from page 297 of last number.]

ANACYCLUS PYRETHRUM, *Candolle*.—Countries near the Mediterranean sea. The root is used medicinally.

ANDROPOGON AVENACEUS, *Michaux*. (*Sorghum avenaceum*, *Chapman*.)—North and Central America. This tall, perennial grass lives in dry, sandy soil, and should here be tried for growth of fodder.

ANDROPOGON BICOLOR, *Roxburgh*.—Warmer parts of Asia. One of the annual tall Sorghums. It ripens its seeds in three or four months from the time of sowing, the produce in good soil being often upwards of one hundredfold. It is a wholesome grain.

ANDROPOGON CALAMUS, *Royle*.—Central India. The Sweet Calamus of the ancients. From this species the Gingergrass-oil of Nemaour is distilled, an article much used in perfumery.

ANDROPOGON CERNUUS, *Roxb*. (*Sorghum cernuum*, *Willd*.)—One of the Guinea Corns. India, where it is much cultivated ; and so also in other tropical countries. It is perennial, and forms the “staff of life of the mountaineers” beyond Bengal. It reaches a height of 15 feet, with leaves over 3 feet long. The thick stems are rooting at the lower joints, and cattle are very fond of them. The grain is white. The specific limits of the various Sorghums are not well ascertained.

ANDROPOGON CITRATUS, *Candolle*.—The Lemon Grass of India. It yields an essential oil for perfumery ; besides, it is occasionally used for tea. This applies as well to *Andropogon Nardus*, L., and some allied grasses.

ANDROPOGON HALEPPENSIS, *Sibthorp*. South Europe, Orient. A rich perennial grass, cultivated often under the name of Cuba Grass.

ANDROPOGON IVARANCUSA, *Roxb*.—One of

the fragrant grasses of North India, much used like *A. Shoenanthus*.

ANDROPOGON MARTINI, *Roxb.* (*A. flexuosus*, *Nees*.)—On the mountains of India. The fragrant Citronella Oil is distilled in Ceylon and elsewhere from the leaves of this species. General Martin observed, that cattle are voraciously fond of this grass; but it imparts its fragrance to meat and milk.

ANDROPOGON MURICATUS, *Retz.*—India. A Swamp-grass, with delightfully fragrant roots.

ANDROPOGON NUTANS, *L.* (*Sorghum nutans*, *Gray*.)—North America. A tall, nutritious, perennial grass, content with dry and barren soil.

ANDROPOGON SACCHARATUS, *Roxb.* (*Sorghum saccharatum*, *Pers.*)—Tropical Asia. The Broom-Corn. A tall annual species, splendid as a fodder grass. From the saccharine juice sugar is obtainable. A sample of such, prepared from plants of the Melbourne Botanic Garden, was shown at the Exhibition of 1862. This *Sorghum* also furnishes material for a well-known kind of brooms. A variety, or a closely-allied species, yields the Caffir Corn (*A. Caffrorum*, *Kunth*). The plant can be advantageously utilized for preparing treacle. For this purpose, the sap is expressed at the time of flowering, and simply evaporated; the yield is about 100 gallons to the acre. In 1860, nearly seven millions of gallons of sorghum treacle were produced in the United States.

ANDROPOGON SHOENANTHUS, *L.*—Deserts of Arabia. A scented grass, allied to the Indian oil-yielding *Andropogons*. A similar species occurs in arid places of the interior of North Australia.

ANDROPOGON SORGHUM, *Brotero*. (*Sorghum vulgare*, *Persoon*.)—The large Indian Millet or Guinea Corn, or the Durra. Warmer parts of Asia. A tall annual plant. The grains can be converted into bread, porridge, and other preparations of food. It is a very prolific corn, and to us particularly valuable for green fodder. Many others of the numerous species of *Andropogon*, from both hemispheres, deserve our attention.

ANEMONE PULSATILLA, *L.*—Europe and Northern Asia. On limestone soil. This pretty perennial herb is of some medicinal importance.

ANONA CHERIMOLIA, *Miller*.—Tropical and sub-tropical South America. This shrub or tree might be tried in the frostless lower valleys of East Gipps Land, where humidity and rich soil will also prove favorable to its growth. It yields the Cherimoyer fruit. The flowers are very fragrant.

ANTHEMIS NOBILIS, *L.*—The true Camomile. Middle and South Europe, North Africa. A well-known medicinal plant, here frequently used as edgings for garden plots. Flowers in their normal state are preferable, for medicinal use, to those in which the ray-flowers are produced in increased numbers. They contain a peculiar volatile oil, and in addition two acids similar to *Angelica* and *Valeriana* acid.

ANTHEMIS TINCTORIA, *L.*—Middle and South Europe, Orient. An annual herb. The flowers contain a yellow dye.

ANTHISTIRIA CILIATA, *L. fil.* (*Anthistiria Australis*, *R. Brown*.)—The well-known Kangaroo Grass, not confined to Australia, but stretching through Southern Asia also, and through the whole of Africa. It is mentioned here, because its growth should be encouraged by every means. There are several species of *Anthistiria* deserving introduction and naturalization in our colony.

ANTHOXANTHUM ODORATUM, *L.*—The Scented Vernal Grass. Europe, North and Middle Asia, North Africa. A perennial, not of great value as a fattening grass, yet always desired for the flavor which it imparts to hay. Perhaps, for this purpose, the scented *Andropogons* might serve here also. On deep and moist soils it attains its greatest perfection. It is much used for mixing among permanent grasses on pastures, where it will continue long in season. It would live well in our Alps. The lamellar-crystalline Cumarin is the principle on which the odor of *Anthoxanthum* depends.

APIOS TUBEROSA, *Moench*.—North America.

A climber, with somewhat milky juice. The mealy tubers are edible.

APIUM GRAVEOLENS, L.—The Celery. Europe, North Africa, North and Middle Asia. It is here merely inserted with a view of pointing out, that it might be readily naturalized on our sea shores.

APIUM PROSTRATUM, La Billardiere.—The Australian Celery. Extra-tropical Australia, New Zealand, extra-tropical South America. This also can be utilized as a culinary vegetable.

APOCYNUM CANNABINUM, L.—On river banks in North America. This is recorded among plants yielding a textile fibre.

ARACHIS HYPOGAEA, L.—The Earth-nut, Peanut, or Ground-nut. Brazil. The seeds of this annual herb are consumed in a roasted state, or used for pressing from them a palatable oil. The plant is a very productive one, and yields a very quick return. It ranks also as a valuable fodder herb. A light, somewhat calcareous soil is best fitted for its growth. On such soil, 50 bushels may be obtained from the acre.

ARCHANGELICA OFFICINALIS, Hoffmann.—Arctic zone and mountain regions of Europe. The stalks are used for confectionery; the roots are of medicinal use. Only in our Alps would this herb fully establish its value. The root is biennial, and used in the distillation of some cordials.

ARCTOSTAPHYLOS UVA URSI, Sprengel.—Alpine and Arctic Europe, North Asia and North America. A medicinal small shrub, which here could best be reared in the heath-moors of our Alpine regions.

ARGANIA SIDEROXYLON, Roem. and Schult. The Argan-tree. Western Barbary, on dry hills. Its growth is here found to be slow; but it is a tree of longevity. Though comparatively low in stature, its foliage occasionally spreads to a circumference of 220 feet. It sends out suckers from the roots. The fruits serve as food for cattle in Morocco; but here the kernels would be more likely to be utilized, by pressing the oil from them.

ARISTOLOCHIA SERPENTARIA, L.—The Snake-

root of North America. The root of this trailing herb is valuable in medicine; it contains a peculiar volatile oil. Several other *Aristolochiæ* deserve culture for medicinal purposes; for instance—*Aristolochia ovalifolia* (Guaco), and *A. anguicida*, from the mountains of Central America, should they prove hardy.

ARNICA MONTANA, L.—Colder parts of Europe. This pretty herb is perennial, and of medicinal value. It is eligible for our sub-alpine regions. The active principles are: arnicin, volatile oil, cupron and capryl acid.

ARRACACHA XANTHORRHIZA, Bancroft.—Mountain regions of Central America. An umbelliferous herb. The roots are nutritious and palatable. There are yellow, purple and pale varieties.

ARTEMISIA ABSINTHIUM, L.—The Wormwood. Europe, North and Middle Asia, and North Africa. A perennial herb, valuable as a tonic and anthelmintic. Several other species of *Artemisia* deserve cultivation for medicinal purposes. Active principles: Absinthin, an oily substance, indurating to a crystalline mass; a volatile oil peculiar to the species.

ARTEMISIA DRACUNCULUS, L.—The Taragon, or Estragon. North Asia. A perennial herb used as a condiment. Its flavor rests on two volatile oils, one of them peculiar to the plant.

ARUNDINARIA FALCATA, Nees.—Nepaul. One of the hardiest kinds of the Bamboo tribe. It rises to the height of 20 feet, the canes attaining a diameter of 4 inches.

ARUNDINARIA MACROSPERMA, Michaux.—Southern States of North America, particularly on the Mississippi. This bamboo-like reed forms there the cane-brakes. It requires to be replanted after flowering, in the course of years. Height, 20 feet.

ARUNDO DONAX, L.—The tall evergreen lasting Bamboo-reed of South Europe and North Africa. It is one of the most important plants of its class for quickly producing a peculiar scenic effect in picturesque plantations; also, for intercepting at once the view of unsightly objects, and for giving early

shelter. The canes can be used for fishing-rods.

ARUNDO PLINIANA, *Turr.*—On the Mediterranean and Adriatic Seas. A smaller plant than *A. Donax*, with more slender stems and narrower leaves, but similarly evergreen, and resembling the *Donax* reed also in its roots.

ARUNDO SACCHAROIDES, *F. v. M.* (*Gynerium saccharoides*, *Humboldt.*)—Northern part of South America. This species is here not yet introduced; but it is likely to prove hardy. Like the following, it is conspicuously magnificent:

ARUNDO SELLOWIANA, *Schultes.* (*Aruno dioica*, *Spreng.* non *Louriero.* *Gynerium argenteum*, *Nees.*)—The Pampas Grass of Uruguay, Paraguay and the La Plata States. A grand autumnal flowering reed, with gorgeous feathery panicles. As an industrial plant it deserves here a place, because paper can be prepared from its leaves.

CINERARIA.

We are surprised that the *Cineraria* is not more extensively cultivated than it is in California, and more particularly in San Francisco and similar climates of the State. It certainly thrives most admirably in this locality—first, as a greenhouse or window plant; and, secondly, as a bedding-plant, in protected situations. Under glass, *Cinerarias* may be had in full bloom at any time from December to June; while they will continue to bloom in the open air, if not exposed to strong winds or frost, from early spring until midsummer. They produce an abundance of flowers, rich in color, and of all shades, except yellow, (the *Cineraria maritima* excepted, which we do not include in this article). The flowers retain their beauty for some time, and are most desirable for bouquets and floral decorations.

In order to have them in bloom as early as December, the seed should be sown in July, and the plants, at this time, should be far enough advanced to be shifted into five-inch pots. Seed may also be sown

now, and plants may thus be raised to flower in the months of March, April, and June. For those of our readers who wish to raise them from seed, we would say, purchase a package of seed from a responsible seedsman; plant in a shallow box, filled with light and sandy leaf-mold, (if this cannot be had, light loam, mixed with a small quantity of old rotten manure and sand, will answer); put just sufficient earth over the seed to cover lightly, press down the earth gently with a smooth piece of wood, and sprinkle lightly with a fine sprinkler; then cover with a pane of glass (if you have no greenhouse), and place in a warm and sheltered situation; if you have a greenhouse, place the box close under glass. In twelve to fourteen days, the young plants will make their appearance; if they come up too thickly, it will be necessary to thin them out, as the *Cinerarias* should be allowed all the room possible, in order to obtain bushy and well-furnished plants. Florists, who generally raise them in large quantities, transplant them as soon as they have made three or four leaves. This can be done by planting them in boxes about two inches apart, or in two-inch pots. After transplanting, water well, and keep them in a shady situation for two or three days; then place them close under glass, give plenty of sun and moisture, and they will advance in growth wonderfully. In about a month after this, they should be transplanted into three-inch pots, and kept, as before, close under glass. Plant-lice are apt to trouble the *Cinerarias* a great deal; it will therefore be advisable to smoke the house frequently, or to wash the leaves with tobacco-water. As soon as the roots show themselves plentifully around the ball of earth (which can be noticed by turning the plant gently out of the pot), they should be shifted again into four or five inch pots. The soil to be given now should consist of one-third loam, one-third old rotten manure, and one-third leaf-mold and sand. They may be permitted to flower in five-inch pots; yet the plants will be more vigorous, and produce a much larger quantity

of perfect flowers, if shifted into six-inch pots; this, however, must be done before they begin to show their flower-stalks. Keep them close under glass; give a warm situation and plenty of moisture; keep clear from insects, and your success will be all you can desire. Once a week, a weak solution of guano in water, before the flowering-season has begun, will aid very materially in obtaining vigorous flower-stalks. While in bloom, they should be watered once a day. When the plants have ceased to flower, cut off the flower-stalks, turn the plants out of the pots, and transplant in the border, in a more protected place, where they will develop new flower-stalks, and continue to bloom for several months.

After the flowering-season is over, the plants may be removed from the pots, divided into as many plants as will have roots attached to them, and replanted into smaller pots. These divided plants, if treated in the same manner as seedlings, will make good plants again, and flower in the following autumn. We prefer, however, to raise our plants from seed every year; as we succeed always in raising better plants from seed than we can by dividing the old roots. Sometimes it may be desirable to retain a certain variety or color, which we particularly admire. In this case, of course, it will be necessary to cultivate young plants by division of the parent plant.

All the *Cinerarias* now cultivated as florists' flowers have originated from *Cineraria cruenta*, a native of Teneriffe, we believe; but there is now so little resemblance between this original species and our cultivated varieties, that it can hardly be recognized.

HOW TO DESTROY ANTS.—Fill small vials two-thirds with water, and add sweet-oil to float on the water to within half an inch of the top. Plunge these upright in the ground, leaving only half an inch standing out, near the nest, or the run of the ants. Every ant will come for a sip, and go home to die.

ON THE ECONOMIC VALUE
OF CERTAIN
AUSTRALIAN FOREST TREES,
And their Cultivation in California.
BY ROBERT E. C. STEARNS.

[Continued from page 315 of last number.]

When we consider the fact of the great number of farms in California that are nearly or quite destitute of wood, and the great and continuous expense entailed by our system of fencing, the importance to the farmer of dedicating a portion of his land to the cultivation of forest trees, from which he can obtain fuel and fencing materials, is too palpable to admit of debate. The comparatively small expense and labor with which the cultivation of a few acres for the purposes I have named is attended, its absolute feasibility and practicability, with the beneficial results that would flow therefrom, should commend itself at once to every farmer; as a few acres of timber land, for economic purposes, would add much more than the cost to the cash value of a farm. The boundaries of a farm should be marked by a row or rows of trees, thus defining its limits by living monuments, and greatly adding to its beauty; from these rows, as the trees advance in growth and age, some wood could be cut, and, where the farm is of considerable size, enough in the way of trimmings or prunings to supply the fuel of the house. In the treeless areas of the southern part of the State, the varieties of *Acacia* before named would prove an important aid in assisting, by their protection, the planting of other species of timber; as they are easily taken care of, and will stand excessive drouth. They would also be useful, as is our Monterey Cypress, (*Cupressus macrocarpa*) for belts to break the force of the winds in exposed places; and it is to be hoped that, before many years, timber belts for this purpose will be common wherever the coast winds prevail, as a protection to orchards and vineyards.

We have many trees well adapted for timber, or wind-breaks; and while calling the

attention of landowners and others to the exotic forms before mentioned, and their special qualities as enumerated in Dr. Mueller's excellent paper, I do not wish to be understood as making an unfavorable comparison against indigenous species, as for some of the purposes mentioned they will answer equally well.

It must be remembered, however, that our forests are unfortunately deficient in many of the hard woods much used in the arts, and which we are now compelled to import from localities more favored in this respect. The aggregate amount annually sent out of the State for the purchase of this material could, by proper foresight and enterprise, in a few years be retained within our own borders, and here expended in establishing new industries pertaining to the very material, the manufacture of which, in other portions of the Union, employs large communities to whose support we are now contributing.

As in Germany, to anticipate a future need, our own *Sequoia sempervirens*, or Redwood tree, is extensively cultivated; so here, by the cultivation of the Australian Eucalypti, we can in a few years supply a positive want, and reap the advantages above indicated.

Since the reading of the foregoing paper, I have had many questions asked me by persons not present at the meeting of the Academy; and as an answer to said inquiries, and to various propositions, I add the following:

Some objection has been made to the Aca-cias and Eucalypts, by persons who have planted them for shade or ornamental purposes in the neighborhood of San Francisco, for the reason, as alleged, that they do not withstand the winds. So far as the observations of myself and others who have investigated the matter extend, it is really surprising that so few are prostrated. The fault is not with the trees, but the purchaser;—as trees of from four to six feet in height are sold at a low price, they are bought by parties who require only a few, in preference to smaller trees, as they make a greater immediate show. As most of the growth of the trees

as usually purchased, after having attained a height of six inches, has been made in the pot or box in which they are sold by the dealers, it will readily be perceived that the tap-root, which in a natural state descends, is diverted from a perpendicular to a rotary direction, analogous to a spiral spring, and is also crossed and recrossed on itself—with the liability as it increases in size to strangle the tree, by one portion of this root making a short turn or twist upon another part of the same, or by being wound about and restricted by the lateral roots. It is therefore apparent that the better policy would be, even where only a few trees are wanted (and this remark applies with equal pertinence to all trees), that, other things being equal, such as comely shape and healthy condition, the younger and smaller trees are really cheaper at the same price than the larger, and can generally be obtained for much less. For forest culture, the smaller trees are indispensable to success.

Again, it is frequently the case that the lower branches are trimmed off to a mischievous extent, which also is a mistake; for where a tree has sufficient space to grow in, but little trimming is necessary; and it is a false taste which seeks to improve (?) upon nature by depriving a tree of its normal physiognomy and distinctive character by carving it into grotesque or inappropriate shapes—it is simply mutilation, and is certain to result in the premature decay and death of the victim. The flattening of the head by certain aboriginal tribes, and the distorted feet of the fashionable Chinese ladies, are further and pertinent illustrations of analogous hideous violations of natural form.

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INVIGORATING HOUSE-PLANTS.—House-plants ought to be stimulated gently once or twice a week. Rain-water, so refreshing to summer flowers, always contains ammonia, which also abounds in all liquid manures. If you take an ounce of pulverized carbonate of ammonia, and dissolve it in one gallon of water, it will make spring-water even more stimulating to your plants than rain-water.

THE GREAT AQUARIUM, BRIGHTON, ENG.

About a year ago, we gave a brief account of the new Crystal Palace Aquarium, at Sydenham, near London, then just opened. This summer, we have had the pleasure of visiting it, and found it one of the most attractive features of the attractive exhibition in that wondrous "home of glass." A walk through the rooms occupied by the immense tanks, filled with manifold forms of marine life, was like a visit to the very depths of the sea. It was easy to imagine that one had gone down in a diving-bell, and was taking a quiet stroll through old Neptune's dominions, noting the manners and customs of the inhabitants of that strange region, where Agassiz is very much at home, but most of us as little so as "a fish out of water."

But a yet grander aquarium has just been opened at Brighton, with appropriate ceremonies and festivities. The building erected for it is elegant as well as commodious, and is an ornament to the "queen of English watering-places," as the city has well been called. From the entrance-hall of the aquarium one looks down a long vista of well-proportioned columns and pointed arches, for several hundred feet, ending with a rockery and fernery, with a charming cascade, which falls quite naturally in appearance from rock to rock, running away between rocks and ferns in a narrow stream, hereafter to be stocked with trout and other fish. The columns are of polished granite, and serpentine alternately, the capitals being carved designs in Bath stone of fish, marine birds, and wreaths of seaweed beautifully wrought, the capitals of the pillars in the cross corridor representing the twelve signs of the zodiac. The arches are faced with Bath stone ribbing, and are of parti-colored brickwork, the pavement being of encaustic tiles. On either hand, down the main corridor, are the tanks, which are of unusual size, the largest being 120 feet long, and are laid out in rock-work, assimilated in its forms as near to nature as possible.

The tanks at present contain various species of fish, amongst them bass, mullet, gurnards, atherine, dog-fish (several species), turbot, soles, plaice, wrasse of different kinds, cod, whiting-pont, rock-whiting, sticklebacks (the three-spined and the fifteen-spined), and the pipe-fish. These will hardly live in an aquarium for any length of time, owing to the difficulty of feeding; but as they abound on the south coast, their places can constantly be supplied. Among the crustaceans are the common lobster, the spiny lobster (generally known as the craw or cray fish), and various species of crabs, including the spider and the hermit crab. Of fresh-water fish only a few species, as chub, tench, etc., have been put into the tanks, but the number will soon be increased. The stocking of a large aquarium is necessarily a work of time. A fish is a wild animal naturally, and has to be tamed to his tank; and some species are so difficult to tame that they must be captured very young, and kept until they have grown to the proper size for exhibition. Six months or more must elapse before the collection can be considered complete.

On the day when the aquarium was opened, Mr. Frank Buckland brought an alligator, some four feet long, as a contribution to the "show." It was a lively creature, and about as much as one man could handle. Among the other curiosities were some fine specimens of the hawk-billed turtle, and two large loggerheaded turtles.

At the end of the first range of tanks is a cross corridor, where the open tanks for anemones are situated. Beyond this, again, runs on one side another range of smaller tanks, intended for fresh-water fish, and novel acquisitions from abroad. On the other side is continued the conservatory and the rockery before noticed—a delicious and cool retreat in the heat of summer. The roof of the aquarium makes a delightful open-air promenade, at one end of which is a reading room; and there is also a restaurant and refreshment room, which will be a great convenience to visitors who spend time enough in

the building to make a thorough inspection of the exhibition. Here, as at the Crystal Palace, the South Kensington Museum, and many other English "show places," you can spend a whole day, if you choose, taking your dinner or lunch on the premises.

Another aquarium, of large size, has been opened, or is soon to be opened, at Naples. The building measures 100 by 70 feet, with a height of 40 feet. The lower part is devoted to tanks, more than fifty in number, and ranging in size from about three feet square up to 32 feet by 10 feet; all being furnished with a continuous current of sea water. Above, there is to be a library-room to hold 25,000 volumes; a large laboratory, with some 30 tanks; smaller laboratories, rooms for collections, etc.—*Boston Journal of Chemistry*.

OLIVE CULTURE IN CALIFORNIA.

Olive culture, it is anticipated, will prove to be a lucrative business in the county of Santa Barbara, and elsewhere on the southern coast of California. The labor required in its cultivation, compared to that demanded by ordinary field and garden farming, is trifling. The tree, at five years of age, returns a slight recompense for care; and at seven an orchard should afford an average yield of about twenty gallons of berries to a tree. If there are seventy trees to an acre, there should be obtained from it one thousand four hundred gallons of berries. From twenty gallons of berries may be extracted three gallons of oil; and, if properly manufactured, olive oil will command \$4 to \$5 a gallon, at wholesale. Thus an average yield of olives, derived from an orchard covering one acre of land, will produce about \$800 worth of oil. After deducting the entire cost of production and manufacture, a net profit may be anticipated of at least \$2 per gallon; and thus one acre, containing seventy trees, yielding an average of twenty gallons of berries, or the equivalent of three gallons of oil each, will afford a surplus above all expenses of about \$400 a year.

Olive-culture is so simple, that any one of ordinary intelligence may engage in it. Its results are such, that any one may find it profitable. As a business, it offers the advantage that it may be carried on at the home; and that a man of culture may engage in it, and yet find intervals for other objects and more varied themes. I speak here merely with reference to olive culture. The process of manufacturing the oil is an entirely different business, and belongs separate and apart from the cultivation of the olive. In time, it will not be expected, as now, that each grower shall be manufacturer also. As soon as the supply of olives in a neighborhood is sufficient to warrant the erection of suitable machinery for expressing the oil, every requisite for the purpose will be at hand. The olive-grower's labors for the season will end with the deposit of his berries at the oil manufactory; and, according to the custom of the olive districts of Europe, one-half the oil from his berries will subsequently be returned to him, ready for use and for market.—*Overland*.

CANNED FRUITS.—The impression prevails among those who use the fruits freely, which are put up in tin cans, that they are injured thereby, and this impression is, in many cases, correct. We have long contended that all preserved fruits and vegetables should be stored in glass, and that no metal of any kind should be brought in contact with them. All fruits contain more or less of vegetable acids, and others that are highly corrosive are often formed by fermentation, and the metallic vessels are considerably acted upon. Tin cans are held together by solder, an alloy into which lead enters largely. This metal is easily corroded by vegetable acids, and poisonous salts are formed. Undoubtedly many persons are greatly injured by eating Tomatoes, Peaches, etc., which have been placed in tin cans, and we advise all our friends, who contemplate putting up fruits the present summer, to use glass jars for the purpose.—*Boston Journal of Chemistry*.

CALIFORNIA WINES.

The following paper was read by Major J. B. Snyder, before the Grape Growers' Association of Napa and Sonoma, at its session of July 13th :

We have observed an article, stating that many of our largest wine-growers and wine-makers are in the Atlantic States looking for a market for their wines ; and that the principal objection Eastern dealers and consumers set up against our wines is, that they are too strong in alcohol. Also, that our wines contain all the way from fifteen to twenty per cent. of alcohol, and that the cheap and popular French and German wines contain from eight to ten per cent. It is stated that the German Rhenish wine used among the real and constant wine-drinkers of the Atlantic States, contains only seven per cent. of alcohol.

The statement as regards the strength of California wines does not apply to the counties north and bordering on the Bay of San Francisco. The alcoholic strength of European wines, given by Professor Brande, and taken from "Redding on Wines," which is considered good statistical authority, is as follows :

	Pr Ct. of Alcohol.
Burgundy, average of four samples..	14.37
" lowest of the four.....	11.95
" highest of the four.....	16.60
Champagne, four samples.....	12.61
" still.....	13.80
" Mousseaux.....	12.80
Cote Rotie.....	12.32
Frontignan.....	12.70
Red Hermitage.....	12.32
Sauterne.....	14.22
White Hermitage.....	17.43
Vin de Grape.....	13.94
" second sample.....	12.80
Claret, lowest of several samples....	12.91
Hockheimer.....	14.37
".....	13.00
" old.....	8.88
Rudesheimer.....	12.22

The average temperature of Sonoma Valley is about the same as that of the Burgundy District, and, therefore, should give the same

proportion of sugar ; and in France it is well known that they require twenty-four per cent. of saccharine matter to make a good wine that would yield, if thoroughly fermented, twelve per cent. of pure alcohol.

It will be found on inspection that the average strength of our wines is not above those of Europe : say, twelve per cent. on the average.

The following assays of wines made in Sonoma Valley were made by myself from samples furnished me by the parties whose names stand opposite the percentage of strength :

White, Craig, vintage of 1867, foreign	14.4
" " 1870, mission	13.4
" Dressel & Gundlach 1861,	14.1
" " 1870,	13.3
" " 1862,	12.5
" " 1867,	13.6
" J. R. Snyder 1865, mission	12.5
" " 1866, "	12.6
" " 1867, "	13.3
" " 1868, "	12.8
" A. F. Haraszthy, 1871, foreign	11.5
" " 1870, "	12.6
Red, Buena Vista, 1866, "	16.5
White, " 1866,	13.1
" " 1871,	11.5
Red " 1871,	12.6
White, H. Winkle, 1869, mission	13.2
" " 1871, "	12.5
" L. Goss, 1871, Zinfindal	12.8

To reduce the strength of the wine, it has been suggested that an addition of a small quantity of water be made to the wine prior to fermentation. This has been tried, and found to detract from the wine those fine qualities that Nature alone can impart. It would be better to gather the grapes before they get too ripe and contain an excess of sugar by being left too long on the vines until a portion of the watery substance has evaporated. If water must be added to reduce the strength, it would be better to add it when the wine is used at the table. The French generally add a portion of water to their red wines at the table, more particularly to claret.

The bad effect said to be produced by the use of California wines is in consequence of

their newness. All wines that have not age, as soon as introduced into the stomach, commence a fermentation; and if persons would place the wines they purchase in an atmosphere of the same temperature as the stomach, the results would be apparent. California will never have any reputation for good wines, as a wine-producing country, until we have more capital in the business, and the wine is kept until it has age and becomes wholesome.

Under the present system we will have no better reputation in ten years from this than we have now; and, as for talking about a competition with foreign wines, it is simply nonsense under such circumstances. All persons of sense know that new wines are unwholesome, and where there is one gallon of wine fit to go into a man's stomach, furnished to consumers, there are hundreds that are not so. We speak in no disparagement of the wine interests of California; it is presumed they do all they can, and it is to their interest, as well as that of the producer, to establish a high reputation for our wines, which reputation our wines do not have in the Atlantic States.

We have been told by persons who have traveled extensively in the East, that there are no wines offered to the purchaser such as they drank at the cellars in California. This is constantly repeated by all visitors that come into the valley of Sonoma; and it is presumable, that the same state of affairs exists elsewhere in the State.

It is a very easy matter to give statistics to substantiate what we say—for every gallon of wine, passed out of the valley of Sonoma, can be accounted for, and traced to the consumer.

The encouragement which should be given to this branch of industry by the wealthy classes of California, has never yet been perceptible to the producer. We have been informed that one gentleman alone has forty thousand dollars' worth of foreign wines in his cellar, and not one bottle of California wine among the stock; and California wine

is never seen on his table. Others of the wealthy classes think any thing weaker than brandy is only fit for invalids. And still you will find all these persons asking for money for railroads, to bring immigration and business—setting forth in glowing terms the richness of our lands and the salubrity of our climate, and their adaptation to the growth of all kinds of productions. They have lands for sale and houses to rent, but no use for our domestic products—the very source of the real wealth of California. It is true that manufactures have been encouraged to some extent, but, nevertheless, the balance of trade is against us, and has been for years.

The Government, too, has taken the same part, and given the iron work of the United States Branch Mint to parties in the Atlantic States, when it should have gone into the hands of our home artisans.

These are subjects that cannot be too often agitated by the grape-growers and wine-makers of the State, and, if they understand their own business and interests, they will agitate these subjects, and agitate them violently. We strongly urge them to look into all the various departments of their business channels, not only at home but abroad: wherever the wine goes, there is your business.

Let there be no lukewarmness about the matter. We have not been working enough abroad; we have not obtained that information from abroad relative to the business that is of great importance to us. It is true that some of our members have gone on a tour through the eastern and western States, and have written back their experience about the wine interests there; and it will not be long before we are better posted as to our interests than we are now.

I hope that some of our members will turn their attention to the matter of statistics from the East, as well as those at home. We have had but very few reports as regards statistics, although we have a standing committee on that subject.

I have thought proper to make this statement to the association about the strength of our wines, as an erroneous impression has gone abroad that our wines are too strong.

There is another matter that I wish to speak of: It is as well for the grape-growers and wine-makers to know that they have a fight to make against the foreign importers of wine; and we have to make the same fight against our countrymen, who encourage the foreign article and exclude the native product. This is an up-hill business, and the hotter the fire and the heavier the blow, the better the steel. A thing that is not worth fighting for is not worth having; so, gentlemen, take off your coats, and develop your muscle for the contest.

FLORICULTURE IN THE WEST.

In an "Essay on Flowers," to the Illinois State Horticultural Society, by Mrs. E. S. Hull, the writer says: The increasing fondness for and attention to the beautiful, visible about our country homes, is a pleasing and hopeful indication. Hopeful, because it shows our people are taking time to enjoy something of this bright world of ours, instead of seeming to consider, and almost making, it a valley of humiliation and incessant toil. Time was when most men appeared to regard "the West" as a temporary sojourn, in which they were to make fortunes, and then return to the old home, toward the rising sun, to spend and to enjoy; but, I think, the gold they acquired was, to many, the true Lotus-flower, which the ancients tell us, if once tasted of, caused forgetfulness of former country, and love for the one where they were. Those who came to stay awhile, found the land "pleasant to dwell in." The cabin gave way to the more substantial dwelling. Year by year new comforts were added. The necessary potato patch, generally in front of the house, expanded into a vegetable garden. From time to time the good wife appropriated small portions of this for her hollyhocks

and lilaes. By and by new flowers were planted, and the beautiful encroached so rapidly on the useful, that the latter was finally banished to the rear, where, instead of receiving less, it received more attention than formerly, that all things might be in keeping. And now the family have a flower garden! A small thing, you will say, perhaps. Will never contribute to the support of the family, says the practical man. Possibly not in dollars and cents, but man does not live by bread alone; a little "pleasure" is needed sometimes to revive weary, drooping nature; and who shall number the many innocent joys our garden shall afford? Not a garden made classical with statues and rare works of art, delighting by its secluded walks, cool grottoes, or sparkling fountains; but simple and unpretending in its character, and narrow in its area; still, it has its sweet and not transient pleasures; and many days of gloom, and hours of monotonous toil, will be relieved by pleasant reveries on the flowers that have been, and fond anticipations of those to come.

INDELIBLE INK FOR ZINC LABELS. — In answer to a correspondent desiring information on this point, the *Gardeners' Monthly* says: "The best thing we know of is, first, to let the (Zinc) label oxidize a little by dipping it in water for a day or two before using, and then write with a common lead pencil. We have seen labels in use for twelve years so written, as 'black as ink,' and with all the appearance of lasting for half a century."

REMEDY FOR SLUGS.—Gas-tar water diluted to the color of weak coffee, I have found to be the best preventive to the ravages of slugs on all garden-crops, and also an excellent manure. Apply it by night from an ordinary watering-pot, and half the slugs will be killed, and the rest much weakened. A second dose, after the interval of a week, is generally sufficient to banish them.—*G. T. H. of the Gardeners' Chronicle.*

FOREST-TREE CULTURE.

BY GEORGE VASEY.

Unquestionably one of the most important questions engaging the attention of the American people is that of forest culture. The demands of our rapidly growing country have for many years so drawn upon the resources of our native forests, which, at one time, seemed inexhaustible, that we must now contemplate their early extirpation, and address ourselves to the task of conserving what forests we have remaining, and providing new sources of supply.

Much has been written on this subject, but so difficult is it for us to realize the bearing of remote evils, that, comparatively, very few farmers, or land-owners, have yet seriously engaged in the work of replenishing their woodlands. The arguments for this work are strong and numerous, and have been cogently presented by many writers. Many facts have been observed, which appear to show that the presence of forests has much to do with the climate and rain-fall of a country; thus, it is said that the extreme dryness of Spain is due to the absence of trees; that many districts in France have been materially injured by denudation; that Palestine and many other parts of Asia and southern Africa, which, in ancient times, were the granaries of the world, are now deserts, or infertile regions, in consequence of the loss of their forests. It is also stated that a beneficial change in climate and rain-fall has, in several instances, followed the introduction of trees and plantations in regions that were formerly destitute of them. Thus it is said that in lower Egypt, where anciently rain never fell, the introduction and cultivation of extensive plantations have been attended with the fall of a good deal of rain, so that showers are no rarity even at Cairo. It is also affirmed that, in New England and other wooded sections, the cleaning up of forests, and cultivation of the soil, have had the effect of causing the drying up of many springs and small streams.

There are some who doubt the correctness of these conclusions, with respect to the climatic influences of forests, but, as these influences must be of very gradual operation, and require observations over a long series of years, the question may be considered open for future inquiry.

But, leaving that question out of view, there remain abundant reasons to stimulate every land-holder in our vast prairie regions, to give practical attention to the subject.

Trees are wanted for their fruit, for their shade and protection from winds, for ornament, for fuel, for use in building, fencing, and the mechanical arts. Some trees are adapted to one of these purposes, and some to another.

The earliest tree-want, which is appreciated by farmers in a new country, is the want of fruit-trees. Even this practical and personal need too often fails to stimulate the farmer to immediate action-toward the formation of an orchard. But it is not with reference to the cultivation of fruit-trees that we now design to write.

What kind of forest-trees shall we cultivate? is a question often asked, toward the solution of which we propose to offer a few thoughts: In an open prairie region there is an immediate and urgent want of trees for shelter and wind-breaks. Both man and the domestic animals instinctively seek the grateful shade of trees during the intense heat of summer, and as instinctively seek their shelter from the fierce winds of winter. The intelligent farmer also knows that it is a question of positive economy—as the absence of suitable shelter must be represented by an increased consumption of food and fuel. Often, too, he finds that without some suitable wind-breaks he is unable successfully to cultivate the best varieties of fruit-trees. He wishes to secure these advantages of shade and shelter at the earliest possible period, and, hence, he inquires for rapidly growing trees for cultivation. The great cost of fencing on the prairie, leads him to seek some suitable tree, or shrub, for the growth of

hedges. It is true that many experiments in this direction have been attended with failure, but we should not be deterred from continuing our experiments, until a suitable hedge-plant is found for every section of country. If the Osage orange fails, let us try the honey-locust, or some of our native thorn-bushes, crab-apples, wild plums, viburnums, or other shrubs, or trees, until we meet with success.

The production of wood for fuel and for mechanical uses is an object which, however desirable, has seemed so remote in prospect, that it has been almost universally neglected. But even this neglect is, to a great extent, based upon too general and vague views as to the slowness of tree-growth.

There are several species of trees which, with proper cultivation, will acquire a circumference, at the trunk, of eight to ten inches, in five years' growth; and a few acres of such trees would soon furnish a constant supply of desirable fuel to farmers, who have to haul, at great expense of time and labor, a distance of from five to ten miles. Most of the rapidly growing trees produce soft wood, which is not much esteemed for fuel; but, for summer use, when properly prepared, it must be equal, if not superior, to the corn-cobs, which are extensively used for fuel in the Western States. Many western farmers have cultivated their prairie lands for twenty years, and have hauled their fuel from a distance, when, during that time, cottonwood-trees of two feet diameter, white maple of eighteen inches, box-elder of twenty inches, and butternut of eighteen inches, might have grown upon their own lands with a little labor and care.

The planting and cultivation of hard-wood trees suitable for building purposes and use in the mechanical arts, is one which has been almost wholly neglected in this country. It is a work which is too commonly regarded as being wholly for the benefit of posterity; and we are slow to realize that we have any duties in that direction. But the necessity of entering upon this work is ap-

parent, for it is not difficult to contemplate the period when our natural forests shall have disappeared under the enormous demands which the progress of our country makes upon them.

HORTICULTURAL HALL, PHILADELPHIA.

This magnificent building, 75 by 200 feet, with 50 feet ceiling, was built by the Pennsylvania Horticultural Society in 1867, at a cost of about \$200,000. The annual displays of the Society, held in this hall, have never been surpassed for beauty of the decorations and the extent of the collections of fruits, flowers and vegetables. The meeting of the American Pomological Society was held here in September, 1869, the display of fruits comprising over 5,000 dishes. This hall, although admirably adapted for these displays, was found to be not well suited for lectures or concerts, owing to its immense size, which caused a difficulty of being heard. The Board of Directors therefore decided to remodel the interior, by putting in a new floor on a level with the galleries, thereby reducing the height of the ceiling to about 36 feet, and adding another room of the same size as the main hall. This has been divided into commodious dressing-rooms for ladies and gentlemen, with a hall 15 feet wide, and a banqueting-room capable of seating 800 persons; or it can be used as a lecture-room, a small stage having been raised on the west end. The alteration will add very much to the accommodation of the society for holding their display, as the upper saloon can be devoted to fruits and flowers, while the lower saloon will be admirably adapted for the vegetable display.

The alteration being now in progress will prevent the usual display being held in September; but it is expected that the hall will be finished in time to hold an exhibition in October. It is also proposed to fresco the walls and ceiling, and to light the main hall by means of artificial "sun-lights," placed in the ceiling. These embellishments, with

curtains to the windows, and comfortable cushioned seats, will render it one of the finest concert-halls and lecture-rooms in the country; while for balls, it is not surpassed in conveniences by any other ball-room in existence. These additions will doubtless render it a popular place of resort, and thereby add very largely to its receipts.—*Journal of the Farm.*

ORNAMENTAL GARDENING.

The following is an extract from a lecture before a meeting of the Horticultural Society of Victoria, by Mr. Wilson:

“Ornamental gardening, in common with other refined arts and sciences, is necessarily dependent on wealth and opulence, and, as in a young country these usually have to be gained before enjoyed, ornamental gardening in Victoria may be said, as yet, to be in its infancy. But as both public and private gardens are becoming rapidly established, it becomes imperatively our duty, both as horticulturists and as members of this society, to educate the taste, and disseminate the true principles to be followed in carrying out the higher branches of horticulture. Heretofore, this society has done an immense amount of good, in the proving, classifying, naming, and exhibiting of a large variety of fruits. Now, I think that as these evening meetings have been successfully inaugurated, we could not better devote our time than to an occasional discussion on the different branches of floriculture and ornamental gardening, and if I make a few comments on the subject, it is chiefly with the object of drawing out some of the older and abler members than myself, of whom I know there are many among the members present.

“A good gardener must be essentially a man of taste, not only as regards the tasting of apples, pears, and other fruits, but in the arranging his flowers, planting his shrubs; and, in fact, everything that he does must be tastefully done. In laying out a garden, he must always have an eye to the future, always

bear in mind that in time to come what he does will either redound to his honor or discredit. Mistakes made in the arranging and planting a new garden are not easily remedied years after, when the effects become noticeable. The different views from a private residence must always receive important consideration in planting the garden, and of course the arranging must be so conducted that in after years, when the trees and shrubs grow up, these views, at least the best points of them, will not be blocked out. On the other hand, any ugly buildings, or other unsightly objects, must be hidden from view as soon as possible by the planting of quick-growing subjects in front of them.

“Straight and narrow walks should always be avoided. As broad sweeping gravel walks give importance to a garden of even moderate dimensions, these should gracefully curve at angles so as never to turn sharply, and never to present a long line of gravel to the eye. A green, well-kept grass lawn is indispensable to a good garden; a lawn, if of moderate size, should never be in one square or round block, but should be cut into gentle angles by the graceful walks. These angles should be planted with clumps of trees or shrubs, according to the requirements of the situation, so that at every turn the eye rests upon a change in the scene—a rustic-stone built rockery, a fresh bed of flowers, an arbor, a vase, a statue, a fountain, or any rustic adornment that prevents monotony, and gives a zest to the enjoyment of the promenade.”

“Fountains, with a small pond or basin containing fishes, are most beautiful ornaments for a garden, especially when situated in some quiet nook on the lawn, with an artistic little arbor or summer-house close by, covered with ornamental climbers which lend a delicious fragrance to the surrounding atmosphere on a summer's eve. I remember in a garden where I once lived in England, on the lawn, in a very secluded, quiet spot, stood a little arbor covered with clematis and honeysuckle twining together. It was but a small arbor, but the very insignificant

aspect of it attracted every visitor's attention, and excited their curiosity. On looking in at the little rustic doorway, the eye fell on a full-size statue of a young female, with one finger upraised in mute enjoinder to listen. Involuntarily the visitor would do so, when the gentle murmuring of a little fountain close by fell on the ear; this was bringing Nature and art in harmony, a point of considerable importance where these subjects are used as garden ornaments. Where busts and statues are extensively employed as ornaments for gardens, whether public or private, more taste should be exercised in their arrangement than is displayed in some of the public gardens of Melbourne; I consider it is highly objectionable that these should be placed at intervals all along the sides of the walks, so that the eye can rest on a whole avenue of statues at the same time. In gardens this should be specially avoided if possible; not more than one, or at most two, should be visible at the same time, and they should be so placed that they meet the eye suddenly on coming round a curve in the path, or behind a clump of shrubs or trees which prevent the object being seen until you come close to it, which then creates at once a pleasurable surprise. Diversified beauties, all conducing to natural harmony, are the elements of a good garden. The view from the windows or balcony of the residence must be a radius of changing beauty; there must be an entire absence of sameness; the flower-beds must be varied and intermingled in coloring with the natural green lawn as a ground work; the clumps of flowering shrubs must be contrasted with the dark green of the non-flowering coniferæ, and the small-leaved subjects must be interspersed with subjects which have larger foliage. The whole scene must be one of graceful and natural combinations.

"I wish also to say a few words respecting landscape gardening—the planting of trees for the purpose of beautifying the distant scenery. Now, it is a recognized fact that the dark-foliaged members of the coniferæ,

and other evergreen trees, are the most beautiful and natural contrasts to the eucalypti and other native trees, and they are extensively planted in consequence; but it is possible this may be overdone, and it is our duty to warn planters against making their scenery simply a pine forest. There are many who admire the beautiful tints of scarlet, purple, and bronze displayed by the foliage of many deciduous trees in the autumn, and I think that such subjects as the scarlet oak, purple beech, silver poplar, and many others which have been proved to thrive in the colony, should be planted in intermediate groups, with the dark-foliaged evergreens. Artificial lakes skirted with weeping willows are no doubt very beautiful, but the situation would also suit many of the varieties of ash, and other noble trees, whose majestic growth and grandeur of foliage in the summer, would present pleasing contrasts, and lend a charm to the scenery.

"Let us bear in mind, gentlemen, when planting, that we are planting the germs of horticultural beauty, accounts of which will in years hence be published and criticised, according to their ornamental merits; and according to the same will our merits as ornamental gardeners be estimated. I hope, therefore, other members will follow up the subject, so that in 1972, when the records of early gardening in the colony shall be published, many will be the triumphs recorded in honor of the Horticultural Society of Victoria."—*Melbourne Times*.

EXPERIMENTAL STATIONS.—The system of agricultural experimental stations is rapidly extending in Italy. In consequence of information obtained and circulated by the minister of agriculture, respecting the experimental stations in Germany, seven new stations have been established on the German model. These are located at Udine, Modena, Milan, Lodi, Padua, Florence, and Turin.

THIRTY-TWO thousand seeds were once counted in the head of a poppy.

CUT FLOWERS.

It is a trite observation that this would be a very dull world without flowers, and yet when we see how little people in general estimate the great boon, we may be pardoned for again citing it. There are thousands of houses about which no plant ever blooms, and thousands of homes in which a flower never enters, which might be made as cheerful as the world without, and at no great cost either. We who love flowers know the pleasure they bring, and we feel that they who have no regard for them miss some of the best delights of life. They do not know their loss it is true. The children in the blind asylums express great pity for those who are dumb, with but little reflection on their own loss; while the dumb can not understand how the poor blind children live. But we who are whole, know the depth of the great privations they both endure, and ever desire that they would be even as we are. And so in the love of flowers and of flower culture; there are none of us but desire that all should be partakers of what we ourselves enjoy.

There are, it is true, both men and women who think flowers afford them no particular pleasure, but we find that in their daily avocations an original stratum of floral love crops out above the surface. Mr. Cash, when fixing up his office, is very likely to select a carpet which has some leafy or floral design, in preference to one of bars or crosses; and in the choice of an inkstand or paper-holder, a bronze rose or polished acorn will generally carry the day against the dull square article. He may be satisfied on the score of economy, for business is business you know, with a plainly printed heading to his note paper; but if he is thriving, it is a rare chance if his name and special products are not engraved within a delicately outlined foliaceous scroll. As for the ladies—let artificial flowers and Dolly Varden styles tell the tale for them. Even those excellent people who feel it a duty to bear testimony against

the frivolities of fashion, and thus curb their disposition to indulge in weaknesses of more worldly inclined people, yet have their innate love for flowers developed in moss-covered baskets, paintings of flowers, or beautiful designs formed of gorgeously tinted autumn leaves. Yes, the whole world is fond of flowers. No one need be ashamed to avow his taste. Every lover of his race must be pleased with any advance in public sympathy for them.

As society is constituted now, it is an expensive business to grow flowers on an extensive scale. The price of labor is so high, and constantly increasing, that gardening is much more of a luxury than it has been. But as the labor and care increases, society adapts itself to the change, and instead of growing the flowers buys them cut from the florists, or hires the plants for decorative purposes.

Those of our readers who live in what in a social sense we may call the country, have little idea of the growing immensity of the cut-flower trade in the large cities. While it is believed that gardening as a fine art, or even the mere cultivation of flowers as a luxury, has not kept up in ratio with the increase of population, the mere florist's trade—that which furnishes plants and flowers for temporary ornament and decoration—has probably doubled within the last ten years. Not only do florists grow flowers of their own in great quantities for baskets and bouquets, but many away from the immediate circle of the cities find it profitable to grow flowers to sell again to those who put them up; and even private gardens frequently contribute to supply the demand. Indeed the tendency of this division between the one who grows the flowers and the one who sells, is continually growing greater. Land in the city is high and taxes heavy. Flowers are light and travel easily by rail or wagon, and thus can be raised to better advantage away from the expenses of a large town. The principal flowers grown for this purpose are Roses and Camellias; but Heliotropes, Violets, and many

other popular flowers come into good use. These leading sorts are sold at a price per hundred flowers—Camellias in their best time wholesaling at about \$20 per hundred, and Roses at about half this rate. As a general thing Camellias are raised in pots or tubs, but Roses are most generally grown in the natural ground under a glass-house erected for the purpose. A Rose-house on this principle is a very pretty sight in the winter season—not quite as gay perhaps as its rival, the Camellia, but with a fragrance which, if plants have sensation as some wise folk tell us, the Camellia doubtless envies. Many Roses do not flower freely under glass in winter unless the houses are very tight, nor unless they have some age. For general purposes, Saffrano, Bon Silene, Luxembourg, Isabella Sprunt, Arch Duke Charles, and Hermosa are popular, flowering young and freely where there is room, good light, and a year or two of age. Lamarque and Marshal Niel are great Rose-house favorites.

As we have said, we are glad to see the increasing taste for cut flowers. In this part of the world no dinner table is complete without a bouquet; no parlor well furnished without its little plate or basket of cut flowers. The churches of almost all denominations are decorated every Sunday with flowers or living plants; and without flora in some shape, no company is regarded as complete. We are glad of these signs of the times. As the world could not be made without flowers, we who are of the world should make the best use we can of them. No one was ever the worse for them; while in sickness and in health they have delighted thousands, and in death, likewise, they have afforded friends and relatives many a consoling thought.—*Gardener's Monthly*.

ENGLISH SPARROWS IN AUSTRALIA.—It appears from complaints received by the Royal Horticultural Society that fruit crops in Australia have been seriously injured by the English sparrows imported into that country.

ORCHID CULTURE.

[Continued from page 270 of number 9.]

Phalænopsis Grandiflora.—Although this article refers specially to the grandiflora variety, I shall include *Phalænopsis* generally, the same treatment being required for all the genus. These magnificent orchidæ are among orchids what the diamond is in a collection of precious stones, and no collection is complete without at least a specimen; but as they are all natives of the hot, moist, shady woods of Java, Borneo, and adjacent islands, they require a high temperature at all seasons of the year, and being created without any pseudo bulbs to store up moisture, require to keep moist all the year.

These plants have always been scarce and comparatively high priced, from the difficulty of importing them alive and the slowness with which they increase, for they do not throw off extra shoots like most Orchidæ, but occasionally form a young plant on the old flower-stem; for which reason, and also that some of the varieties flower several times from the same stem, it should not be cut away when the flowers fade; but the flowers are the most lasting of any Orchid grown. On strong, healthy plants they frequently last from three to six months in perfection. The flowers are large, pure white, and from the light, airy look the plant is frequently called the moth plant. These plants have been scarce and dear, in fact increasing in price until recently there have been some successful importations; previous to this there had been but few imported alive for about twenty-five years. As an example of the price, the late Duke of Devonshire paid one hundred guineas for the first small plant sent to Chatsworth. *P. amabilis* is much like the above, but smaller in all its parts, and is pink instead of yellow in centre of lip.

P. Schilleriana is a magnificent variety with beautiful variegated foliage and splendid mauve colored flowers, edged with white. Our plant had a spike with three dozen flow-

ers this year; but it has been exhibited in Europe with over one hundred flowers. This is a very scarce and expensive plant. I saw a small specimen sold at auction in New York for eighty-five dollars, and the few who possess specimens in this country do not care to part with them at any price. There are several other species, but more are smaller flowered, than the above named species, and their great rarity makes them difficult to obtain.

As regards culture, these plants are very easily grown. If fastened on a bare block of wood the roots will cling to it and exist on the moisture in the air; in this case it will require damping several times a day in summer, and at least once a day in winter. This is the safest plan for amateurs to grow it, for after once established it will not suffer so readily from bad watering, but in no case should it get very dry, or the leaves shrivel and drop off. I grow some in baskets, some on blocks and shallow frames, or pots with drainage filled above the top of pot, and a little live sphagnum moss as a surfacing, to grow these plants well. The temperature of the house should *never* be below 65 deg. on coldest nights of winter, and then it is best to suspend the plant in the warmest part free from draughts. In this country we generally have bright sun in the coldest weather, so that 75 deg. or 80 deg. in winter does no harm by day; while 80 deg. by night and 90 to 100 deg. by day, with air saturated with moisture, is required in summer with direct rays of sun.

In conclusion, *Phalenopsis* flowers are excellent for bouquets, and for decorating ladies' hair they are unequaled, and with care will last more than one evening. — *Gardener's Monthly*.

IN SANTA BARBARA, side by side, grow the olive, almond, walnut, orange, lemon, fig, pomegranate, apple, peach, plum, pear, grape and strawberries.

WHITE velvet wheat yields forty bushels to the acre in Oregon.

CULTURE OF THE CAMELLIA.

Several of our subscribers being anxious to know concisely the proper means to cultivate this really handsome and altogether aristocratic plant, we append the following jottings. In Victoria the camellia, with proper attention, succeeds admirably; at the same time it is absolutely necessary that it should obtain a well-drained and sheltered situation, protected if possible from the north winds and excessive solar heat. The ground must be well-drained, adding liberally fibrous turf, or peaty loam, for the camellia delights in pure vegetable matter; in fact, the more densely set with fine fibre, even though it assumes the appearance of a mass of thick fibrous matter, so much the better. This kind of loam must be incorporated with the ordinary garden soil thoroughly, and with no niggardly hand, if handsome healthy specimens are wished for. If you find any of your plants in an unhealthy state, at once examine the roots; should the soil be found bad or sour, at once remove it, and apply loam as before described, and then leave them alone; do not interfere with them again, although they for some time may not look all you could wish, for the camellia is a plant, although hardy, that does not like interference. On preparing soil for the camellia various opinions have been entertained. The loam used by nurserymen, and that used by private gardeners ought to be two very different compositions. The nurseryman looks to bulk of plant and increase of young wood, while on the other hand the gardener's object is to increase the proportion of blossoms. The soil above recommended must be well mixed and broken with the spade, never resorting to the detestable practice of sifting, which carries away and abstracts the decomposing fibrous matter, in reality the principal support of the plants. Through the dry seasons it is absolutely necessary to give copious waterings, and at this season (autumn), weekly supplies of clear liquid manure will enhance their blooming, and cause renewed vigor. It is a

good plan to sink two or three flower pots underground, near the plants, which can be kept filled with water; these will constantly keep moisture at the roots. To secure fine blooms, disbudding will have to be resorted to, some varieties requiring this attention much more than others. It is quite sufficient to leave one good bud on each shoot, never more than two. The earlier the camellia makes its growth in the season, the earlier will it bloom. You cannot hurry them in this respect.

As regards pot-grown camellias, we frequently hear complaints of the buds failing. This generally arises from checks, such as, at times, over-watering, and at others under-watering, the want of timely and judicious potting, and very frequently from too much coddling. Those amateurs not thoroughly understanding the business of repotting, thinning, etc., would do well to seek the aid of an experienced gardener to perform such-like matters, for these charming evergreen shrubs are certainly deserving of every care, and they will well repay you for it. As a winter-flowering plant, and for the decoration of residences, both inside and out, they have no compeers. The varieties now cultivated in this colony are both numerous and good—sufficiently large for all purposes, their shining dark green foliage and splendid white and red flowers being deservedly popular. Considerable attention is necessary during their period of blooming, most particularly so with large plants, which should have their decaying flowers picked off regularly, otherwise the appearance and effect of the plants are greatly marred. The foliage, too, will need a thorough cleaning previous to the blooms expanding, and then it becomes difficult to conceive anything more beautiful than a fine healthy plant of a double camellia.—*Exchange.*

A FLORIST of Long Island has seventy acres of flowers, twenty of which are entirely devoted to gladioli. There are also ten acres of Japan lilies, and five acres of tube roses.

Editorial Portfolio.

FISH CULTURE AS COMPARED IN IMPORTANCE WITH AGRICULTURE.—Such is the text of a very able speech which we have just read, and which was delivered in the House of Representatives, Washington, in May last, by the Hon. R. B. Roosevelt, of New York.

The subject is one of supreme interest to the whole civilized world—to the people of this continent especially; and to us the denizens of this Pacific coast particularly, as it is evident that in the future our broad valleys and rolling plains will be densely peopled with a race tracing their origin to the outpourings of the crowded populations of overflowing European nationalities, and whose requirements will tax its productiveness to the fullest extent. It is incumbent on the citizens of this country to be prepared to the height of their ability, for this inevitable accession to the population, both in food as well as in timber for fuel and manufacturing purposes.

It is an undoubted fact that vast tracts of land in the old world once densely teeming with high-fed, wealthy, and luxurious populations, were immensely productive of all the necessaries of life, corn, wine, oil—they were indeed lands literally “flowing with milk and honey;” we need hardly say, we allude among others to Syria, Assyria, Babylonia, Egypt, etc. What are they now with but little exception, but arid deserts devoid of timber; the soil, exhausted by over production, reduced to sand; the rivers and lakes in many instances dry or sadly diminished; the populations which once dominated all the other portions of the then known world, reduced in nearly every instance to a few miserable, straggling, half-starved wanderers; the result of recklessness in overtaxing the soil and not at the same time seeking to replenish and renew? Such must be the successive fate of all large centres of population, unless vigorous, determined, liberal-minded, and enlightened systems are adopted to reinvigorate the soil, renew the timber and

economize the water supply. We have our warning on this continent in the fact, that on those portions of it which have been unceasingly cropped, the produce is not nearly so heavy as it used to be.

The only reason why China, doubtless dating as far back as the empires we have named, still feeds her dense and immense population, is that she has from time immemorial carefully and intelligently studied the feeding of her people, and provided for their future supply. Agriculture there is honorable, and her most solemn holiday is on the commencement of the agricultural year, when the Emperor with much pomp and ceremony, and attended by his highest nobles, puts his hand to the plow and turns the first furrow. There, also, timber culture is diligently pursued; everything available for food is utilized, and all matters useful as manure carefully saved and intelligently applied. In all her immense rivers and lakes fish-culture has for centuries been most successfully followed, and has contributed largely to the feeding of her people.

Agriculture has at all times, from the very earliest dates, been a most important occupation. The Bible says Cain was a tiller of the ground, a farmer in fact—possibly the first one (not a very estimable progenitor, and scarcely desirable as a patron saint); for Adam doubtless was a gardener, a few vegetables and fruits sufficing for his small family, and there being no inducement to cultivate for the market.

Through the whole history of man, and in every country, in proportion as civilization advanced do we find from the earliest known records down to the most recent publications of the present day, that the cultivation of the soil has been of paramount importance, from the necessity of providing a reliable supply of food for the people in general, and more particularly for the vast masses of population congregated in cities. Thus we find that in all ages, and particularly in the last and present centuries, to combat with the continuously increasing, ceaseless, and im-

perative demand for food, the most strenuous exertions have been made, by the most careful, diligent, and discriminating experiments on the comparative nutritive qualities and ratio of productiveness of all available vegetable substances—the most efficient and economical mode of raising crops and of increasing their fruitfulness—the most stimulating manures and their comparative action on various plants, with the best and most economical mode of applying them.* And the most diligent care has been taken in collecting, preserving, preparing for use, and utilizing them, and vessels have for a long period been and are still being dispatched to all parts of the world to obtain or dispose of cargoes of guano (and like substances), one of the most powerful stimulants known.

The various implements for culture have also received the untiring attention of science aided by vigilant experience and mechanical ingenuity; and the rude contorted limb of a tree which served in the early ages to imperfectly scratch the ground, has, through a long series of ingenious modifications, given place to the ponderous but powerful and efficient steam plow. All other agricultural tools and appliances have in like manner been modified and improved. The drainage of the land—the rotation of crops—irrigation, both on small and on very extended plans, has been perseveringly and intelligently pursued—and quite recently subsurface irrigation has been introduced.

Equal to these have been the labors and anxieties of those whose province it has been to provide animal food. Equally enlightened, diligent, and patient investigations have been made as to the comparative nourishing qualities of the various kinds of flesh, etc.; the best breeds and classes of animals, etc.; the best modes of feeding and general management of them—all to increase the supply of food—and equally careful and diligent have been the investigations as to the

* To these and like matters, such men as Liebig have enthusiastically devoted their attention.

best, most economical, and healthful mode of preparing it for consumption.

But while thus the vegetable world has been ransacked for edibles, which have been cultivated where practicable into productiveness and nutritive qualities far beyond anticipation; while the beasts of the field and the fowls of the air have also been rendered subservient to this universal demand for food, and have been almost changed in their natures to appease the ravenous appetite of mankind, the cultivation of fish (save in China) has been neglected; not that they have been spared—on the contrary, in many parts of the world, from the rivers and lakes the indigenous species have been all but exterminated; and even from many lines of sea-coast, so determined, persistent, and extensive has been the war waged, that many species of migratory fish have been driven off, or appear in much diminished numbers.

The implements of destruction have been made most efficient, but no effort has been used, till very recently, to protect. For, be it remembered, wherever these fish approach the coasts and enter the rivers, it is to propagate their species—to deposit their eggs; and whenever one of these fish is captured, it is at the sacrifice of probably thousands of young ones. Still, as it is the only opportunity of taking many species, and they are amazingly prolific, the capture is justifiable; but not such barbarous, wasteful, wholesale destruction as occurs when, in consequence of immense shoals approaching some shores, the opportunity arrives of taking enormously more than can be utilized for food, and, consequently, millions are carted away and used as manure. This ignorant, thoughtless, and tiger-like waste is mostly attributable to the low grade of the people engaged in the fisheries of all countries, as contradistinguished from the agricultural and stock-raising classes, amongst whom, in most parts of the world, are found intelligent and influential men, who bear much influence, which is used beneficially, in their own sections of society.

Legislatures in every land should seek to

remedy this evil, which is fearfully widespread, and affects not only the shore fish, but those frequenting and inhabiting the rivers and lakes; and it is in this interest that Mr. Roosevelt speaks; and he seeks not only to protect, but to replenish the waters. He shows, most clearly, how easily the depleted streams may be repopulated with teeming millions, even exceeding their former abundance; and that, by careful selection and adaptation of species, various delicious and nutritive varieties may be made to abound where they were previously unknown. He shows how comparatively inexpensive are the necessary operations, when contrasted with the costly efforts of the agriculturist and grazer to supply the people—how immense the return per acre of surface. And we all know how nutritious and brain-invigorating is that species of food; and that all ichthophagous classes of society are notoriously robust, healthy, and prolific.

It is incumbent on every government, whether general or local, to exert itself in this behalf—to aid liberally where any fish-cultural institution exists, and to inaugurate where such is not the case. There is an Acclimatizing Society in this city, which has used considerable exertions to propagate various species of trout and other fish, and has met with gratifying success; but we fear that it does not meet with the encouragement it deserves. It should not only have assistance from local officials, but should receive State aid—due care being taken that it does not dwindle into a mere matter of dollars and cents.

We regret that we have not space, in the present number, to extract largely from Mr. Roosevelt's speech; but will endeavor to find room in our next.

THE CRANBERRY CROP IN NEW JERSEY AND MASSACHUSETTS.—The cranberry crop of New Jersey is reported much below an average, and that of Cape Cod, Massachusetts, almost a total failure, a large proportion of the vines having been killed last winter, and the remainder greatly ravaged by worms.

HOW TO GROW THE VIOLET.

A bouquet of violets is at all times acceptable; their simple beauty, and their odoriferous perfume, making them always charming companions. They will grow in almost any good garden soil, the most suitable compost being a fibrous loam; the border situated in a shady position, but not too damp. Select healthy off-shoots from old plants, and place three of these together to form one; put them in the prepared bed 10 in. by 12 in. apart, attending to them as regards watering, if the weather prove dry. Care must be used in protecting them against slugs, which in many gardens prove very injurious during the winter months, more especially in those situations inclined to be damp. In fact, too much moisture is to be avoided during the winter season, if a plentiful supply of blooms is wished for.

Some of the plants may be potted in a similar loam, providing plenty of drainage; these can be transferred to the conservatory or drawing-room when in bloom, lending a charm during the dull winter months. The potted plants should be plunged in a shady border, until required; otherwise they may become too dry, from the effects of the strong south winds. When cut-flowers only are required, it is best to have them in beds, as they bloom more profusely, and continue longer in flower. With a little attention they are easily managed, and will well repay you for the care bestowed upon them. They will express their gratitude either in the handsome drawing-room or the parlor of the most simple lodgings, by the general sweetness of their demeanor. How far more beautiful are they than any of the most elaborate works of art, for which numbers desert these and other works of nature! What tender tones, what plaintive heart music, what hopes and fears have been sighed over a bunch of violets! how often have they acted the part of the sweet messenger, and called to recollection those wanderings through bowery lanes and shady walks in England's lovely

spring-time! We see no reason why a fondness of flowers should not be developed contemporaneously, or why, in childhood and boyhood, and throughout manhood too, the sense of sight and smell should minister only, so far as gardening is concerned, to the gratification of our tongues and throats, and cease to co-operate with the heart and brain. Why should not the love of the beautiful, which is innate in every exile from England, be encouraged by our instructors with as much care and attention as music and dancing?—*Exchange.*

BANANA CULTURE.

The banana is in such high favor with many Californians, that they demand its steady importation from Honolulu and Panama. The branches, containing large clusters of the fruit, are cut off while it is still green, so that it may be transported in a good state of preservation. It ripens with the stem detached from the parent tree, but is not, of course, so delicious as when plucked ripe from the stem on which it grows. There is some doubt, too, about its being entirely healthful when ripened artificially. Several attempts have been made to cultivate the fruit in this State, not always, however, with the best of success. The opinion prevails, that there are localities where, if proper care were bestowed on the trees, they could be cultivated with excellent results. In San Diego, Mr. Louis Meinzer has given some attention to the matter; and the *Union* of that place speaks of his efforts encouragingly. His plan is, to cover the trees while in bloom or in seasons of frost. One of his trees has borne fruit, which is expected to mature in a few days. Concerning this tree, the *Union* says:

“It does not enjoy the benefits of the morning sun, being completely shaded by the house near which it stands; and in the afternoon it only receives the rays of the sun for about two hours, large fig-trees growing near it obscuring it during the remainder of the

time. Mr. Meinzer thinks, that if the tree does so well under such unfavorable circumstances, those which he planted a year later, and which are so situated as to receive the sun both morning and afternoon, will be sure to thrive and bear."

Messrs. Asher, Horton, and Wilcox, of the same place, have planted banana bulbs, and feel confident they will mature. Mr. Horton has a tree in his garden that is expected to bear next year. It is said to be very thrifty, and, from its vigorous appearance, it would seem that it was perfectly at home. A bulb planted in the San Diego Court-house yard is also flourishing, which leads the *Union* to assert, that the doubt whether the banana can be grown in the open air in Southern California will soon be solved by these experiments; and for this reason, if for no other, the persons who have taken an interest in the growth of the tree deserve commendation.—*Morning Call*.

WORK FOR THE MONTH.

The dry season of California is nearly over, and we may now at any time expect our regular installment of rain; it is most important that the rainy season should not take us by surprise.

While little can be done in our orchards and vineyards beyond the gathering, marketing, and storing of fruits, ornamental trees and shrubs, and flowering plants should receive considerable attention. We would advise at the present time to entirely dispense with irrigation of plants, trees, and lawns; the young growth should have time to harden; proper pruning should be done in all cases as early as possible. In this climate, trees and shrubs are apt to make immense growth, and will expand in one season out of all shape and beyond our control. Evergreens in particular should be balanced, the superfluous growth cut away, and the trees supported by proper stakes, so as to enable them to withstand our strong winds. In most cases, trees are planted too thickly

and without due reference to a future growth and development; this is erroneous except where planted for grouping, and this should only be effected on the large and extensive grounds of country residences. Whenever it is apparent that trees stand in too close proximity to one another, one or the other should be removed; and where flowering plants are overshadowed by trees, it is inevitable that one must give way to the other; in some cases, this action can be modified by the removal or cutting back of some of the branches so as to permit a free circulation of air, and exposure to the rays of the sun at least for a few hours during the day; but it more frequently occurs that we can not suggest any other remedy than the removal of the trees or the abandonment of the flowering plants in their vicinity. We have, as a general rule, too many trees in our gardens, and when we take into consideration how rapidly and effectually they exhaust the soil, it can not surprise any one that the smaller plants suffer severely from want of nourishment.

Roses should now be pruned very closely; deciduous shrubs, such as *Lilacs*, *Snowballs*, *Mock Oranges*, *Spiræas*, *Deutzias*, etc., must be trimmed with care. Ignorant gardeners frequently cut away the wood which should produce the flowers, and we have frequently heard the complaint that some of the above-named shrubs have not produced any flowers for many years; and that the owners were determined to throw them away on that account. When we explained matters to them, and a more sensible mode of treatment was adopted, an abundant season of flowers generally followed.

Dahlias and *Gladiolus* may now be taken up and stored, after exposing the roots to the sun for a day or two, in a dry and airy place. *Hyacinths* may also be taken up and kept out of the ground for a few weeks, or until the time comes for replanting. *Tulips*, *Narcissus*, *Lilies*, *Pæonies*, and *Snowdrops* should remain in the ground undisturbed; but the ground surrounding them should be trenched carefully, so as not to injure the

bulbs, and they should have a good manuring or top-dressing. *Violets*, *Pinks*, and other herbaceous plants should receive some manure, and the soil should be worked carefully around them.

Green-houses and conservatories must have a thorough overhauling, and care must be taken that the glass-roofs are made tight. When artificial heat is not applied during winter, it is advisable to water sparingly, and to give a great deal of fresh air; this will prevent too much growth of tender shoots, which are apt to perish during our cloudy and chilly winter days. This is particularly the case with all tender ornamental foliage plants, such as *Coleus*, *Marantas*, *Begonias*, etc.

Very little attention has, so far, been paid here to the proper heating of green-houses. Although artificial heat is not required for *Heliotropes*, *Geraniums*, *Camellias*, etc., yet it is certain that the more tender Warm-house plants, including the very desirable, tender, ornamental foliage plants, must receive artificial heat if they are expected to vegetate luxuriantly. If kept dry and in small pots, most of the so-called Warm-house plants may be wintered without actual loss, yet we frequently hear of total losses of *Coleus*, *Clerodendron*, variegated *Dracoenas*, *Marantas*, and the like. We certainly do not require such formidable heating appliances as are necessary in the East and in Europe, but it is very desirable that this matter should be properly discussed among our professional men.

Flowering Bulbs are now coming into the market. To those who are fond of *Hyacinths* and *Narcissus* in bloom at Christmas time, we would give a kindly advice to purchase a few bulbs and to plant them without delay in pots or boxes for the window. They are cheap—every one can afford to have a few; they are of easy culture and give general satisfaction.

A FEW drops of glycerine added to a pint of any writing fluid, changes it at once into copying ink.

BAY DISTRICT HORTICULTURAL SOCIETY.

Regular meeting, Saturday, October 26th, 1872.

The meeting was well attended. After the reading of the minutes of the previous meeting, the Secretary handed in his report of the Exhibition accounts.

The total receipts of the society, including the appropriation from the State, were \$5165.25, and the total disbursements were \$3557.55; making a net gain of \$1607.70. The receipts of the Exhibition itself were, according to prior arrangement, the property of the Horticultural Hall Association, and cannot be charged to the account of the Horticultural Society; it is therefore impossible for the Secretary to give the total receipts of the Exhibition, in connection with this report.

The Report was referred to the Trustees of the Horticultural Society.

A communication was received from the Agent of the United Anaheim Wine Growers' Association, donating the amount of premium awarded to said association, to the Horticultural Society.

The thanks of the Society were expressed to the U. A. Wine Growers' Association.

Dr. A. Kellogg was elected a life member of the society.

Nominations for the officers of the society for the ensuing year being in order, the following members were nominated:

For President, Dr. A. Kellogg and Eug. A. Upton.

For Vice-President, C. Stephens and C. Schuman.

For Secretary, Prof. H. N. Bolander and F. A. Miller.

For Treasurer, Hugo Herst and J. Weisenborn.

For Trustees, Wm. Robinson, R. Michelson, J. H. Sievers, and Th. Brown.

At the suggestion of the Secretary, it was proposed to discuss the time and the place for a Spring Exhibition at the next regular meeting.

Prof. Bolander called the attention of the society to the practicability of underground irrigation by clay pipes. We have no space,

in this number, to give the discussion on the subject in full.

Dr. Behr made some remarks on destructive insects, a full report of which we will insert in our next.

Mr. Wolleb suggested, as an excellent remedy for mildew on roses, etc., a solution of carbolic soap and water, applied by sprinkling.

Space and time will not permit us to give a detailed report.

AGRICULTURAL COLLEGE OF CALIFORNIA.

On the 8th of October the corner-stone of the Agricultural College of the University of California was laid at Berkeley, Alameda County. The ceremonies were conducted by Bishop Kip, Dr. Stebbins, and the officers of the Board of Regents.

OUR EXCHANGE TABLE.

Several new and valuable exchanges have been added to our already numerous list.

The *Rural Alabamian* is a very neatly gotten-up Monthly, devoted to Agriculture, Horticulture, and improved Industry of the South. It is published by C. C. Langdon & Co., Mobile, Ala. Subscription price, \$2 per annum.

Wood's Household Magazine, valuable for the family circle, for its instructive and entertaining reading matter. Published monthly by S. S. Wood & Co., Newburgh, N. Y. Price \$1 per year.

The *Western Planter* is a weekly journal, devoted to Agriculture, Horticulture, Stock-raising, and Home Reading. Published by R. H. Stone & Co., Kansas City, Missouri. Price, \$1.50 per annum.

Young Folks' Rural, a Rural and Literary monthly journal for young people of country and city, deserves patronage. It is published by H. N. F. Lewis (of the *Western Rural*, Chicago, Illinois. Subscription, \$1.50 per year.

FAVORS RECEIVED.

We are indebted to Hon. Robert B. Roosevelt, of New York, for his very valuable speech, delivered in the House of Representatives at Washington, on Fish Culture compared in importance with Agriculture.

We owe thanks to the West Tennessee Agricultural and Mechanical Association for a Complimentary Ticket to their Second Annual Fair to be held October 22d to 26th, 1872; we have also received the Premium-list, Rules and Regulations, etc., of the Exhibition.

CATALOGUES RECEIVED.

John Saul's *Descriptive Catalogue* of Dutch Bulbs and other bulbous flower roots, Washington, D. C.

Wholesale Catalogue of Fruit, Evergreen, and Ornamental Trees, Shrubs, Plants, etc., for 1872-73; for sale by John Saul, Washington, D. C.

Catalogue of select California Flowers and Tree Seeds, Bulbs, and Plants, native Ferns, Australian Tree and Shrub Seeds, etc.; for sale by Miller & Sievers, 27 Post Street; San Francisco.

Catalogue of Stove and Green-house Plants, including Orchids, Palms, Ferns, etc.; for sale by Geo. Such, South Amboy, N. J.

Nursery Trade Catalogue of the Genesee Valley Nurseries. Frost & Co., Proprietors, Rochester, N. Y.

Wholesale Price List of Fruits and Ornamental Trees for sale by H. E. Hooker & Brothers, Rochester, N. Y.

Wholesale Price List of the Fairport Nurseries, Fairport, Monroe County, N. Y.

Dreer's Descriptive Catalogue of Bulbs and other flower roots, with directions how to manage. Address: Henry A. Dreer, Philadelphia, Pa.

Wholesale Catalogue of R. B. Parsons & Co., Broadway, Flushing Village, Queen's County, N. Y.

General Trade List of Nursery Stock, Seeds, and Bulbs, by Wood & Hall, Geneva, N. Y.

Special Trade List of Supplies for Nurserymen, Seedsmen, and Florists, by Wood & Hall, Geneva, N. Y.

New Evergreens offered for the first time by T. C. Maxwell & Bro., Geneva, N. Y.

Trade List for the fall of 1872, by S. B. Vreeland, Greenville, Hudson Co., N. J.

Catalogue and Price List of Small Fruits grown and for sale by James N. Veazey, Covedale, Hamilton County, Ohio.

NEW AND RARE PLANTS.

ALOCASIA MARSHALLII.—A remarkably fine new Aroid, related to and much in the way of *A. Jenningsii*, but differing in having a broad gray band down the centre of the leaf. The leaves are ovate, peltate, attached to erect green stalks, the blades standing almost vertical; while the color is a bright green, marked between the principal veins with broad, wedge-shaped leaves of blackish purple. The addition of the silvery band adds very greatly to their beauty. It was imported from India.

CROTON GRANDE.—A fine, bold-habited and free growing stove plant, having oblong-ovate leaves eight inches long, and nearly half as much in width, and with a stout foot-stalk varying from one inch to two and a half inches in length. These leaves are, in the young state, of a rich deep green, with a yellowish rib and scattered yellow spots, the stalks being pale-colored at the base and apex, where they are also thickened. As the plants gain maturity, they become more distinctly veined and spotted with yellow. The present is remarkable among the *Crotons* or *Codiaeums* for its vigorous and bold character, having, in fact, very much the aspect of a *Ficus*. It is one of the many forms of *Codiaeum variegatum* which have come from the South Sea Islands.

DRACENA SPLENDENS.—A remarkably dis-

tinct ornamental stove plant, of dwarf and compact but free-growing habit, densely furnished with short oblong acute recurved leaves, about nine inches long and four inches broad, arranged in a spiral manner, and having winged foot-stalks. The color is a deep bronzy green, breaking out in the young growth into bright rosy carmine, the petiole and base of the leaves margined with the same color. The brighter coloring appears sometimes in stripes, and sometimes occupies the whole surface; while the recurved character of the densely-set foliage gives the plant a flat, almost table-like head. It has been imported from the South-Sea Islands. It was awarded a first-class certificate by the Floral Committee of the Royal Horticultural Society.

ECHEVERIA ABYSSINICA.—This fine greenhouse succulent, of branching, shrubby habit, was brought from Abyssinia by Major Leveson, at the time of the Abyssinian war. The plant has much the habit of some of the large-leaved shrubby *Sempervivums*; but being described by my correspondent as bearing red flowers, it has been doubtfully referred to *Echeveria*, with which it sufficiently accords in habit. The stems are as thick as one's finger, and terminate in flattened rosulate heads of spatulate acute leaves, three to four inches long, of a pale glossy-green color, and finely ciliated at the margin. The plants form a branched conical mass a foot and a half high, and as much through; and will be a welcome addition amongst succulents.

BEGONIA CARMINATA.—An elegant tuberous-rooted hybrid of the "*Boliviensis*" group. The leaves are stained with a coppery brown tint between the veins; while the flowers are large, of a pretty, delicate salmony hue tinged with rose, the males having four oblong segments upwards of an inch long, and the females five petals of a smaller size. The plants come into flower while quite dwarf, and continue blooming in the most profuse manner.

NEW CLEMATIS.—*Albert Victor*: Extra fine shape, each flower having eight petals, deep lavender color, with brown ribs down the centre of each petal, the ribs changing to white, or nearly so, as the flower expands. Very free flowering, and of a superb, thick, velvety texture.

Lady Londesborough.—Very fine shape, each flower having eight petals; color, a delicate silver-gray, with white stripe down the centre of each petal; a pink stain at the base of the stamens gives it a pretty appearance. Good substance and very free-flowering. Constitution very robust.

Miss Bateman.—Good shape, each flower composed of eight petals; color pure white, with distinct band of glaucous cream-color down the centre of each petal. Very free, and altogether a magnificent plant.

REPORT ON THE FRUIT MARKET.

The Autumn fruits are now in full supply, and in quality are very superior.

Apples are plentiful, large in size, brilliant in their coloring, full in their distinctive flavors, and numerous in their varieties.

The Pears are also abundant, delicious to the taste, and beautifully colored; we especially note the *Beurre Clairgeau*, *Orange Bergamot*, *Easter Beurre*, *White Doyenne*, and a few *Bartletts*; some few are just making their appearance—the *Glout Morceau*, for instance.

Grapes are also in great abundance and very fine; we especially notice *Muscat of Alexandria*, *Flaming Tokay*, *Rose of Peru*, *Isabella*, etc.

A few Plums, Strawberries, and Figs are still to be seen.

There is a very good assortment and supply of Vegetables in Market and of excellent quality; Asparagus has made its appearance, Egg and Oyster Plants are abundant, and Gumbo, Green Peas, and several varieties of Beans still in full supply.

Correspondence.

PLANTING TREES.

We have just received from I. N. Hoag, the Secretary of the State Board of Agriculture, the following copy of "An Act to encourage the Planting and Cultivation of Shade and Fruit Trees upon the Public Lands and Highways of this State;" approved March 30th, 1868; with the request that we draw public attention to it. We fully estimate its importance, and only regret that it came to hand so late, that we had barely time to provide for its insertion in the present number; but will endeavor to advocate the subject in our next.

SECTION 1. The Board of Supervisors of any county of this State, by an order of such Board, to be passed at a regular meeting of such Board, and to be entered in the minutes thereof, may authorize the planting and cultivation of shade and fruit trees, by persons owning lands in such county, upon the public roads and highways adjacent to such lands.

SEC. 2. The Board of Supervisors may, by order, entered upon their minutes, designate the roads or highways upon which such trees may be planted, so describing such road, by reference to places and boundaries, that the same may be readily ascertained. They shall also, in such order, direct the species of trees to be so planted, their age when planted, their distance from each other, and their position with reference to the traveled road, and also all such other rules and regulations as they shall deem proper to secure the proper planting, growth and protection of such trees, and to prevent their obstructing the travel upon such road.

SEC. 3. Whenever any person shall plant, upon any public road, in front of land owned by him, shade or fruit trees, in accordance with the provisions of this act, and also of such rules as the Board of Supervisors may prescribe hereunder, such person so planting such trees shall file with the Board of Super-

visors of such county a written statement, setting forth therein the road or places upon which such trees are planted, the number and species of trees thus planted, and the time of planting.

SEC. 4. Four years from and after the date of planting such trees and giving the notice as provided in section third, the person planting such trees, or his legal representative, may present to the Board of Supervisors of such county his statement in writing, verified by the oath of such applicant, setting forth therein the number and species of trees originally planted, when and by whom planted or caused to be planted, and the number then living and in a thrifty condition; and for any wilful misstatement contained in such report the party making the same may be prosecuted for the crime of perjury.

SEC. 5. Upon filing such verified statement, the Board of Supervisors of such county shall allow to the party making the same the sum of one dollar for each and every tree so planted and growing thriftily, the same, to be audited and paid out of the General Fund of such county as other claims are allowed, audited, and paid.

SEC. 6. Nothing contained in this Act shall be construed to apply to any trees planted before the passage of this Act, unless planted and cultivated as required by the orders of the Boards of Supervisors.

SEC. 7. This Act shall take effect from and after its passage.

Editorial Cleanings.

EUCALYPTUS GLOBULUS.—This Australian plant, or rather tree, known by the common name of Blue Gum, has been introduced into some of the Southern States and appears to be well adapted to the climate. The whole plant—leaves, bark, wood, and root—is pervaded by a peculiar aromatic, bitter principle, and a pungent volatile oil has been distilled from the leaves. To this oil the name of "eucalyptol" has been given. The leaves

and bark of this tree have attained a high reputation among the natives of Australia for the cure of malarious diseases. Lately we observe that Doctor Coleman, resident physician at the United States Marine Hospital at San Francisco, California, has used it in the treatment of fevers with marked success. He administered it in the form of a fluid extract, prepared by his directions. Coming from this source, the statement may be regarded as altogether reliable. Dr. Coleman treated five cases of remittent fever, nineteen of chills and fever, and nine of typhoid fever with the fluid extract of eucalyptus, and reports satisfactory results in every case. He treated a number of other diseases with this remedy, where it appeared to be indicated, and the result was various, curing many cases and improving most. The active principle is said to possess great power in preventing confervoid growths in fluids. In this it much resembles quinine, for which it is proposed as a substitute.—*Agricultural Report.*

CANADA EGG PLUMS.—We have three hundred trees, of the leading popular market sorts, from which we are receiving very satisfactory returns. We have thirty trees of the "Canada Egg," a new variety, set twelve feet apart, occupying one-tenth of an acre. From these thirty trees we have marketed two bushels per tree—sixty bushels—from which we realized four dollars per bushel net—\$240, or at the rate of \$2,400 per acre net. We esteem the Canada Egg an exceedingly valuable acquisition to our list of early market plums. It originated in Canada, and was introduced here (Michigan) about ten years ago, and has since been cultivated with great success. The trees are hardy, vigorous and healthy, regular annual bearers. Fruit large, roundish and very showy; color, a beautiful reddish purple, overspread with a thick coat of delicate bloom; stone very small, flesh tender, juicy, rich and excellent. Uses—dessert, market, canning and cooking. Season very early—two weeks in advance of any other good market variety. It remains in use a

long time, bears handling and transportation well, and is valuable on that account. As an early, hardy, productive and profitable plum for the market and family orchard, we consider this variety superior to any other with which we are acquainted.—“*N. P. H., Moore's Rural New Yorker.*”

SEA ANEMONES—SPECIMENS IN THE CRYSTAL PALACE AQUARIUM.—Of sea anemones there are in the Crystal Palace Aquarium twenty-one species, all alive and doing well. Of these the largest is the *Tealia crassicornia*, or thick-horned anemone, which, owing to its great size, sometimes ten inches across, when fully expanded, permits its interior to be easily examined. The smallest in the aquarium is never more than one-tenth of an inch in diameter at its greatest stretch. Although to the uninstructed and unobservant eye these anemones appear to belong to the vegetable rather than to the animal kingdom, looking like specimens of weed or fungus, only two, they being coral, out of the twenty-one specimens in the Crystal Palace Aquarium, are absolutely non-locomotive, being fixed immovably during the whole period of their existence to a hard base. All the others have the power of locomotion, accomplished in a snail-like manner, in various degrees, one of them, the plumrose anemone, having been known to travel from three to six inches in twenty-four hours. The anemones are carnivorous, and are fed with the flesh of the mussel, which is cut into small pieces, and being handed to them by an attendant with a pair of wooden tongs, is grasped by the tentacles, and by them conveyed to the mouth in the centre of the topmost disc, which, gaping open, receives it and passes it into the stomach. The high state of health of this collection of anemones is shown by the facts that they are almost all nearly constantly open, even by day, this being the normal condition of anemones in the sea, where they are seldom closed, save when in the act of taking food, or when stranded. In the Crystal Palace, indeed, they are quite as

much expanded by day as by night, though, with but one exception (*anthea*) they are nocturnal. As the process of seeing them and the other animals feed is very popular, especially with the visitors on Saturday afternoon, it has been found necessary to make Sunday a *jour maigre*, or absolute starvation day, in order to keep them in health. A curious proof of the need of an aquarium such as this, as a means of instruction, is to be found in the fact that most English people of all classes refuse to recognize water creatures as “animals.” They may be fish, shell-fish, or anything but animals, as of course they are.—*All the Year Round.*

VICTORIA, TEXAS.—The California clover is doing finely. It is at present about sixteen inches high. The burs or seed-pods are produced at every joint, the joints being about one and a half inches apart. At each of these there springs up a flower-stalk half an inch in length, terminating in a cluster of small yellow flowers, from four to six in number, from which the burs are formed. These runners or stems grow to three or four feet in length, putting out laterals, jointed like the main stock, and filled with seed-pods which cover the surface of the ground from one to three inches deep, and of which both fowls and animals are exceedingly fond.

CALIFORNIA CHESTNUTS.—We have been shown a chestnut of the Italian variety, of California growth, of surprising dimensions. The circumference of the specimen exhibited is fully three inches. This chestnut was raised by Mr. Henry Ginina, in Sonoma City. This gentleman planted a chestnut orchard from the seeds seven years ago, which has flourished finely, and is now bearing liberally of fruit of the general size and character above described. Doubtless chestnut trees would do equally well in most other of the valley lands of the State, and their cultivation is at least worthy a trial.—*Morning Call.*

THE
CALIFORNIA HORTICULTURIST
AND FLORAL MAGAZINE.

VOL. II.

NOVEMBER, 1872.

No. 12.

EPACRIS.

It is surprising that this beautiful ever-green flowering shrub is not more extensively cultivated on this coast, when it is fair to presume that the plants would do well in our climate; at least fully as well as the *Ericas*, which they resemble.

We rarely meet with a specimen of *Epacris* in this State, and strange to say, there are, as far as we know, but few of them to be seen in the East. We understand that their propagation meets with considerable difficulties, which are not easily overcome. In years gone by, we cultivated them successfully, and we will endeavor to explain what we know about them:

The *Epacris*es are natives of Australia, and are often mistaken for *Ericas*, which, as we have stated before, they much resemble. Florists, however, were not satisfied with the various species, as they were discovered in their native country, although they are most beautiful, and a great number of Hybrids have been produced within the last 20 years, which have much increased the appreciation of this valuable class of plants. There seems to be no difficulty in the propagation and cultivation of the *Epacris* in Europe, and there should be still less here, as most of the New Holland plants are hardy in this country, and adapt themselves readily to our climate.

The *Epacris* may be raised either from cuttings or from seed. The best wood for cuttings are the small lateral branches not yet hardened, and which may be taken off during autumn and the winter months. Prepare shallow boxes by partly filling them with fibrous peat, cover these with $\frac{1}{4}$ to $\frac{1}{2}$ inch clean sand, and plant in them the short cuttings. Cover the boxes with glass or place them close under the roof sashes of the greenhouse. One difficulty arises in the watering, which should be applied from below; but as many of our professional gardeners are not prepared for this method, the cuttings should be well watered and shaded after planting, so that frequent watering may not be imperative. After the cuttings are rooted, plant the young plants single in 2-inch pots, filled with well worked up fibrous peat mixed with a small portion of clean sand; plant firmly, with efficient drainage. During summer, the *Epacris* should be placed in the open air in a sheltered location, not too much exposed to the hot sun. Care, however, should be taken in watering, as too much moisture is dangerous. The atmosphere, nevertheless, should be a moist one. We consider that the atmosphere of our coast is sufficiently moist, although in the dry air of a room they would certainly suffer.

The propagation from seed is simple, but as the seed should be sown immediately after the ripening, it is not surprising that most of

the seed sent to this country, after a long voyage, is not in as good condition as it should be, and generally fails to germinate. As our communication with Australia is now much more convenient and quicker, we may yet have seed from there in good condition. Prepare boxes in the same manner as directed for the cuttings, but cover with much less sand, say $\frac{1}{8}$ of an inch; sow the seed without covering, and be extremely careful in watering. If moisture can be applied from below, it will be preferable; if applied from above, it should be done by a very fine spray or by a moistened cloth.

The Epacris, which are natives of Australia, are:

Epacris pulchella, *E. rigida* and *E. microphylla*, the leaves of which are small and the flowers white.

E. grandiflora, with heart shaped leaves, flowers of a brilliant reddish purple at the base, and pure white at the apex.

E. impressa, *E. ruscifolia* and *E. tomentosa*, flowers of a deep rose-color.

E. nivea and *E. paludosa* have the leaves narrow, lanceolate and sharp-pointed, flowers pure white.

Some of the most desirable and conspicuous Hybrids are:

E. eclipse, *E. coccinea*, *E. delicata*, *E. alba odorata*, *E. hyacinthiflora*, *Princess - Royal*, etc.

We hope that our florists and nurserymen will exert themselves to introduce this beautiful class of plants, which has so far been badly neglected; and we have no doubt that we have even amateurs among us, who will avail themselves of the first opportunity to procure some of the varieties for their already numerous collections.

Some of our people can appreciate novelties of this kind, but we can not expect to excite their curiosity in these things, if we do not continually strive to add to our collections those plants which are most desirable and worthy.

SELECT PLANTS

(Exclusive of Timber Trees) readily eligible for Victorian Industrial Culture, with Indications of their Native Countries and some of their Uses—an Enumeration Offered

BY BARON FRED. VON MUELLER.

[Continued from page 325 of last number.]

ASPARAGUS OFFICINALIS, L.—Europe, North Africa, North Asia. The well-known Asparagus plant, which, if naturalized on our coast, would aid in binding the sand. The foliage contains Inosit-Sugar; the shoots contain Asparagin.

ASTRAGALUS CEPHALONICUS, Fisher. (*A. aristatus*, Sibthorp.)—Cephalonia. A small shrub, yielding a good tragacanth; and so probably, also, the true *A. aristatus* of *l'Heritier* is producing it.

ASTRAGALUS CRETICUS, *La Marck*.—Candia and Greece. A small bush, exuding the ordinary vermicular Tragacanth. The pale is preferable to the brown sort.

ASTRAGALUS GUMMIFER, *La Billard*.—Syria and Persia. This shrub also yields a good Tragacanth.

ASTRAGALUS STRABILIFERUS, *Royle*. Asiatic Turkey. The brown Tragacanth is collected from this species.

ASTRAGALUS VERUS, *Olivier*. Asiatic Turkey and Persia.—This shrub furnishes the Takalor or Smyrna Tragacanth, or it is derived from an allied species.

ATRIplex HORTENSIS, L.—North and Middle Asia. The Arroche. An annual Spinach plant.

ATROPA BELLADONNA, L.—The Deadly Nightshade. South and Middle Europe and Western Asia. A most important perennial medicinal herb. The highly powerful Atropin is derived from it, besides another alkaloid, the Belladonnin.

AVENA FATUA, L.—Wild Oat. Europe, North Africa, North and Middle Asia, eastward as far as Japan. The experiments of Professor Buckman indicate that our ordinary Culture-Oat (*Avena sativa*, L.) is descended from this plant.

AVENA FLAVESCENS, L. (*Trisetum flavescens*,

Beauv.)—Yellowish Oat Grass. Europe, North Africa, Middle and North Asia, eastward as far as Japan. One of the best of perennial meadow-grasses, living on dry soil; fitted also for our Alps.

AVENA PRATENSIS, L.—Meadow Oat Grass. Europe; North Asia. It thrives well on dry, clayey soil; it produces a sweet fodder, but not in so great proportion as several other less nutritious grasses. It is perennial, and well adapted for our snowy mountains, where it would readily establish itself, even on heathy moors.

AVENA PUBESCENS, L.—Downy Oat-Grass. Europe, North and Middle Asia. A sweet perennial grass, requiring dry but good soil, containing lime. It is nutritious and prolific. Several good Oat grasses are peculiar to North America and other parts of the globe. Their relative value as fodder-grasses is in many cases not exactly known, nor does the limit assigned to this little treatise allow of their being enumerated on this occasion.

BACRIS GASIPES, Humboldt. (*Guilielma speciosa, Mart.*)—The Peach Palm of the Amazon River, ascending to the warm-temperate regions of the Andes. Stems clustered, attaining a height of 90 feet. Dr. Spruce describes the large bunches of fruits as possessing a thick, firm, and mealy pericarp, which, when cooked, has a flavor between Potato and Chestnut, but superior to either. To us, however, this palm would be mainly an object of grandeur. It is likely to endure our clime in the fern-tree gullies.

BAMBUSA ARUNDINACEA, Roxb.—The Thorny Bamboo of India. It requires rich, moist soil, and delights on river banks. It is of less height than *Bambusa vulgaris*; it also sends up from the root numerous stems, but with bending branches, thorny at the joints. The seeds of this and some other Bamboos are useful as food for fowls.

BAMBUSA ATTENUATA, Thwaites.—The Hardy Bamboo of Ceylon, there growing on the mountains at elevations between 4,000 to 6,000 feet. It attains a height of 25 feet.

BAMBUSA ELEGANTISSIMA, Hasskarl.—Java, on

mountains about 4,000 feet high. Very tall and exceedingly slender; the upper branches pendulous. A hardy species.

BAMBUSA MONADELPHA. (*Dendrocalamus monadelphus, Thwaites.*)—Ceylon, on mountains from 4,000 to 6,000 feet high. A dwarf but handsome Bamboo, reaching only a height of 12 feet.

BAMBUSA SPINOSA, Roxb.—Bengal. A Bamboo of considerable height. The central cavity of the canes is of less width than in most other species, thus the strength for many technic purposes is increased.

BAMBUSA STRICTA, Rox. (*Dendrocalamus strictus, Nees.*)—India, particularly Bengal. Grows on drier ground than *B. arundinacea*. It is also smaller, and quite straight. Its strength and solidity renders it fit for many select technic purposes.

BAMBUSA VERTICILLATA, Blume.—The Whorled Bamboo of Java.

BAMBUSA VULGARIS, Wendland.—The large unarmed Bamboo of Bengal. It attains a height of 70 feet, and stems may attain even a length of 40 feet in one season, though the growth is slower in our clime. It has proved to be capable of resisting the occasional night frost of the lowlands of Victoria. It is the best for building Bamboo-Houses. Immersion in water for some time renders the cane still firmer. To the series of large thornless Bamboos belong also *Bambusa Tulda* and *Bambusa Balcooa* of India, and *Bambusa Thouarsii* from Madagascar and Bourbon. These Bamboos are much used for various kinds of furniture, mats, implements and other articles. There are many other kinds of Bamboo eligible among the species from China, Japan, India, tropical America, and perhaps tropical Africa. One occurs in Arnhem's Land.

BAROSMA SERRATIFOLIA, Willd. South Africa. This shrub supplies the medicinal Bucco-leaves. *B. crenulata, Hook.* (*Diosma crenulata, L.*) is only a variety of this species. Active principles—A peculiar volatile oil, a peculiar resin, and a crystalline substance called Diosmin.

BETA VULGARIS, L.*—The Beet or Mangold Root. Middle and South Europe, Middle Asia, North Africa. This well-known perennial or biennial herb ought to engage the general and extensive attention of our farming population. The herb is most valuable as a palatable and nutritious spinach; the root is of importance not only as a culinary vegetable, but, as well known, also for its content of sugar, fit to be crystallized. That of Beet, indeed, is now almost exclusively consumed in Russia, Germany, Austria, France, Sweden, and Belgium; and these countries not only produce the Beet Sugar, but also export it largely to the neighboring States. The white Sicilian Beet is mainly used for salads, spinach and soups. The thick-ribbed variety serves like Asparagus or Seakale, dressed like Rhubarb. Cereal soil, particularly such as is fit for Barley, is generally adapted also for the culture of Beet. The rearing of the root, and the manufacture of the sugar, can be studied from manifold works; one has been compiled by Mr. N. Levy, of this city. A deeply stirred, drained soil, rich in lime, brings the saccharine variety of Beet to the greatest perfection. The Imperial Beet yields from 12 to 20 per cent. sugar. The Castelnauderry, the Magdeburg, the Siberian Whiterib and the Vilmorin Beet are other varieties rich in sugar. About 5 lbs. of seeds are required for an acre. In rotation of crops, the Beet takes its place best between Barley and Oats. In Middle Europe, the yield averages 14 tons of Sugar Beet to the acre, and as many hundred weight of raw sugar. The mercantile value of the root, at our distilleries, ranges from 20s. to 30s per ton. In our clime, the Beet harvest can be extended over a far longer time of the year than in Middle Europe. The extraction of the sap is effected generally by hydraulic pressure. The juice is purified with lime and animal coal. Excess of lime is removed by carbonic acid, and the purified and decolorized juice is evaporated in vacuum pans, with a view to preventing the extensive conversion of the crystallizable sugar into

treacle. The production of Beet sugar needs far less labor than that of cane sugar, and the harvest is obtained in so short a time as eight months. Beet has shown itself subject neither to alarming diseases nor to extensive attacks of insects. Beet is grown in extra-tropical zones like ours, while the sugar-cane is a plant confined to tropical and subtropical latitudes. Beet culture, by directly or indirectly restoring the refuse, ameliorates the soil to such an extent, that in some parts of Germany, land so utilized has risen to four-fold its former value. Beet, furthermore, affords one of the most fattening stable fodders; and thus again an ample supply of manure. In Middle Europe now about one-sixth of all the arable land is devoted to Beet, yet the produce of cereals has not become reduced, while the rearing of fattened cattle has increased. Notwithstanding a heavy tax on the Beet-sugar factories in Europe, the industry has proved prosperous, and assumes greater and greater dimensions. In 1865, the sugar consumption of Europe amounted to 31,676,407 cwt., one-third of which had been locally supplied by the Beet, from over one thousand beet-sugar factories. Treacle obtained from beet is distilled for alcohol. For establishing remunerative factories on a large and paying scale, it has been suggested that farmers' companies might be formed. For ascertaining the percentage of sugar in Beet, saccharometers are used. In Germany, some scientific periodicals are exclusively devoted to the fostering of this industry.

CULTIVATION OF CINCHONA IN BENGAL.—The cultivation of cinchona trees in the district of Sikkin, Bengal, which was started in 1862 by Dr. T. Anderson, is said to be very profitable, and in this district there were under cultivation in March, 1871, the following species: 1,233,715 trees of *cinchona succi rubra*; 440,000 trees of *cinchona officinalis*; 33,400 trees of *cinchona calisaya*; beside 480,000 young plants of *cinchona succi rubra* in the nursery, which had been raised from the seed. The annual yield is about three hundred pounds of bark per acre.

ON THE ECONOMIC VALUE
OF CERTAIN
AUSTRALIAN FOREST TREES,
And their Cultivation in California.

BY ROBERT E. C. STEARNS.

[Concluded from last number.]

In compliance with my request to Dr. Arthur B. Stout, of this city, for a relation of his experience with the Eucalyptus in connection with his medical practice, I have received the following :

MR. STEARNS :

Dear Sir :—In response to your invitation, I am happy to contribute to your important article on the culture and uses of the Eucalyptus in California, my experience of the medical properties of that valuable plant. The Eucalyptus is not less precious for its medicinal virtues than it is ornamental in arboriculture and useful in the arts. Several months ago, incited by information derived from the *Practitioner* and other sources of knowledge, I collected and dried the leaves. The agreeable empyreumatic oil of the leaves, in evaporating, diffused a balmy odor through the house. I therefore considered that as this oil, as well as the catechu gum and kino, and the cajuput oil, are all similar hydrocarbons, their qualities must resemble the creosote, pyroligneous and carbolic acids in their disinfectant and hygienic properties. I have no doubt that Eucalyptus has these properties in a milder or weaker degree, only differing in being accompanied with an agreeable perfume, wanting to creosote and carbolic acid. As a purifier therefore of the musty atmosphere and unpleasant emanations in basements and cellars, I have recommended the scattering of the dried leaves in such places. The powder of the dried leaves scattered in trunks and among clothes will no doubt be as useful and more agreeable than tobacco or camphor to prevent the growth of moths or other insects. Its chief value is, however, as a sedative and antiseptic in asthma and throat diseases, nasal catarrhs, and

affections of the mucous membranes. To utilize these properties I had a concentrated tincture with alcohol at 95° prepared by Messrs. Steele & Co., and also contrived an inhaler with which to introduce the vapor of the essential oil to the throat and lungs. I can testify to the excellent effect of this mode of medication. The paroxysms of chronic asthma are relieved and shortened, and acute attacks are quickly allayed. The inhaler is a simple instrument made of tin. It is a cup of a capacity of four fluid ounces ; the lid, attached by a hinge, has a tube from the centre about three inches high, bent near the end at a right angle, and terminated with a mouth-piece like that of a speaking trumpet. The cup is on legs so that a spirit lamp may be placed underneath, and has a wooden handle to move it about when heated. Put two ounces of boiling water, (four tablespoonfuls) in the cup ; add one tablespoonful of the tincture ; and inhale the vapor, while the fluid is kept gently boiling with the spirit lamp. Again, I had prepared cigarettes with the coarsely powdered leaves. These produce a decidedly anodyne and antispasmodic effect. An agreeable syrup may also be prepared, useful in infantile maladies.

There can be little doubt but that the oil of Eucalyptus, and Eucalyptine when it can be procured, will be available remedies against malarious diseases of all types, and that the presence of the trees, cultivated in gardens, contribute to sanify the atmosphere from those emanations which give origin to epidemic diseases. That the parasitic insects which infest other plants do not relish the Eucalyptus is evident from the general cleanliness of the leaves, and the fact that the hydro-carbon oils are fatal to animal life. The balmy perfume, therefore, that exhales from them must have an influence in destroying the parasites which frequent shrubs growing in their vicinity, tending to diminish if not suppress them.

In corroboration of the advantages to be obtained by the cultivation of this Myrtacea,

may be shown the efforts made during the last fifteen years to acclimate it in Europe and elsewhere. Ramel has succeeded admirably in introducing this tree in Provence (France), in Spain, Italy, the islands of the Mediterranean sea, and in Algeria. It appears in the botanical gardens of Germany (Munich); and in Vienna, Austria, an apothecary, Lamalsh, has raised 3,000 specimens from seeds. From these he has prepared tinctures and oils for medical purposes.

See annual report of Wiggen and Husemann of progress in Pharmacy, etc., Göttingen, 1871.

By the assiduity of Dr. Pigne-Dupuytren, this tree has been carefully cultivated in the garden of the French Hospital of the Mutual Benevolent Association. So, that institution enjoys already the benefit of the tree hygienically, and has its supply of leaves for tinctures and syrups. The leaves steeped in boiling water are also used as a ptisane or beverage.

However obnoxious to parasites in general this tree may be, it appears it nevertheless has its own species in the *Psylla Eucalypti*. This insect is an Hemipteron, and appears on the *Eu. dumosa*. It deposits a species of manna, called in Australia *Lerp* or *Laap*. It is a white substance, 53.1 per cent. of sugar syrup and 46.9 per cent. of a special modification of starch. This is prized by the inhabitants as a Manna; and is greatly sought for by the bees, who convert it into honey. Dobson (entomology) describes it as the cup-like coverings of the *Psyllidæ*, but Wittstein mentions six varieties of *Psylla*, and that one species produces a colored Lerp handsomer than the white, but as a deposit beneath the cup-like shields of the insect.

See same annual, before mentioned, Göttingen, 1870.

If this insect derives his Lerp from the aromatic and balmy oil of the Eucalyptus, and furnishes an agreeable aliment for the inhabitants, and a Mt. Hymettus-like honey stuff for the bees, certainly the busy little

insect manufacturer, parasite as he is, may be freely pardoned.

Very respectfully yours,

A. B. STOUT, M. D.

From experiments recently made upon myself, I find that small doses, 3 ij to 3 iij, of the infusion of the leaves (of young trees) drank when cold, quiet the nerves and induce sleep; quite likely, in ordinary cases of wakefulness, a pillow stuffed with the leaves would produce the same result. My friend, Dr. Kellogg, has prescribed the infusion in dyspepsia, and reports favorably. In addition to the many valuable properties of the Blue Gum, herein recited, I have no doubt but camphor in considerable quantity can be obtained from it.

COBCEA SCANDENS VARIEGATA.—This is one of the most lovely climbing plants which has recently been introduced. It is of very easy culture and vigorous and graceful habit, while its abundant flowers and very elegantly variegated foliage render it very conspicuous. Its leaves are beautifully edged with a wide margin of creamy white, turning to a delicate canary color; and the ends of the young shoots, with their airy tendrils, are of a reddish purple, changing to various shades of green; and it retains its distinctive colors under the dryest and hottest of our summers. Its flowers are of a deep purple, and shaped like a tiny cup, and are profusely scattered over the vine, adding greatly to its beauty. It is very well adapted to out-door culture, and will climb upon strings very rapidly, often growing over forty feet in one season. It is very tender; will be cut down by the first frost, but can then be potted and brought in-doors, where it will soon start from the root, and twine its graceful branches all about the window casements.

The *Cobcea* is a native of Mexico, and grows well in any garden soil; for pot culture it loves leaf mould, two parts to one part of garden soil.—*Floral Cabinet*.

IRRIGATION IN THE MALAY ARCHIPELAGO.— We clip the following from *Wallace's Malay Archipelago*, regarding irrigation in Lombock, and at the east of Java :

Soon after passing Mataram, the country began gradually to rise in gentle undulations, swelling occasionally into low hills toward the mountainous tracts. It was now that I first obtained an adequate idea of one of the most wonderful systems of cultivation in the world, equalling all that is related of Chinese industry, and, as far as I know, surpassing, in the labor that has been bestowed upon it, any tract of equal extent in the most civilized countries of Europe.

In this remote and little-known island, from which all Europeans (except a few traders at the port) are jealously excluded, many hundreds of square miles of irregular, undulating country have been so skillfully terraced and leveled, and so permeated by artificial channels, that any portion can be irrigated or dried at pleasure.

According as the slope of the ground is more or less rapid, each terraced plot consists, in some places, of many acres; in others, of only a few square yards.

We saw them in every state of cultivation—some in stubble, some being plowed; some with rice crops, in various stages of growth. Here were luxuriant patches of tobacco; there cucumbers, potatoes, yams, beans, or Indian corn varied the scene.

In some places, the ditches were dry; in others, little streams crossed our road, and were distributed over lands about to be sown or planted. The banks, which bordered every terrace, rose regularly in horizontal lines above each other, sometimes surrounding an abrupt knoll and looking like a fortification, or sweeping round some hollow, and forming, on a gigantic scale, the seats of an amphitheatre.

Every brook and rivulet has been diverted from its bed, and instead of flowing along the lowest ground, were to be found crossing our road half way up an ascent, yet bordered by ancient trees and moss-grown stones, so

as to have all the appearance of a natural channel, bearing testimony to the remote period at which the work had been done.

As we advanced further into the country, the scenery was diversified by abrupt, rocky hills, steep ravines, and by clumps of bamboos and palm-trees, near houses and villages; while, in the distance, the fine range of mountains, of which Lombock peak, 8,000 feet high, is the culminating point, formed a fit background to a view scarcely to be surpassed either in human interest or picturesque beauty.

PRESERVATION OF APPLES.—“I cover the floor of my cellar with hurdles, two in thickness, and on this I put a little straw, upon which the apples are placed without further care or attention, except removing all that appear to be faulty as I place them in the cellar, and I think it is unnecessary to use any particular care in this respect. I have at present 110 bushels of apples thus heaped up in a small cellar; two or three times a week I give a good wetting with fresh water, as much as I think will wet the whole of them. This water drains off through the straw and hurdles into a well. In this way my apples keep well until the time I usually dispose of them; the best to make me a good return after Christmas.

“At present, the apples look as firm as if just gathered; and understand that during the last ten years they have always kept as well and fresh as now. How much less troublesome and easy of application, for keeping large quantities of fruit, than storing them away in dry sand on shelves, or in boxes, or in any other of the ways that are highly recommended.”—*Gardener's Chronicle*.

Roasted coffee is now believed to be one of the most powerful of deodorizers, actually destroying noxious animal and vegetable effluvia. Experiments which have been recently made with it have proved most satisfactory. This is a simple, safe disinfectant, and convenient to be obtained.—*Floral Cabinet*.

TRANSACTIONS
OF THE
BAY DISTRICT HORTICULTURAL SOCIETY
OF CALIFORNIA, FOR 1873.

[We give such portions of the Report of the Bay District Horticultural Society as have not been previously published in the CALIFORNIA HORTICULTURIST.—ED.]

To the Honorable the State Board of Agriculture of the State of California.

GENTLEMEN:—In compliance with the requisitions of the law, appropriating sundry moneys to the various Agricultural and Horticultural Societies of California, we, the Directors of the Bay District Horticultural Society of California, herewith present to your honorable body a report of the transactions of that Society, consisting of the List of Officers and Members, the Constitution and By-Laws, Proceedings, as far as they are of public interest, Essays and Lectures delivered at the meetings of the Society, Items of Interest concerning the Horticultural Exhibition of 1872, and a Statement of Accounts.

The Bay District Horticultural Society of California was organized in October, 1870, for the purpose of promoting the interests of Horticulture generally; and although its progress has been slow, the Society has steadily increased in strength and usefulness.

The members who have taken the most active interest in the Society are almost exclusively residents of San Francisco and its immediate vicinity. This accounts for the fact that more attention has been paid at the meetings of the Society to Floriculture, Arboriculture, and the beautifying of residences and public grounds, than to Horticulture in its broader bearings; the above designated section being less adapted to the raising of fruits and other horticultural products than the rural districts.

However, horticulturists in all parts of the State begin to appreciate the importance of our Society, and there are evident indications that many more will join us, and that this Society will represent not only the horticultural interests of the District, but also aid in promoting those of the State, in all the various details.

Our Horticultural Exhibitions, which have been arranged to take place semi-annually, will be accompanied by meetings of horticulturists from the different rural districts, for the purpose of discussion, and to devise measures for the better development of our horticultural interests, and of those industries which are connected with them.

The Society being as yet young and inexperienced, cannot be expected to have accomplished so much as would be desirable; but the will of its members is earnest, and their efforts have been largely stimulated by the generous appropriation from the State.

In presenting this report, we are aware of many imperfections; these we hope will be viewed with leniency by your honorable body.

Very respectfully,

H. N. BOLANDER,
C. STEPHENS,
F. A. MILLER,
WM. MEYER,
E. L. REIMER,
F. LUDEMANN,
CHAS. SCHUMANN,

Directors Bay District Horticultural Society of California.

SAN FRANCISCO, November 20, 1872.

LIST OF OFFICERS AND MEMBERS.

OF THE

BAY DISTRICT HORTICULTURAL SOCIETY, OF CALIFORNIA.

President—H. N. BOLANDER,.....San Francisco.
 Vice-President—C. STEPHENS;.....San Francisco.
 Secretary—F. A. MILLER,.....San Francisco.
 Treasurer—WM. MEYER,.....San Francisco.

Trustees.

H. N. BOLANDER,
 C. STEPHENS,
 F. A. MILLER,
 WM. MEYER,

E. L. REIMER,
 F. LUDEMANN,
 CHAS. SCHUMANN.

Regular Members.

H. N. Bolander,San Francisco.
 E. L. Reimer,San Francisco.
 F. A. Hering,San Francisco.
 F. Ludemann,San Francisco.
 R. Michelson,San Francisco.
 C. Schuman,San Francisco.
 Wm. Meyer,San Francisco.
 F. A. Miller,San Francisco.
 J. Forrer,San Francisco.
 C. H. Hoffman,San Francisco.
 W. F. Norcross,San Francisco.
 A. J. Saulman,San Francisco.
 John Wieland,San Francisco.
 A. Steiger,San José.
 J. B. Scotchler,San Francisco.
 H. Balzer,San Francisco.
 T. B. Lewis,San Francisco.
 J. H. Sievers,San Francisco.
 P. J. Ford,San Lorenzo.
 Warren B. Ewer,San Francisco.
 E. Mayrisch,San Francisco.
 Edgar Briggs,San Francisco.
 Ludwig Doeltz,San Francisco.
 Sevin Vincent,Brooklyn.
 John Rock,San José.
 William Robertson,San Francisco.

Wm. Dose,	San Francisco.
R. D. Reed,	Sonoma.
W. J. Adams,	Menlo Park.
G. M. Miller,	San Francisco.
E. Meyer,	San Francisco.
Ed. Wolleb,	San Francisco.
Th. McEvoy,	San Francisco.
Eugene A. Upton,	San Francisco.
J. M. Thompson,	Napa.
Jacob Seitz,	San Francisco.
Theo. Brown,	San Francisco.
L. H. D. Lange,	Red Bluffs.
— Herrmann,	San Francisco.
J. M. Asher,	San Diego.
Richard Linke,	San Francisco.
Wm. Meeks,	San Lorenzo.
Geo. Boreham,	Nicasio.
A. Thomas,	Santa Rosa.
Hugo Horst,	San Francisco.
F. Weisenborn,	San Francisco.
Chas. Mohr,	Vallejo.
Chas. Barnard,	San Francisco.
R. B. Woodward,	San Francisco.
C. Stephens,	San Francisco.
Gustave Mahe,	San Francisco.
E. J. Hooper,	San Francisco.
S. Tonnar,	San Jose.
F. Bibend,	San Francisco.
A. L. Bancroft,	San Francisco.
Julius Spenter,	San Francisco.
W. B. West,	Stockton.
J. Lempke,	San Francisco.
A. Kellogg,	San Francisco.

Honorary Members.

Baron F. Von Mueller, Director of the Botanical Gardens at Melbourne,	Australia.
H. T. Williams,	New York.
Marshal P. Wilder,	Dorchester, Mass.
Chas. Downing,	Newburgh, N. Y.
P. Barry,	Rochester, N. Y.
M. Ellwanger,	Rochester, N. Y.
Dr. C. C. Parry,	Washington, D. C.
Hon. Horace Capron,	Japan.
James Lick,	San José.
W. H. Treen,	Melbourne, Aust'ia.
Col. Warren,	San Francisco.

THE SECRETARY'S REPORT.

To the Officers and Members of the Bay District Horticultural Society of California.

GENTLEMEN :—For the second time it has become my duty to present the annual report of the proceedings and of the state of affairs of our Society. In the performance of this task, I am encouraged by the fact that our Society has been constantly gaining strength, and is already recognized by the public as an established institution, calculated to promote the interest of Horticulture in general, and more particularly Floriculture and Arboriculture.

USES OF HORTICULTURAL SOCIETIES.

Frequently the question is asked, "What are the uses and benefits of Horticultural Societies?" With the same propriety it may be asked, what are the uses of Art Associations, Scientific Associations, Academies, and Mechanics' Institutes? and yet no intelligent mind doubts the great importance of all these institutions.

A Horticultural Society is a necessary institution for California, where new products are continually presented; and new industries are established every year. Our climate differs from that of other countries, our soil is different, and our seasons form a very striking contrast with those of other localities of the same latitude. Within our own State, the climate varies to such extent that we may raise with equal success the banana, the apple, the grape, cotton, ramie, tea, potatoes, and rice. And, again, our homes may be surrounded with trees, shrubs and flowers from every country; while the pine and oak thrive admirably, the palm, the acacia, the pampas-grass, develop their flowers in the midst of our winters.

While it is an acknowledged fact that California can produce all these, there appears to be a great lack of knowledge as to the proper treatment of those plants, trees, and seeds, which have only recently been introduced, and as to the most practical method of making these products pay. To remedy this evil, a Horticultural Society is necessary, to obtain and disseminate the proper information, and to encourage by all means at its disposal the raising of such products as are likely to create new and permanent industries.

But the province of a Horticultural Society is not confined to the encouragement of such productions as will furnish our markets with fruits and vegetables, and supply our manufacturing establishments with raw material; one of its leading objects is undoubtedly to create taste, and a love for adorning the surroundings of our homes, of our public grounds, and of our roads and highways. Improvements of this kind are undoubted indications of a happy progress and prosperity; and in this particular the people of California are in much need of encouragement, which can not be better supplied than by our Horticultural Society. That our Society has succeeded in effecting some good in this direction there can not be any doubt; but it is equally true that far more remains to be done, which is only possible by a united effort on the part of our practical men. The leading features of a Horticultural Society are its exhibitions of the products of the country. In the development of a new country, exhibitions of this kind are essential. A comparison of products is presented which stimulates the producer to excel his neighbor; to the consumer is demonstrated the difference between the old California Mission grape and the Black Hamburg; between the sunflower, and the rose, and the camellia; between the manufactured wines (so called) and the pure juice of the grape. To visitors from abroad is given an opportunity to judge of the wealth and resources of the country, and encouragement to them and their friends to settle among us.

Thus we would demonstrate that a Horticultural Society is an important institution, and that with proper exertions it must be beneficial to the State.

THE SOCIETY'S LIBRARY AND READING-ROOM.

In order to furnish the members and friends of the Society with information derived from all parts of the country, as well as from abroad, a Reading-room has been established, and at the present time over twenty-five Horticultural, Agricultural and Scientific periodical publications are filed for the use of those who seek information. Four of the journals are published in California, nineteen in other States of the Union, one in England, and one in Australia.

The Library contains at this time about two hundred volumes, including very excellent works on botany, landscape gardening, and practical treatises on all the leading industries of the country. It is desirable that some additions be made to the Library at an early period.

MEETINGS OF THE SOCIETY.

The regular monthly meetings have not been as well attended as would have been desirable, which is partly attributable to lack of spare time, and also to some indifference. The hard work of the Society has rested upon a few members, and I hope most sincerely that in the future all the members will take a more lively interest in the proceedings, and lighten the work of the few, who have at a great sacrifice of time done the work for all. Thanks to the few faithful ones, who were always willing to co-operate, and to do more than their share of the onerous work.

FOREST CULTURE.

The Society has used its best endeavors to promote and encourage Forest Culture, and has been instrumental in bringing the matter before the Legislature, resulting in the passage of a law for the encouragement of forest and timber tree culture, which, however, did not receive the signature of the Governor. The Society is strongly in favor of some system of forest culture in this State, and will in due time co-operate with the State Board of Agriculture, if acceptable, in advocating some measure which will bring about the desired end.

THE EXHIBITION.

With the generous aid granted by the Legislature of California, the Society has arranged to hold two exhibitions annually for two years. Without this aid, it would have been impossible, as the Society, being young, could not command the necessary funds.

The Fall Exhibition of 1872 was a success, financially as well as otherwise; but the enormous expense of fitting up a suitable hall required considerable engineering on the part of the Directors, and the greatest care and economy will be necessary to keep it from financial embarrassment.

The most brilliant features of the Exhibition were:—1. The display of *variegated foliage plants*, both hardy and tender; the improvements in this class of plants have been most wonderful within the last few years throughout the civilized world. The specimens exhibited were generally well grown, and were enthusiastically admired.

2. *Flowering plants*, both hardy and tender, were also well represented; and although the season preceding the exhibition was very unfavorable to the development of flowers, the display was very creditable, and with the exception of roses, was superior to the exhibition of 1871.

3. *Plants indigenous to California* were not so numerous as was anticipated; however, it is important that their cultivation has been encouraged by the Society, as numerous

varieties of trees, shrubs and flowering plants, all growing wild within our State, well deserve extensive cultivation.

The display of *ornamental and useful timber trees* was very numerous and excellent. Not less than three hundred and fifty varieties of coniferous trees were placed on exhibition, including many of our natives. Of Australian evergreens, there were also about two hundred and fifty varieties represented; certainly, as far as our information serves us, the most extensive collection on record.

New and rare plants always form very important and interesting features in an exhibition of this kind, where many things present themselves which have hitherto been known to very few. The introduction of new plants of any kind, useful or ornamental, should be encouraged to the fullest extent; and I hope that our next exhibition will show superior and more numerous collections of this kind.

The exhibit of *fruits* was not so grand as we were entitled to expect on an occasion of this kind, in the metropolis of the Pacific coast. Very few of our pomologists partook in the exhibition, yet the display made by the few friends of the Society was really excellent, and much better than that of former years. Fruit growers, no doubt, will soon learn that it is to their advantage to make a good display of fruit, when the bulk of their product is expected to find a market. The time has past where the people will purchase fruits without inquiring where they come from, what their good qualities are, etc., and certainly by receiving the different varieties of fruit placed side by side, they are enabled to judge which are the most desirable. In order to have the people understand that there is a difference between one variety and another, we must educate them to that knowledge, by placing before them the different varieties.

The best exhibits of fruits were made from Sacramento, San José, Stockton and Napa.

Some very good exhibits were made of California grown seeds, of California cotton, California vines, oranges, lemons, coniferæ cones, and preserved flowers.

There was a general complaint toward the close of the exhibition, that it had been kept open too long, *i. e.* from August the 22d, to September 15th. There is no doubt that the complaints were well founded. A Horticultural Exhibition is almost entirely made up of perishable articles, and it is only at an immense sacrifice that a good appearance can be preserved. Flowers will fade away under the effects of gas and dust and an insufficiency of light and ventilation; fruits will decay and lose much in their appearance, plants and trees will suffer to an extent which, in many cases, results in total losses. We think a Horticultural Exhibition should be limited to nine days. Of course, the result will be, that the receipts at the door will be much less, but exhibitors will not suffer so much, and more of them will be found who are willing to contribute to an exhibition which is not calculated to bring a heavy loss of stock upon them.

I deem it proper to say a few words at this time, in regard to the San Francisco Horticultural Hall Association, the connections of which with the Horticultural Society are not generally understood.

For some time past, the members of the Horticultural Society have seen the necessity of procuring a suitable hall for their exhibitions. The means of the Society being very limited, the proposition was only a practicable one if taken hold of by those individual members of the Society who were both able and willing to obtain a hall, provided the Society would co-operate as much as possible, and also provided that the profits accruing from such hall should be divided amongst the actual share-holders. A Horticultural Hall Association was consequently formed, independent of the Horticultural Society, consisting, however, of members of the Society; a hall was then purchased and fitted up, the Horticultural Society taking stock of the Hall Association to the amount of \$1,480.

Both Associations are carried on independent of each other; but the expense of fitting up the hall for the exhibition being very great, a special agreement was made, that the Hall Association, for and in consideration of 1,500 dollars, paid to the Horticultural Society, should be entitled to the net proceeds of the first two weeks of the exhibition, which was in reality the best arrangement which the Horticultural Society could make.

With a gratified appreciation of the confidence which has always been shown to me by the members of the Society, in my many active duties, I hope that the day will not be far distant, when "THE BAY DISTRICT HORTICULTURAL SOCIETY" of California, will be one of the permanent and foremost institutions of the Pacific Coast, and by its strength and influence will make itself felt in the development of the horticultural resources of California.

STATEMENT OF THE RECEIPTS AND EXPENDITURES OF THE AUTUMN EXHIBITION OF 1872.

Dr.	Cr.
To Cash received for Warrant from the State of California, for \$2,000—less discount of 10 per cent..	\$286 25
To Cash from Horticultural Hall Association, as per agreement, and in consideration of receipts at the door during the first two weeks of the Exhibition	115 50
To Cash Receipts at door during third week of Exhibition	24 00
	47 85
	200 00
	52 50
	61 00
	9 00
	51 80
	19 00
	5 25
	3 00
	46 90
	480 00
	70 00
	12 50
	495 00
	69 75
	37 00
	1,534 00
	944 45
	<u>\$4,564 75</u>
To Balance*	<u>\$944 45</u>

*This Balance, with the appropriation from the State for the year 1873, will be applied to paying the premiums which may be awarded at the Spring and Autumn Exhibitions of 1873, to which fund the Society proposes to add such amount as the means at its disposal will permit.

GENERAL ACCOUNT OF RECEIPTS AND EXPENDITURES OF THE BAY DISTRICT HORTICULTURAL SOCIETY

FOR 1872.

Dr.	\$	Cr.
To Balance in hands of Treasurer from 1871.....	25 80	\$58 25
To Receipts for the year 1872, as subscriptions from members.....	421 45	123 00
To Balance transferred from Exhibition Fund.....	944 45	90 00
	<hr/>	28 00
		97 25
		134 00
		94 30
		91 50
		675 40
	<hr/>	<hr/>
	\$1,391 70	\$1,391 70
	<hr/>	<hr/>
To Balance on hand.....	\$675 40	

Respectfully,

F. A. MILLER,

Secretary Bay District Horticultural Society, of California.

ESSAYS AND LECTURES.

OBSERVATIONS AND SUGGESTIONS RELATIVE TO CALIFORNIA ROOTS AND BULBS.

BY DR. A. KELLOGG.

To illustrate by example, let us "consider the *lilies* how they grow." First, premising that observations made by respective inquirers in varied climates, soils, localities, etc., will ever leave ample room for diversities of opinion, and practical adaptation of principles. With this general proviso, we submit the following remarks:

In a climate like ours, clearly discriminated by a wet and long dry season, we find these bulbs located say about six to ten inches deep; the vital fibres, or true roots, shoot downwards ten inches to a foot below this point, in search of food and moisture; thus radiating from the leading germinal end of mostly oblong scaly bulbs—the respectively dormant fibres that have "closed in" serving as stays, etc. Is it not evident, then, that such bulbs require a flower-pot at least eighteen inches deep? Hence, ordinary pots must be *utterly useless*, or worse—cramping or inadequate to meet the primary natural indications. Let any one take an improvised five gallon kerosene or alcohol tin can, or the like, which is good enough, not to say the best, cut out one end and nail narrow slats around the upper margin to add symmetry, avoid unsightly dents, and for convenience in handling; and if one slat is dressed, paint the name, to avoid annoyance of displaced labels; paint rudely inside and out, to preserve; punch say at least three large holes in the bottom; plant, as in nature, in any good soil well composted, and set your can, keg or crock *in a shallow pan of water*. You will soon have the pleasure of seeing a stout stem, of the size of your thumb, rising up and "rejoicing as a strong man to run a race," and flowering gorgeously. Let it generally be observed here, once for all, that in California *underground* irrigation, or water supply from beneath, is the requisite rule or law to be observed, especially in their advanced stage of growth. Many California plants are not only injured but killed outright by spraying beneath our California sun. To illustrate these principles, let us take a few other examples, to show that if a plant spends its vital force searching for requisite food or moisture; or, if the law of supply be reversed, efforts baulked, or attained at too great an expenditure, little or nothing else can be accomplished. *Abronia arenaria*, as the specific name indicates, grows in sand. If found on deep sand-drifts of the bay shore of San Francisco, or inland, it shoots down a stout fusiform root of indefinite length, but often poor and puny is the top, that creeps not far from the crown, with perhaps few flowers and little fruit. But mulch a moist, black, brackish, cracky soil, with only six or eight inches of sand, and it will go down to, or a little into it, spread abroad its forked subdivisions and fibres, almost or quite horizontally; the crown-sprouts now run riotously, mantling the sand with vines, full of pink flowers in fruitful umbels unnumbered. Often one spray of water *above* will kill it entirely; or, the root remaining, it will sometimes come up and flourish again if surface irrigation is neglected, even *two years* afterwards. A similar short horizontal spread of root is seen with *alfalfa*, on tule or lands fairly shaking and rocking with a peaty carpet; and so of a thousand roots, otherwise exceedingly deep, and prone to delve. The legitimate practical inferences we leave to the good sense of every enlightened stock-raiser, farmer and cultivator. Let us return, then, and review the *rationale* involved relative to bulbs, and also consider other facts, and, if possible, answer such queries as cast a shadow over the path of inquiry.

There are not only tides in the ocean, but in the earth, air, ethers, and the seasons as they roll, as well as "in the affairs of men"—a season of harvest, resting and repose. Anon, the rippling rain tides bear away the raw material and soluble salts from above; but when the return spring tides begin fairly to set in—say from about the last of May, or in June—when, for all intents and purposes, the rains have ceased. Then, prompted by the Divine Law of just reciprocity, the tidal waves return, laden with winter's wealth, commingled and fitted for the varied uses of plants that people the earth.

The *import* of all this is, that henceforth the commercial current should be *towards* and

not from the hungry and thirsty mouths, or radicle spongioles; otherwise, they perish or pine, with feeble struggling, or sickly efforts to maintain a precarious existence.

Florists are apt to complain that many of our bulbs ere they bloom lose one essential beauty of plants, viz., their *radicle leaves*, which, they say, "dry up, and leave the stems looking naked and bare." Where this is the charmed law and order of development, it is better *some* than the barren fig-tree's fate; and I suppose we must submit. But let us lift our eyes to their history a moment, and see if light arise. They are frequently found upon exposed hills and slopes, rocks, etc., descending down dry and very hot valleys, into debris and alluvial bottoms, where sand or loam with *underground moisture* abounds. The very same plants are seen to rejoice best where they find some shade and shelter; otherwise, they bespeak a struggle for existence, *i. e.*, their leaves prematurely or naturally dry up early to save exhaustion. In half shades, along high banks and slopes, contiguous to creeks, with adequate subsoil moisture, we see *Cyclobothra alba*, with long and beautiful glaucous leaves, say an inch and a half wide, eighteen inches to two feet in length accompanying the flowers, ten to twenty in number; the golden *C. pulchella* and most others tolerate more sun and drought, with their companions the manzanita (*Arctostaphylos glauca*), oaks, etc., near whose shades it is wont to linger; but its best forms love rich, rocky, half shady drains—leaf and flower companions to the close. Witness *Seubertia laxa*, two to four feet high; the same *Dichelostemas* and *Brodieas*, ten to fifty flowers, and green leaves in similar grace and completeness of beauty. The list might be extended beyond the reader's patience; what we desire to say and impress is, that the same plants exposed are barely one quarter as large, and no green leaves at all, or at best a poor apology; and so of numberless others.

What is the lesson the facts teach? Surely that the gardener and florist should imitate their very level best; and it is by no means difficult to exceed the highest standard. Our plants are not likely to be exceptions in the main to general experience. Besides, it would be folly to fold one's hands at the very first failure—if plants excite our pity or give great care and solicitude, the cost is too great for the pleasure returned. With what delight, on the contrary, do we behold one joyously filling up the full measure of its glory! If these general suggestions be true, says the objector, "why do so many rot by moisture?"

That is a pertinent question; but, first, how do we proceed? In the loose soils where we usually place them, are they as well protected as in their native matrix? The soil then must need be packed or tramped firmly and uniformly, as one would pack a mold in the foundry; or even more so in soils of no great interstitial absorption.

It is the life-struggles with difficulties that bring out the best qualities of the man—the fruits and flowers, roots and bulbs, born of the Great Mother. Resistance above, reacts below, gives spread, depth and vigor in the direction of least resistance, at this juvenile stage of life; young plants, like children, especially "Young America," require to be kept back a little. A precocity that mimics mature display in the glare of the world, is ever the sure harbinger of premature exhaustion and decay. The root—the strong foundation—is of first consideration in all structural building, and should be well laid, cherished and preserved. We do not say it should be founded upon some suitable rock, but we sometimes think so; radiated heat and graduated temperature, sweetness of drainage, and it would seem reasonable, that in due time some resistance from below also, were all requisites of high culture. May not the florist, in his undue solicitude, be also to blame, and by some shortcoming fail, or from excess undo by overdoing? Suppose he flood too continuously between loose scales, adding excessive heat withal, ought not he to expect just the result urged? Now, we seldom see in Nature bulbs sheltered by shrubs, rocks, logs, bark, leaves, etc.; or in very compact soils rotten at the tips of the scales, and hence a lure to maggots and grubs; nor often in such sandy and gravelly soils as readily absorb, drain and disperse this excess of top moisture. We appeal to the observations by careful collectors. Let us then copy the best conditions, and we feel assured the result will confirm our rather hasty hints.

In conclusion, we dare not presume even a tithe has been noted—in short, only what may be considered peculiar to climatic conditions and observations here is thought necessary. Erudite and complex recipes relative to proper mixtures of soils, and common management may well be left to the knowledge and judgment of those who believe in them. With such a wealth of sunlight and heat above as falls to the lot of California, and no lack of the commercial medium moisture below, I see no reason why we may not allow Nature, un-

der human hands, to grow her fragrant white Lady Washington lily six or seven feet high, with ten to thirty or more flowers, just as we see it wild. *L. Bloomerianum*, too, is a perfect giant among lilies, when at its best—a right super-royal display—the Divine Teacher himself being judge. Nor why *L. superbum* in a southern bog should be eight feet high, with the best part of a hundred flowers, as we have seen it there, and still the marvelous beauty is ever new as we retrospect. Even our little orange *L. parvum*, I found at the Sierra summit over five feet high and fifty flowers—*carefully counted*—but the plant was sheltered and shaded by an old emigrant water-tank stilted up, now dry and long ago abandoned, but its roots found a fair supply of *water from beneath*.

THE INSECTS OF CALIFORNIA.

BY DR. H. H. BEHR.

There is a pervading opinion in this country, that our cereals as well as garden fruits are nearly exempt from the ravages of insects injurious to vegetation. To a certain extent and for the present this supposition might hold good, and for good reasons. California is a new country that never before had either agriculture or horticulture of any amount, and the plants that now are cultivated are all foreign, the soil to none of them being native of California.

So it is clear that the exemption from insect ravages is not a happy peculiarity of California, as it has been represented by some learned gentleman, but a transient state common to countries where extensive cultivation is of recent date, and refers to plants not indigenous to the soil.

There is a law in the economy of nature which, perhaps, may be called "the balance of power," for it is antagonistic to the preponderance of any particular species, tending to the extirpation of others. In the animal kingdom it is chiefly this law that sends epidemics to decimate certain species, when by predominant multiplication they threaten to supercede the others; in the vegetable kingdom it is chiefly by the existence of certain insect parasites on certain plants which are multiplied in the same proportion in which, by a one sided cultivation, the plants, on which they feed, attain an undue preponderance.

Now, these insect species will sometimes immigrate with a new cultivation, and others being indigenous and feeding on certain plants will adapt themselves to the introduced plant and prefer it to the native one, on which they formerly fed.

Starting from this point of view, it will, perhaps, be of some interest to watch the ravages of some insect larva on vegetables, not indigenous to our soil.

1. *Carpocapsa pomana*, L. A maggot that feeds, in Europe, inside of apples, which fruit is disfigured by its ravages; this species evidently is introduced, and till now has proven harmless, as its rarity prevents disfiguration to any extent. The first specimen of this little moth, I received from Dr. Cooper, well known for his valuable work on *California birds*. Since then, I caught only one other specimen, two years since.

This little moth passes through many generations during two years, and only from fall to winter the caterpillar feeds in the fruit. From spring till fall, it is found in decaying wood, underneath the bark of apple trees; and here is the weak point of the species. We can check their progress by not allowing any sick fruit tree to remain in our gardens, for in doing so, we cut off the means of their larva sustenance for at least two generations, during which, it feeds on the decaying wood of the sick and superannuated trees.

2. *Cidaria Epilobii*, (Behr). This neatly marked Geometra was, in former time, a great rarity, when its caterpillar fed only on the different species of Epilobium, but since the Fuchsias have made their appearance in our gardens, this *Cidaria* left the native plant and fancied the exotic in such a way, that they really became troublesome to our cultivators.

This is an interesting circumstance, as it affords another proof of the close affinity of Epilobium and Fuchsia (proved besides by the larva of *Deilephila Lineata*), and too by the larva adopting the colors of the petioles of the species of Fuchsia on which it feeds, so that in some species the larva keeps green, and others showing a red dorsal stripe, mimicking the same coloration in some of the Fuchsia varieties.

3. *Tetracis* sp. The caterpillar of this undescribed geometra, is very commonly found in gardens, where it chiefly affects rose leaves, ivy and most of all the New Zealand varieties. As I never found this caterpillar anywhere else but in gardens and on cultivated shrubbery, I suspect the insect exotic, and introduced together with some ornamental shrubbery. Nevertheless, it is possible that, like the *Cidaria Epilobii*, it may be a native of California, and only has adapted itself to the above named plants.

The caterpillar lies in spun up leaves, by which circumstance it disfigures the shrub which it inhabits considerably. It transforms between spun up leaves into a white chrysalis, (a very rare coloration in the group) and differs sufficiently from other species of *Tetracis*, to constitute, perhaps, even the type of a new genus intermediate between *Urap-terga* and *Tetracis*.

As to remedies against the *Cidaria* and *Tetracis* larva, I would recommend protection to insectivorous birds that may breed in the garden, as they are known to destroy a great number of geometrida larvæ, commonly called cankerworms.

OUR FORESTS.

BY EZRA S. CARR, PROF. OF AGRICULTURE, ETC., UNIVERSITY OF CALIFORNIA.

At a recent meeting of the Oakland Farmers' Club, Hon. J. W. Dwinelle read an admirable paper, embodying his observations on tree planting, during an extended tour in Europe. His remarks have a direct bearing upon the question of the hour, viz: how shall we plant our streets, and the borders of our farms, in the most permanently useful and economical manner. And he also gave us much information concerning the success of the work of rehabilitating the wastes created by a rude and selfish civilization. It is civilization of a certain sort which is rapidly disforesting this country, and unfitting it for the purposes of agriculture.

In Europe, trees are planted on worn-out lands, to renew them. A gentleman, in Germany, told Mr. Dwinelle that his family owned large plantations of trees. The oldest of them had been planted about 25 years, the last would be ripe for use at 125 years old, yielding three per cent. per year, on the investment, which is the usual rate for secure loans. The science of forestry, as illustrated in older countries, shows that it is quite possible for man to make reparation for the injury he has done to the wild beauty of nature. But all such work is trifling in importance and results, when compared with that which we are called to do in preservation of our noble forests, the source of almost boundless wealth to future generations.

Twenty years ago the amount of timber consumed in England, was estimated at \$115,000,000, equal to the whole value of our foreign imports, at that time, and of this, \$80,000,000 was *home grown*. Oak plantations, at the common rate of forty trees to the acre, averaged \$2,200 per acre in value. During the last twenty years, if we turn our attention to our own country, we shall find that the price of wood has quadrupled between the Atlantic and the Mississippi, a region once covered with immense forests. Nearly all the most valuable varieties for manufacturing purposes are exhausted, and the present supply is derived from the northern States of the interior, at a half dozen different points, where the work of destruction is going on with amazing rapidity. At points remote from transportation a frightful waste annually goes on by the girdling of the trees. The report of the Commissioner on Agriculture for 1868, sets down the available timber lands in the portion of the country above alluded to, as 100,000,000 acres. The sawed and planed lumber in the States east of the Mississippi, in 1860, amounted to 450,000,000 cubic feet, while that consumed in fencing, buildings, manufactures, and cord wood, increased this "yield" for the year to 6,000,000,000 cubic feet. Taking the timber tracts together, good and bad, the average is not more than 6,000 solid feet to the acre, or in other words, the necessities of the population, east of the Mississippi, required the destruction of 1,000,000 acres of woodland, for that year. During the previous ten years the increase of cleared land amounted to 28,428,551 acres. Allowing three-sevenths of this to have been prairie

or other lands destitute of wood, we have an annual clearing of 2,000,000 acres. *The increase of population and their increasing wants, would consume in less than fifty years every acre of forest in all that wide region.*

Between the Mississippi and the Sierra Nevada, we have no considerable forests, and already the planting of these has begun to attract the attention of the great body of agriculturists in Kansas and Nebraska. More trees, both fruit and timber, have been planted in these young States than in any other part of the Union. Further west, there is scarcely timber enough to supply the wants of mining enterprises alone, until we reach the forests of the Pacific coast. The word "*inexhaustible*" has so often been applied to them, that only a careful examination of commercial and other statistics, may seem to justify the warnings which scientific men in California and elsewhere, have been giving for the last few years. The public lands in California, Oregon and Washington, have been so far trespassed upon, that the strong arm of the National Government is needed to save them from spoliation.

There are millions of acres in California worthless for any purpose but the growth of timber, which are being rapidly transformed, by private owners, into wastes where no water is, great patches of desolation, uncheered by the ripple of mountain streams, but torn by the anger of devastating mountain torrents.

Forests are the mothers of rivers, the great regulators of the distribution of moisture; the economic questions involved in their preservation, involve those of climate and population. The soil in many places has been made by the trees, which grew upon it, and the permanent agricultural prosperity of a country, must depend upon the proportion of its territory kept entirely in forests, or equivalent plantations.

The lower or meaner purpose of the vegetable world, as Schlieden says, is doubtless to serve the material requirements of individual men, and societies; its loftier uses are seen in the regulation of physical processes, which concern whole countries, regions and generations. These are among the greatest questions with which the scientist and the legislator have now to deal. The popular intelligence of the country is manifestly unequal to it, for the laws of vegetable meteorology are as yet little understood, and no time is to be lost, if, in our selfish grasp for immediate profits and advantage, we are rapidly unfitting the land for the occupation of a developed and spiritualized civilization. How we are to set about this work of protecting our forests and preserving the true equilibrium between the animal and vegetable inhabitants of this part of the planet, will be made the subject of future communications.

SAN LORENZO, ALAMEDA CO.

[READ BEFORE THE HORTICULTURAL SOCIETY.]

San Lorenzo is a small town or village, with possibly a population of not more than one hundred; it has a schoolhouse and Post office, two hotels or boarding houses, one large store, and a blacksmith's shop, perhaps the most extensive in the county, under the special supervision of Mr. Henry Smyth. The first objects that attract the traveller's attention in passing through this beautiful valley are the many extensive fruit orchards, producing nearly every variety of fruit. But I will leave these fine orchards at rest as they are at present, and speak of ornamental trees and shrubs. It is gratifying to all who have any regard for horticulture, to know that nearly all the intelligent farmers in this locality have more or less trees planted for shade and shelter and the beautifying of their homes, while all are convinced of the necessity for planting more every year. So much has been said on the subject of planting trees, and the many benefits to be derived from so doing, that one would think there could be no more room for further suggestions.

Nevertheless, the majority of the people are indolent and heedless regarding this grand branch of industry; we must therefore reiterate the subject, and try to assert the good of having a few trees on every farm. Would that every farmer in this country could be induced to see and appreciate, as I do, the many advantages to be derived and the comfort that would be afforded to their stock, both in winter and in summer, by having a row of Monterey

cypress, pines, eucalypti, or acacias round his farm. What a pretty boundary line any of those trees would make, and what comfort it would afford to the animals that roam within its limits. In some large and rather elevated fields here, there are a few oak trees remaining, and under these can be seen the cattle and horses sheltering during the summer, they having no other comfort or protection from the cold westerly winds and the burning hot sun but these few native oaks which nature has provided. By this every intelligent man must perceive the benefit to be derived from having some trees on his land. In this country there can be no excuse, blessed as we are with such a temperate climate, and possessing soil which is noted for its fertility and productiveness, and where almost every variety of trees will grow and thrive better than in any other part of the world. My experience here during the period of one year and nine months, has enabled me to report how many of the ornamental trees and shrubs grow and prosper in this locality. In April, 1871, I had occasion to plant a variety of evergreen trees and shrubs, such as Monterey Cypress, Pines, Blue Gums, Acacias in variety, Melaleucas in variety, Pittosporums in variety, Lauristinus and many other trees and shrubs, which I will not wait to particularize; all these have done well. During the summer of 1871, I watered them all once a week; last summer I gave no water whatever. I have not lost a tree or shrub; they have all made splendid growth. The Gum trees when planted were 3 feet high; they are now 25 feet, the trunks on an average measuring 6 inches in diameter. The Monterey Cypress were very small, not more than 2½ feet high; they are now from 12 to 15 feet, well developed, and pretty ornamental trees. Some of the Acacias are also very fast growing trees. *A. Latifolia*, *A. Mollissima* and *A. Floribunda* are fine strong growing varieties, and make fine ornamental trees in a few years, they are also well adapted for the roadside or for planting around farms, as they grow so rapidly. Some people complain that they are straggling growing trees, and hard to be taken care of. In my opinion this is wrong. I believe, there have not been any trees introduced into this country which to the present time do better or grow more bushy by discreetly using the knife while young; it is true, as in all other work, there must be some little science and judgment used in pruning, as the inexperienced may mutilate if not kill many trees. By the above statement it may be seen that the Blue Gum has made a growth of 20 feet during one year and seven months; and the M. Cypress, from 10 to 12 feet.

Until recently it was the opinion of many, that trees would not grow unless watered during the summer months; now it is considered an established fact, that nearly all the trees and shrubs which have been introduced here, will grow well under ordinary treatment during the first year; and these can be purchased at any of the San Francisco nurseries, at from 25 to 30 dollars per hundred, according to size: therefore there should be no time lost after the first rains have fallen, in planting out trees and shrubs, and also a few flowering plants. These will make your home happy and comfortable. By all means, I would recommend planting as early as possible; by so doing, the plants will commence to grow by the first dawn of spring, and will have a good start before the dry season sets in, and by keeping the ground hoed frequently during the summer, they will need no other care.

P. J. FORD.

VEGETATION IN THE TROPICS.—The *Panama Star and Herald* 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 burned Aspinwall Hotel, at Panama. It is scarcely more than two years since this conflagration took place, and yet there are now growing within the walls trees at least thirty feet in height. They belong to what are called trumpet trees (*genus Cecropia*), and the branches are said to be crowding out of the highest doors

and windows, so as to render it probable that in their further growth they will throw down the walls with which they are interlaced.

A correspondent of the *Country Gentleman* has four horses that contracted the habit of crib-biting. He painted the woodwork of the stable with crude petroleum, and was amused by the grimaces of the animals over the smell and taste, but rejoiced that in this case it effected a cure.

Editorial Portfolio.

With the present number we close the Second Volume of the CALIFORNIA HORTICULTURIST AND FLORAL MAGAZINE. It is proper that we should say something on this occasion of our experience in the past, as well as of our prospects in the future.

When we undertook the publication of the CALIFORNIA HORTICULTURIST we were fully aware of the many difficulties which were to be anticipated in any new enterprise, but which would undoubtedly make themselves more seriously felt in an undertaking the nature of which was of a special character, and therefore could only expect a limited support.

We felt satisfied of the necessity for a publication of this kind, and we were willing to give it a fair portion of our time; we were also content if the actual expense of printing and issuing the HORTICULTURIST could be covered by subscriptions and other revenues appertaining to a publication of this character. We were further aware of the fact that we could not expect to make the enterprise as useful and instructive as was desirable, unless we could induce some of our practical men in all parts of the country to devote a small portion of their time to communications and essays which would render our Monthly a medium for exchange of opinions on the various branches of Horticulture. We regret to say that our Horticultural men have somewhat disappointed us in our hope for this co-operation; they have, to a great extent, failed to do their part in this work, and thus withheld that aid which would have been a tower of strength to the cause. Our own special business engagement peremptorily demands our attention during business hours, and consequently the publication of the CALIFORNIA HORTICULTURIST has engrossed an unfair portion of the balance of our time, and we were often compelled to delay the day of publication. Had our practical men spared but a small portion of their time for an occasional contribution, we should have

been relieved of many annoyances, been marvelously encouraged, and they would have made our periodical far more interesting and general in its contents.

It is not reasonable to suppose that any one or two can furnish all the required information, knowledge, and experience which is commonly to be expected in a publication of this kind, but we were placed under the imperative necessity of filling our columns.

We, of course, do not wish it to be understood that we have received no assistance; on the contrary we cordially acknowledge the receipt of some most acceptable contributions, for which we tender our sincere thanks, and entreat a continuance as promised.

The enterprising firm of Messrs. J. H. Carmany & Co., Publishers, having assumed the proprietorship of the CALIFORNIA HORTICULTURIST, and as it will in the future be published from their establishment in company with the *Overland Monthly*, etc., we contemplate a successful future for it, and we feel that we are justified in this anticipation from the increasing interest evinced in Floriculture, etc., by the public in general, and from renewed assurances of sympathy and promises of material aid, both in subscriptions and literary contributions from many sources; and we desire to impress on our readers, even if in so doing we lay ourselves open to a charge of iteration, that the purposes of this periodical are to collect and disseminate as large an amount as possible of valuable information on all subjects relating to Horticulture, Floriculture, etc., with particular reference to the peculiarities both in climate and soil of this Coast; collecting as far as possible the discriminating experience of intelligent practical men in all the branches of the profession—recording their observations when they give us the opportunity, and condensing for the service of our numerous amateur friends the results of years of patient investigation by our practical gardeners.

We shall report on the proceedings, as far as they are of general interest, of the *Bay District Horticultural Society*, and other kin-

dred Societies of this Coast, and give extracts from any noteworthy papers read before them. And we shall make it a point to record all available information on our native plants, shrubs, and trees; thus providing reading matter of interest both to the denizens of this Coast as well as to Eastern and foreign readers; while we shall carefully report on all "New and rare plants," etc., with such information regarding them as is attainable, for the service of our home friends.

We are permitted to announce that the following gentlemen have intimated their willingness to assist as

CONTRIBUTING EDITORS:

Prof. D. C. GILMAN, President University of California.

Prof. H. N. BOLANDER, State Superintendent of Public Instruction.

Dr. E. S. CARR, Professor of Agriculture and Horticulture, University of California.

Dr. A. KELLOGG, President Bay District Horticultural Society.

Dr. H. H. BEHR.

Dr. A. B. STOUT.

Mr. F. A. MILLER.

And as we have many other promises of assistance from able pens, we feel confident that the Magazine for 1873 will be full of interest and well worthy of support.

BUDDING FRUIT TREES.

WHAT OUR AUSTRALIAN FRIENDS THINK OF IT. Budding occupies less time than grafting: it is performed at a pleasanter season for light work, and a season in which gardeners are not nearly so busy as they are in spring time; and another advantage is, that those which fail can be grafted the following spring, and should the grafts take, the whole will grow up together uniformly. In this operation no great care is necessary in securing the exact contact of similar parts, and a free channel for the transmission of the roots of the bud between the bark and the wood of

the stock; for, from the very nature of the operation of budding, this must of necessity be insured. The bark of the bud readily coheres with the wood of the stock, and secures the bud itself from all accident or injury. Precautions must, of course, be taken that the bud which is employed be fully formed; the habit of constantly operating with delicacy will enable either amateur or gardener to succeed with a certainty. As regards the pear, large numbers are worked entirely on the seedling pear stock by our chief Victorian nurserymen. But the following varieties named have been proved by Messrs. T. Lang and Co., as well adapted to grow for fruit on the quince stock in Ballarat and similar cool climates, viz., Bergamot d'Esperen, Beurre d'Aremberg, Josephine de Malines, Louise Bonne de Jersey, Triomphe de Jodoigne, Winter Nelis, Brown Beurré, Beurré Diel, Comte d'Flandre, Comte de Lamy, Glout Morceau, Surpasse Crasanne, and Urbaniste. The above mentioned kinds are all very suitable for the quince stock; doubtless others will yet be proven as also succeeding well, but at the present time these are the only varieties we can ourselves vouch for. With reference to plums, the French nurserymen have long considered that the best of all stocks for plums, peaches, and apricots was the Julien stock, otherwise "St. Julien." This stock was imported into Victoria some years ago, by Messrs. Land & Co., and it has since been found a most excellent stock for plums, in fact, much superior to the common seedling plum stock. The roots of this variety are something wonderful, being a complete mass of fibres, so much so, that in removing the trees, the time occupied over the "Julien" is more than double that of any other variety, which is caused by the great quantity of splendid fibrous roots. This stock has been greatly used for budding the best dessert kinds of plums. The Muscle plum is also largely used as a stock, and particularly for those kinds which may be classed as prunes, or damsons, including the following amongst them: Prince Engelbert,

French prune, Shropshire damson, Vermont damson, American damson, Diamond, Mitchellson's Felleberg, and others of a like class. The adoption of these stocks for the different varieties has proved very satisfactory, the peculiar virtues of these two varieties of stocks being very different.

As regards apricots, we find that Mr. Rivers' experience causes him to state that the Moorpark apricot does especially well on the Muscle plum, while the peach apricot, its French congener, will not do upon it successfully. Mr. W. Wardle, the translator of M. du Breuil's famous work on fruit trees, advocates the use of the Muscle and Brussels plum as stock for apricots, but gives the preference to the former, and as Mr. Wardle was a professional grower of repute, his opinions are of value. George Lindley states, the apricot is budded upon several sorts of stock--the Muscle and the common plum, the Brussels, and the Brompton stock; but this pomologist prefers the Muscle and common plum, condemning the Brompton as a stock. It has been observed in many orchards in this colony, that the plum as a stock appears to be more hardy than any other stock, and the trees appear to be much longer lived. According to Le Bon Jardinies, the St. Julien is recommended as the best stock, therefore, without doubt, the three best stocks to depend upon for the apricot are the common stock, the Muscle, and the St. Julien. At the same time, by some growers the pear plum is regarded with favor as a stock for apricots. With reference to the nectarine, Messrs. Lang and Co. use sometimes the common plum stock; but they have also proved that on the St. Julien and the Muscle they succeed admirably. Mr. W. Wardle recommends the St. Julien, the Muscle, and the pear plum, the first and last mentioned more particularly, for the delicate varieties of nectarines, but he prefers the Muscle for general use.

Bon Jardinies recommends the St. Julien as the best stock for the peach. Mr. Wardle also follows suit; he moreover recommends

the Muscle as a stock for the peach in England. George Lindley strongly recommends the Muscle plum and the pear plum. Mr. Thomas Rivers is also an advocate for the Muscle for certain varieties. The St. Julien and Muscle are principally used by Messrs. Lang & Co., being found very suitable. The plants distributed in various parts of the colony appear to be more hardy than those on the almond, which has been largely used as a stock. In many instances the trees have succeeded better than those worked upon seedling peaches, which latter system has not been at present so commonly resorted to as the working upon the almond. There can be little doubt but that in the cool localities, the plum will be the best stock; especially seeing it is so much valued in the South of France, it should be valuable for the colony generally. With regard to cherries, the best stocks are seedlings from the wild cherry, for which seedlings from the cultivated are frequently, but improperly, substituted. The Mazzard also makes an excellent stock, while when dwarf trees are required, the Mahalel is the sort used.—*Melbourne Times*.

FAVORS RECEIVED.

Address of Dr. H. Latham, of Laramie City, W. T., delivered at the State Fair of Nebraska, in September last, and published by the State Board of Agriculture, of Nebraska.

Address by the United States Centennial Commission, consisting of the following gentlemen: John C. Adams, J. Fletcher Williams, Richard C. McCormick, Joseph R. Hawley, Lewis W. Smith.

Proceedings of the National Agricultural Congress, held at St. Louis, Missouri, May 27th to 30th, 1872.

We have received the Report of the Commissioner of Agriculture, for the year 1872. The transactions of the department are received, and will give general satisfaction. The Commissioner also urges that Congress should take immediate action for the pro-

tection of the yet existing forests, and for replanting.

The *Flower Garden* is a quarterly magazine of floral progress; published by Messrs. C. L. Allen & Co., Brooklyn, N. Y. It contains many valuable articles on floriculture. Price \$1.00 per annum, which entitles also to seeds or bulbs to an equal amount. The magazine is accompanied by their catalogue of seeds, bulbs and plants, from which selections can be made.

CATALOGUES RECEIVED.

Vick's Illustrated Floral Guide, for 1873. For a number of years past, Mr. Vick has succeeded in pleasing his customers and the friends of Floriculture with his most beautifully illustrated catalogue, full of practical knowledge and instruction. The *Guide* for 1873, is superior in neatness and completeness to any of the former publications, and as Mr. Vick proposes to publish it hereafter quarterly, we do not know of anything more useful and instructive, in regard to floriculture and the vegetable garden, than his *Floral Guide*, which is furnished at 25 cents per issue, or at \$1.00 per year; and even this small charge is refunded in seeds to customers, who order seeds to the amount of one dollar.

From F. K. Phoenix, of the Bloomington Nursery, Bloomington, Illinois, we have received the following catalogues:

Descriptive Catalogue of Hyacinths, Tulips and Flowering Plants.

Catalogue of Fruit and Ornamental Trees, plants, bulbs, etc.

Wholesale Price List of Fruit and Ornamental Trees and Plants.

Phoenix's Floral Guide, Garden Directory, and Descriptive Catalogue of Greenhouse, garden and bedding plants.

A famous rose tree in the island of Ceylon is 80 feet in circumference and 15 feet high. It has been known to bear 200 roses in full bloom at one time.

NEW AND RARE PLANTS.

Woodwardia radicans, although a native of California, is rarely met with in our floral establishments, or among the private collections of ferns. The *Garden* says: Among the many kinds of ferns cultivated in our gardens, few are more ornamental than the *Woodwardias*, and of these, *Woodwardia radicans* is one of the handsomest. It is well adapted for conservatory decoration, especially as a centre piece for a vase, on account of the broad, graceful, arched manner in which the fronds grow, and in baskets or on projecting peaks of rockwork it is also equally pleasing.

The *Woodwardia radicans* grows spontaneously in moist places in the gulches of our mountains, and should be extensively cultivated.

Clematis—James Gould Variety.—Our florists have not yet formed the acquaintance of this beautiful variety. The *Rural New Yorker* describes it thus: "The color is a very light shade of purple, or what may be termed white with a purplish tint."

Editorial gleanings.

REMARKS ON THE CULTURE OF CELERY.

A few remarks on some of the principal points connected with the cultivation and management of this much-esteemed vegetable will not be out of place at this season, when the majority of plants are under a course of preparation for future use. An important matter in the cultivation of this plant, is to keep the plants constantly in a free-growing state, in order to guard against all tendency to run to seed, which is more often induced by some serious check during growth than by any other cause, for although celery is a hardy biennial plant, and would not under ordinary natural conditions flower until the second year, under a course of somewhat artificial treatment it is started into growth much sooner than would be the case in a

state of nature, and when this is the case, like many other biennials, there is a tendency to flower in the autumn, which can be only counteracted by a very liberal treatment, both as regards space for development, and copious supplies of liquid food.

In this colony celery is a plant that will repay a cultivator for extra care and attention bestowed upon it. It is at all times a marketable commodity, the supply being seldom sufficient for the demand. One matter that seldom receives that attention so requisite, is due care in the management of seedlings. The great object of pricking out the seedlings is to obtain strong and sturdy plants, with plenty of good fibrous roots, for which purpose, where only a superior article is tolerated, they must have ample space for development when pricked out previous to transplanting. During February and March, the main crops, as a rule, are usually planted out into trenches from the seed beds. The white varieties are generally the most delicate for salads, and the red sorts best adapted for cooking purposes. The soil in which celery delights is a rich moist vegetable mould. In transplanting, choose short, sturdy, strong plants, having them carefully lifted from the seed bed. The trenches for the plant should be made 1 ft. to 18 in. wide, and well trenched two spades deep at least, mixing with the soil in this operation a good dressing of well-decayed manure. After completing this, give your trench a thorough watering.

It is also very important to observe that the manure should be thoroughly decomposed. No half-decayed matter will produce good celery, there being too much bulk for fattening matter, and it soon becomes exhausted. The rich mud which settles at the bottom of waterholes, or pools impregnated with the drainage of stock-yards, will bring celery to great perfection; very probably on account of the saline matter contained therein. This should be thoroughly incorporated with the soil, when it will be in a condition to be taken up at once by the plants. After well-watering the trench, as previously ad-

vised, carefully plant the strongest and best plants in a single row (if fine sticks are wished for) along the bottom of the trench at intervals of six inches. Continue regular and thorough waterings until the plants take good root, and show renewed and strong growth, and become a deep green color. As the plants in the trenches advance in growth to about 9 in. in height, the earthing or moulding up of the plants can commence, being cautious to place the mould around them at first with care, not on any account allowing the earth to fall into the heart or centre of the plants. Repeat the mouldings up once a fortnight, until they are moulded or landed 12 in. to 24 in., in order to blanch them for a considerable length. Another method sometimes used for blanching, in lieu of moulding up, is the plan of tying round each plant with brown paper as they advance, which acts in a similar manner as moulding up so far as securing a delicate blanch; the operation requires less work, and is much cleaner.

When practicable, an occasional watering with liquid manure will be found of immense advantage; the addition of a handful of salt in the liquid manure will prove, at all times, beneficial, and materially add to the weight of the crop. If extra fine crops are wished for, it is a good plan to insert in a slanting direction through the soil moulded up around the plants a round drain pipe or tile, through which the liquid manure, etc., can be poured, thereby securing its reaching the roots, for in our dry seasons much of it otherwise given never arrives at them, and thus the anticipated benefits are not attained.

In arranging your celery trenches in the garden, the convenience for watering should always be taken into consideration, the principal object being to arrange matters so that this most important operation can be carried on with the least possible expenditure of labor. If this watering were only a casual matter, it would not be of so much consequence, but as it requires to be constantly followed up, it becomes a serious question in

busy times, especially in those gardens which have none too much labor at command.—*Melbourne Times.*

PINCHING AND PRUNING.—I have noticed that a large proportion of persons who cultivate both house and border plants, seem never to have had their attention called to the advantages, both as to taste and thrifty culture, of checking growth and concentrating vigor by pinching and pruning. Hence, in nearly all private collections we see tall, spindling plants, stretching to the tops of the windows, shutting out the view of the sky and the landscape, and appropriating more than their share of the light, showing unsightly stalks destitute of green leaves, and giving little bloom. Had they been properly pruned, they would be low down out of the way where the light would fall like a blessing on their heads, and instead of one or two, they would show a mass of growing ends with massive verdure and clustering bloom, concealing, measurably, both the soil and the pots containing it. One is reminded by this mode of culture, of the fabled nine-headed hydra, whose heads Hercules cut off, when in place of each head cut off, two new ones grew out. The more heads, the more verdure and bloom. To be sure, in such case the plant is longer in coming to the flowering, but there is ample compensation for the waiting. Not all plants can be pruned. The cultivator must needs get acquainted with the nature of each plant under his hands.

Chrysanthemums are much improved by nipping the growing ends twice before it is time for the buds to set. If, instead of two stalks running up to flower for Thanksgiving, we get for the first nipping, four stalks, and for the second eight, one can readily see the advantage gained even though we wait for the flowers until Christmas. If these plants are well fed, however, nipping will not probably much retard bloom. Salvias, too, are made much more compact and symmetrical by judicious nipping, and so are lantanas, fuchsias, helioplastes, geraniums, roses, cole-

uses, verbenas and the like. The oleander should always be kept headed in, and will bear the severest pruning.—*Health Journal.*

THE ROSE ON THE LAWN.—An English journal recommends the culture of the rose on the lawn and pleasure grounds as a standard: "Few persons are aware of the magnitude to which the rose may be grown, or the splendid effect it can be made to produce on a lawn or pleasaue ground; yet with a sufficiently strong stem, and a system of careful and patient training, there can be no reasonable doubt but that the standard roses could be grown to the size and form of the ordinary examples of the Weeping Ash, having the branches all produced from the top of a single stem, and flowing downward on all sides—a very ornamental object for a lawn. It may also be observed that the construction of a comfortable seat round its stem would form a cool and fragrant retreat during the hot days of summer."—*Floral Cabinet.*

FARFUGIUM LIGATUM VARIEGATUM.—This is a hardy herbaceous plant, imported from Japan; and it possesses highly ornamental foliage with most peculiar markings of yellowish white, making it a very beautiful bedding-out plant during the whole summer. It belongs to the same family as the Dandelion, and its blossoms resemble those of that plant, and are borne on stalks from eighteen inches to two feet in height.

The chief beauty of the Farfugium is seen in the distinct variegation of the dark green leaves, spotted and margined so curiously; for although the flowers are abundant, they are not remarkably lovely.

This plant has borne several designations—such as *Adenastyles Japonica*, *Ligularia Kempferi*, *Tussilago Japonica*, *Farfugium grande*, and spotted Lily.

Its blossoms appear in the months of October and November.

It requires a rich soil of peat or leaf mould mixed with sandy loam, and kept very moist. It propagates itself from the roots, like most

herbaceous perennials, and would make a desirable addition to a bed of variegated-leaved plants.—*Floral Cabinet*.

ROSE CUTTINGS.—European horticulturists have lately adopted a mode of making rose cuttings root with more certainty, by bending the shoot and inserting both ends into the ground, leaving a single bud covered at the middle, and on the surface of the ground. The cuttings are about ten inches long, and are bent over a stick laid flat on the ground, holes being dug on each side of the stick for the reception of the ends of the shoot. The roots form only at the lower end of the shoot, but the other end being buried, prevents evaporation and drying up. A correspondent of the *London Garden* states that he has tried this along with the old mode, and while the weaker cuttings of the latter have shown symptoms of drying and failure, all the former have grown vigorously.—*Western Rural*.

STONE COAL FOR PLANTS.—A writer in the *Revue Horticole*, states that he purchased a very fine rosebush, full of buds, and, after anxiously waiting their maturing, was greatly disappointed, when this took place, to find the flowers small, insignificant in appearance and of a dull, faded color. Incited by the suggestion of a friend, he then tried the experiment of filling in the top of the pot around the bush, to the depth of half an inch, with finely pulverized stone coal. In the course of a few days he was astonished to see the roses assume a beautiful red hue, as brilliant and lively as he could desire.

ANTIDOTE FOR POISONOUS HERBS.—A standing antidote for poison by ivy, etc., is to take a handful of quick lime, dissolve in water, let it stand half an hour, and then paint the poisoned parts with it. Three or four applications will never fail to cure the most aggravated cases. Poison from bees, hornets, spider bites, etc., is instantly arrested by the application of equal parts of common salt and carbonate of soda, well rubbed in on the place bitten or stung.

STEAM-CULTIVATION IN SCOTLAND.—There is evidence of great improvement in the agriculture of the north of Scotland; and it appears to have been promoted by reducing the size of home farms to smaller and more manageable dimensions, few of them now exceeding 200 acres, by a judicious system of rotation of crops and a more liberal use of manure; and by steam cultivation. It is claimed that the introduction of the steam plow has been the chief agent of the great changes which have been produced in the direction of profitable husbandry. A larger breadth of land has been brought into cultivation, and immense tracts of waste land, hitherto covered with heath, have been reclaimed and rendered capable of producing good crops of cereals, vegetables, and grasses. Thousands of acres of moss, and heavy clay, and hill-side lands, which could not be reached by ordinary methods of culture, after being trenched and drained have been brought by the steam plow and harrow into a cultivable state. Where neither men nor horses could be employed, the steam plow has been made to tear through everything. To avoid the risk of the breakage of gear in rough land, where the plow is liable to come against boulder stones and old tree-roots, a plow with a revolving coulter has been introduced—that is, a coulter which will cut its way smoothly until it reaches a root or stone, when it will pass over it with a rotary motion.—*Monthly Report of Department of Agriculture*.

OPIUM-POPPY IN FRANCE.—The cultivation of the opium poppy in France is steadily increasing. It now occupies 50,000 acres, of the value of 45,000,000 francs, yielding opium to the value of 2,000,000 francs a year. Different samples of opium, raised in various parts of Europe, are said to have yielded from 8 to 13 per cent. of morphine.

Large, late and luscious strawberries were gathered a few days ago on the ranch of Robert Swan, seven miles from Napa.

