NEW YEAR NUMBER

THE GREAT SOUTHWEST

ONE DOLLAR A YEAR, IN ADVANCE. DEVOTED CHIEFLY TO HORTICULTURE AND AGRICULTURE. TWO COPIES, ONE TO THE EAST, $1.50.

VOL. IV. SAN DIEGO AND NATIONAL CITY, CALIFORNIA, JANUARY, 1892. NO. 1

HAPPY NEW YEAR!

That is what we wish all the readers of THE GREAT SOUTHWEST, and everybody else who is good. And we wish not one happy day only, but three hundred and sixty-six. We have ordered the Bank of Time to pay that number to every one of our readers.

In line with our wish we promise to put just as many good things into these columns as is possible. Our pages will run over with sparkling articles concerning all phases of the horticultural question; agriculture will receive much attention; matters concerning the welfare of our city, county and Southern California will be closely watched and fairly treated. The gathering and compiling of information that will benefit our readers and so make them happy will be our chief concern.

And now, what will they do in return to help and make us happy? Many things can be done—easily done. We want items of news, short letters and articles. Many can write. We want new subscribers. All can aid us in securing them. We want $ $. Our present subscribers can furnish them by renewing promptly. Help us and we will be better able to help you. Now, one long pull, one strong pull, all pulling together, and we will all be happy.

IT MUST BE A JOKE.

Some one told us the other day that he believed San Diego City and San Diego County were growing apart. He must have been joking. Why should they? As well should man and wife pull away from each other as for this city and county to do so. Such a thing would be suicidal. Each is essential to the other. If we had no back country, no county, San Diego would still be a village. If there were no San Diego, our back country, with all its possibilities, would still be lying dormant. Sheep and their herders would make up the rural population. But we have both the city and county. They have pulled together, they are doing so, they will continue to go forward, hand in hand, developing their mutual, vast resources and working out their common destiny. Don't let anybody talk about coolness arising, troubles brewing or divorce pending between our beautiful city and our grand county.

J. T. GORDON, President. H. M. CHERRY, Secretary. G. W. HAWKINS, Treasurer.

Sweetwater Nursery Company,

INCORPORATED 1889!

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Nurseries---Sweetwater and El Cajon Valleys.

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I offer to those intending to plant Orange Trees, which mature their fruit late in the season,

A CHOICE LOT OF LATE VALENCIAS! A CHOICE LOT OF

These trees are good growers, and regular and prolific bearers. They will bear more than the Mediterranean Sweet, the fruit hangs on well and there are few seeds.

Tests Were Made on October 1st, 1891!

Of Oranges fresh from the trees and found to be sweet, thin skinned, good flavor, little rag and very juicy. These tests were made at The Great Southwest office and prove that the Valencia is one of the best late varieties and worthy of extensive planting. My trees were budded from bearing trees, an important point. I also have in stock some fine

VILLA FRANCA LEMON TREES!

For Prices, Etc., Address **W. R. BARBOUR, Covina, Cal.**

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THE CITRUS FAIR.

The next State Citrus Fair for the Sixth District will be held in Hazard's Pavilion, Los Angeles, March 2 to 9. San Diego County of course will be there. In order that she do herself full justice some preparation must be made at once. Those wishing to show lemons, if they are not curing them now, should pick today. It is already too late to get the very best results, still good work can yet be done. We know one man, Geo. Hannahs, who commenced curing lemons for this purpose some time ago.

And some of the best fruit in our larger orange orchards must be saved for exhibition purposes. Heretofore we have sold the best and taken second grade to the State Fair. We must not do so again. It is hoped our growers will think about these matters. Fifty thousand people will visit the fair. It will pay to show them our best.

Liberal raisin premiums are offered and our raisin growers and packers will find it profitable to save for exhibition some of their premium taking boxes.

San Diego is at a disadvantage in these fairs. Distance militates against us and then San Bernardino and Los Angeles Counties have acres of citrus orchards to draw from where we have trees. Still, if our growers will furnish their best fruit and our business men the money to properly display the same, as both doubtless will, we can make an exhibit that will cause even our rich neighbors to hustle if they excel.

A word more. All interested are asked to study the proposed premium list found elsewhere. It will be noticed that eight premiums are offered for lemons, instead of two as last year. Also that the propagators of new varieties in both oranges and lemons are encouraged. The list is surely a good one.

LET US KEEP SOBER.

Our suspicions regarding the cause of the excitable language used by certain Californians in their argument to secure a National convention on this coast are evidently shared by the Santa Rosa *Republican* which though published in a wine district settled largely by the forty-niner class, expresses the hope that the next committee that goes East to secure something for California will not attempt to make everybody drunk with whom they come in contact.—*Press and Horticulturist.*

And we express the hope that our fruit-growers will see to it that they do not have to exhibit their supurb fruit behind a California bar at the World's Fair. Our wine men are giving us a bad reputation. Let us keep them in the rear.

JOAQUIN MILLER, the poet, is in San Diego writing articles on orange and lemon culture for the New York *Independent*. He is the guest of Prof. Harr Wagner.

THE *Rural Press* is authority for the statement that: "The two carloads of Eastern peach trees which recently arrived in Auburn have been found infested with root crown borers, and have been condemned by Quarantine officer Alexander Craw, and must be taken back to Kansas, or they will be destroyed." This is proper. Let the law be so enforced that no one will dare to bring an infected tree into the State. And let public sentiment on this question be such that no planter will purchase a tree from any one until he is absolutely sure that the same is all right. It is a very poor plan to buy in haste and repent in two or three years, or during many years.

THE State Board of Trade is endeavoring to establish a market in Europe for California dried fruits, nuts, raisins, etc. An organization is now being formed to be known as the California Foreign Market Company. The shares of stock are placed at $10. The movement is a patriotic one and should receive support.

THE recent wind storm struck Riverside, as well as various other citrus sections of San Bernardino and Los Angeles counties, but did scarcely any mischief there at all. There were two reasons for this; one, the compactness of the orchards and the other the fact that nearly all are protected by strong wind-breaks.

THE question of fungus growths is now receiving considerable attention. We have already had a number of applications for the paper read by Commissioner J. P. Jones at the last County Horticultural Convention. It is published on the second page of this issue.

PREPARE to set out trees. Put a few around the house, some of them for shade and beauty. Not too many, however, of the non-fruit-bearing kinds. What is prettier than an orange or lemon tree? What shade is better than that of your own vine and fig tree?

THE severe frost did comparatively little mischief in this County. As usual, the trees on high lands escaped without any injury. We have said it, and now repeat, that the mesa lands of the San Diego bay region are the best citrus fruit lands in the world.

THIS year the State Citrus Fair for Northern California will be held in Auburn, Placer county. It will open January 11th and last for six days. Oranges up that way ripen considerably earlier than in the S. C. B.

CLEAN up your front yards, clear up your back yards, make everything look at its best. It will be a credit to you and money in your pockets.

THE Colusia county *Record*, of Florida, under the caption, "Dying, Egypt, Dying," gives a lengthy account of a very great depression in business all over the State of California. In the picture drawn we are so flattened out that even Florida almost pities us. On the editorial page of the same issue the fact is deplored that Florida oranges are bringing nearly nothing. One paragraph says: "So far, this season, the average returns for oranges will probably not exceed 50 or 60 cents per box to the growers on the tree." Now, California oranges, though not yet ripe, are bringing their growers two or three times that much. Go to, Florida. Your name, not ours, is "Egypt."

IT is authoritively stated that the late wind storm did mischief to the orange groves in San Gabriel Valley to the extent of at least two hundred thousand dollars. A great deal of this damage would have been saved had the orchards been protected by strong wind-breaks. As there have been none of these severe storms for a few years many growers had about decided that they, wind-breaks, were an expensive luxury. About all have changed their opinion. THE GREAT SOUTHWEST has always believed that it pays to protect our valuable orchards and is now firmer than ever in the faith.

THE Riverside *Press* recently had the following: "San Diego county will for the first time add her mite to the orange crop of the State by sending out 20 or 30 carloads this year." The *Press* is usually very correct in its figures and we cannot understand why it would make such a blunder. This county shipped out last year 66 carloads, and San Diego perhaps consumed as many more. We will add during '92 considerably over a hundred carloads to the output of Southern California.

SAN DIEGO is shipping in potatoes by the carload. Will some one of our intelligent ranchers tell us why? Is the trouble with our soil, or climate, or our growers? Who will answer?

THE sentiment against imported trees, and especially those about which there can be any taint of having come from infected districts, is becoming very strong. Well it may be.

THE general opinion seems to be that it will not pay to plant trees close together unless it is done very close with a view to thinning out later.

Quite a good many report red spider on their citrus trees. Fight the pests. Don't let them get hold, or the mischief will be to pay.

THE GREAT SOUTHWEST wishes its readers not only a Happy New Year's Day, but prosperity through all the year.

THE Irrigation Convention held in Los Angeles last month started a good work. Let it go on. The world wants and needs information. Everyone in this county having facts concerning acreage, yield, profits, etc., should send the same to Hosmer P. McKoon, San Diego. The same will be published in pamphlet form, along with similar information from other counties. Please don't forget this matter.

LOOK out for imported trees. The yellows is abroad beyond the Rockies.

DON'T forget to patronize home industry and keep your money at home.

THE first oranges in the markets of our State this season came from Arizona.

NOW IS the time to subscribe or renew.

HAPPY NEW YEAR!

PLANT TREES.

Attention, Fruit-growers!

There will be a meeting of San Diego county fruit-growers in the Chamber of Commerce rooms, Thursday, January 7, at 1:30 p. m. to select a committee and arrange for a county exhibit at the State Citrus Fair, to be held in Los Angeles March 2 to 9. Every one interested is invited and urged to be present.

R. H. YOUNG,
Of the General Committee.

The Back Country.

NATIONAL CITY.

Seven miles of tree-bordered avenues for National City is the result of the recently aroused activity in street improvements, and in which Mrs. Flora M. Kimball was the moving spirit. In her new position as "Superintendent of tree planting" for that municipality the people of the bay region recognize that National's arboreal adornment is assured. Replying to this journal's request for further information on this subject Mrs. Kimball responds:

Trees for the Streets.

It was no sudden or new thought thrust upon our minds, for long years several of our citizens have agitated the subject of doing something to make our town more attractive to the large number of tourists who visit it every season, and a pleasanter place for homes for those who live here and intending settlers. But when times were dull we couldn't afford to expend money in ornamentation, and when they were lively there were too many other things to distract the attention. At last the wise conclusion was reached that dull times were the best times for home improvement as there were idle men who needed the work, and having a board of city trustees in full sympathy with the scheme of making better roads and planting trees by the wayside, the thing was easily done. They caused streets to be graded, sidewalks put in order for planting, and ordered stakes set by the city engineer. A uniform width of walk was adopted and a uniformity of planting advised.

THE VARIETIES

selected to be planted were those best adapted to the climate, most rapid growers and most ornamental. Eighth avenue, the street on which the N. C. & O. trains leave the city, is planted to palms; Sixth avenue to peppers; National avenue to sugar gums; D avenue to blue gums; Sixth street and Eleventh street have blue and sugar gums; Twelfth street blue and rubber gums; Sixteenth street, sugar gums; Eighteenth street sugar gums, making in all at present planted 3,000 trees and seven miles of streets. One hundred and fifty trees were donated by Mr. D. K. Horton of Boston, and half a mile of street was graded and planted by W. C. Kimball, the city paying for all others. This is but a beginning of what we intend to do. Being so late in the season it seems best to care for those already out and resume planting again when next rainy season begins.

The city trustees have passed a strong ordinance for the protection of the trees, and the city marshal is alert and watchful that no harm befalls them.

At present little is seen to indicate the amount of work done except improved grades and stakes by the roadsides that protect the little plants. In a year or two the result of this year's labor will manifest itself. FLORA M. KIMBALL.

"Olivewood," National City.

POINT LOMA.

The long promontory walling San Diego's harbor from western winds, and which is connected with the main land by Old Town flats, is known to tourists and sight-seers as furnishing the most picturesque drive of the region. The southern half, with it's light-houses on the heads, is government territory, while private ownership of the northern portion has brought about the bay settlement at Roseville, and the sea settlement at Ocean Beach. The Portuguese village of maritime squatters divides these halves of the promontory, and their historic cove with its fleet of fishing vessels is but half a mile south of the acreage now being devoted to fruit experiments, as follows:

Lemon Culture on the Promontory.

The first lemon trees planted on Point Loma were set out in March 1889 within a few hundred feet of the bay at Roseville. G. H. Crippen and the writer planted some half dozen along with about the same number of orange trees and something like a hundred deciduous trees of almost every variety, with a view of testing the question as to whether fruit could be grown at all on the point, and if so what kinds would thrive best. We had been repeatedly told that oranges and deciduous fruits would not do well and that there was much doubt about lemons. The place where these first trees were planted was not chosen for any known advantage over any other spot on the point. They were planted about the homes we had built on some lots owned at Roseville, and had no protection except to be inclosed. At that time we had no source of water except cisterns for household use, and a well—the only one on the point—a half mile away. Very fortunately the heaviest rain of the season fell a few days after this planting and it was the only water the trees had until the latter part of July, with the exception of an occasional bucketful from the house. In July the water pipe from Old Town was completed and we gave them a sufficient supply for the rest of the year, and also in the following year up to July, when the pipe utterly failed and we have been without water ever since except as we have gotten it from the well or have hauled it from Old Town, a distance of four miles, and hence they have had to do with a very limited supply.

The first year's growth was so satisfactory that in April 1890 we planted something over twenty acres, almost exclusively to lemons, on the high lands of Point Loma, at an elevation of about 300 feet. We did not plant this additional orchard with the expectation of growing it without water for we had, beforehand, contracted for a system of water; but the contractors failed to put it in, and we have been compelled to haul all water this orchard has received, and hence have been unable to give these trees to exceed a barrel of water each a year. With all the drawbacks we have had the growth of our trees has been beyond most sanguine expectation. Especially is this true of the first year, when the very limited supply of water was more nearly adequate than it was the second year. The first year's growth we do not believe was excelled in the county, although our trees were inferior, we having paid only 25 cents when the best were selling for from 75 cents to $1. This was poor economy, we found, for no one can afford to plant anything but first-class stock. We attribute this wonderful growth to the peculiar and exceedingly rich soil on the mesa lands of the point, which is full of decayed vegetation and retains moisture remarkably well, and to the favorable climate.

Point Loma is an island so far as climate is concerned, and we presume it is as near frostless and has as little variation in temperature as any place in the United States. In exposed places we have found it necessary to provide windbrakes, as otherwise the cold winds of winter will cause defoliation.

We have trees planted in 1889 that have yielded over 500 lemons each since November last, of most excellent flavor and above the average marketable size, and the trees are now literally loaded with buds, blossoms and small lemons. They been have the wonder and admiration of everyone who has seen them. From our trees planted in 1890 we have gathered scattering lemons this year, and they are now profusely covered with blossoms and small fruit. Our orange trees were very seriously injured by the rabbits before we were aware fencing was necessary. Only one tree escaped the ravages of these pests, and although planted in 1889 it has produced this year over 80 large and delicious oranges. A Riverside orange grower who saw this tree and its fruit, in February of this year, told the writer that for size, color and flavor it equaled anything he had seen at Riverside. This tree would have borne a far greater number but we picked hundreds off just after they were formed.

DECIDUOUS FRUITS AND BERRIES.

Our deciduous trees have done well, especially peaches, apricots and plums, which have been bearing for two years, and are profusely loaded with blossoms and small fruit for the coming year. The flavor of our peaches and apricots is excellent, and the fruit grows to very large size. Black-berries have also borne exceedingly well, which has convinced us that a half acre planted to this delicious fruit and properly manured and watered would yield very large returns, and would help the fruit grower with limited means to bridge over till his lemons and oranges begin to yield an income.

As a result of our experience so far, we are satisfied that for growing lemons Point Loma has no superior, and that with the advent of a sufficient supply of water it will soon become famous for the quantity and character of the lemons it produces, and that oranges and deciduous fruits can be as profitably grown here as any place along the coast.

As to fruit culture, we have not had enough experience in this line to become dogmatic, but still we think we have learned something from our short experience and observation. We are thoroughly satisfied that one acre of lemons perfectly cared for and bountifully manured and watered will make a good living for a large family, while ten acres in the same fruit poorly attended and cared for would not be sufficient. We also believe that some people would do well on five acres that would fail on ten. In other words people plant more than they take care of well. We believe it is easier to make one acre yield $500 worth of fruit than it is to make five acres produce $1,000 worth. If we were to drive by a farm and see a cow tied to a stake with but a short rope, and that she was so poor as to be unable to stand from lack of food and water, and upon inquiry should ascertain that she had been tied to the same stake for three years and that all she had had to eat was what grew within the radius of her short rope, and all she had to drink was what nature provided by rain, we would cry out in our wrath against such inhuman treatment; yet in driving over the country one can see thousands of poor trees treated in exactly this inhuman way. When a tree is planted it is tethered within the radius reached by its roots, and after it has exhausted the nutriment within this small area it must be fed and watered just as an animal tied to a stake, or it will starve, and will be fat or lean in direct proportion to its care and food. The biblical aphorism—"And with what measure you mete, it shall be measured to you again"—has no more striking application than in fruit culture. There are authentic accounts of single orange trees yielding as high as $300 worth of fruit in one year. There are lemon trees growing about the bay of San Diego that will produce over $30 worth of fruit this year, which is at the rate of $2,000 per acre. This is done by care, feed and water. If a fruit tree could talk it would say: "Give me plenty to eat and drink and keep the cold winds off, and I will do the rest."

As a conclusion we should plant no more than we know we can, and will, give the best of care to.

F. S. JENNINGS.

Point Loma, Calif.

LINDA VISTA DISTRICT.

The recent organization of the Linda Vista irrigation district, comprising the ex-Mission lands and that portion of San Diego's territory extending north from the river to the foothills, has renewed interest in what in considered to be the coming citrus region of this county. This table-land, from 400 to 500 feet above the sea, is above the frost line and appears especially adapted to the lemon.

THE PIONEER ORCHARD

on the south portion of this mesa—near the district's center—is easily located from Mission cliffs by the tall windmill to the left of the Poway road, and which is soonest reached by taking the first road on the west after crossing Mission valley from the county farm. This 160-acre fruit ranch is the property of Wm. C. Wilson & Co., real estate dealers of St. Louis, Mo., and is under the management of Herbert G. Wylie.

Planting was begun two years ago, but the principal work was accomplished last year. About 70 acres are now in oats, wheat and barley for hay, and 90 acres are occupied by trees and vines. These are: Lemons—1,250 eurekas and 580 lisbons; oranges—624 washington navels and 200 mediterranean sweets; 380 french prunes, 248 apricots, 600 white adriatic figs, 700 olives, 100 guavas, 100 deciduous trees—apples, pears, peaches, english walnuts, etc., a total of 4,782 fruit trees. Thirty acres are planted to raisin grapes, there being 9,000 in all. A wind break of six rows of blue gums and one row of monterey cypress extends around this quarter-section, making a 2-mile driveway with three rows of trees on each side of the road. This has required 3,000 blue gums, and 3,500 more are being planted. There are 780 cypress, including a close-set row crossing from north to south through the center of the ranch—or 21,062 in all. The water system has two reservoirs, with a combined capacity of 5,000,000 gallons, four tanks with 75,000 gallons capacity, a well 300 feet deep, two windmills and a horsepower pump. The water is delivered from the tanks by a system of pipes, so that any portion of the tract may be irrigated. As soon as a sufficient water supply is assured, the remainder of the land will be set to lemons. Wm. C. Wilson is visiting his property for the second time in two years, and is

a thorough student of all questions affecting planting and irrigating.

Apiaries on the Mesa.

The bee forage of the great Linda Vista mesa has yielded in turn this year, nectar from the manzanita, wild lilac, alfileria, deer weed, black and white sage, wild buckwheat, and now the tar weed is doing duty as swarming is beginning.

C. M. Schwarzauer has 62 stands on the slope just above the Southern California railroad at Linda Vista station. His are mostly Italian breeds. They yielded a ton of extracted honey last year, but unless another rain should come to freshen up plants from the effects of desert winds Mr. Schwarzauer is not hopeful of results for this season. Seven miles over the mesa on the northeastern foothills beyond Rancho Miramar he has a 120-acre tract where some four acres of deciduous fruit trees have made a good start.

Edward Porter has 70 stands of bees, while on the east at Samuel Porter's there are between 125 and 150 stands. Mrs. Snyder has fully 90 stands. The Surr boys have only a few stands at Siloam ranch, the rest having been removed to the mountains of Ballena. Within the precinct, but over the hills on the north, Mr. Reynolds is maintaining about 250 stands, and still other ranchers are keeping bees to supply their own tables.

KEEN VALLEY.

This prosperous little valley, opening into Sweetwater valley back of National City, takes its name from Alfred Keen and family. The villa franca lemons from their orchard took the second premium at the late state citrus fair, yielding the blue ribbon to San Bernardino county on only half a point. The new citrus scale used to determine standing for honors put Mr. Keen's fruit ahead on acid, but because the competitive fruit showed fewer seed decided that on this point it should have first place. Writing to this journal Keen junior says of their process of

CURING LEMONS:

As the methods we have used for curing our lemons have been merely experimental, it is only necessary to state what they have led us to consider as the best road to success and one we shall use in future.

Perhaps the most essential thing is to handle lemons with the utmost care, for it takes but the least bruise to start decay. We handle ours as gently as though they were eggs. After picking the fruit and taking it to the curing house we pile the lemons about ten inches deep in bins on the floor, where they remain for about six weeks covered with sacks, which causes them to sweat freely. We next pile them in trays about two layers deep where they remain until wanted for shipment.

We think that in this San Diego bay region a very elaborate curing house, as advocated by some, is not necessary. The house should be so constructed as to be cool and free from draught, as it is the dry wind which causes lemons to shrivel up and become hard. Any place with these requirements will answer the purpose. A good cellar can easily be made into a curing house. FRED F. KEEN.

Keen Valley.

EL CAJON VALLEY.

The valley has put on her garments of loveliest hue, as the rain started new life into every bud and leaf. Worth of Paris, never sent out from his art palace a gown to compare in beauty with the robes of gold, magenta and living green which grace our mountain dells and glades. One glimpse of the smiling green of the valley is worth a trip from San Diego. The four mile stretch of oats and barley is magnificent. Each oat stalk seems to vie with its neighbor to be first for the mowing machine.

The effect of two good showers is wonderful, making a fair crop in place of a poor one, and with the shower Capt. Porter says the new moon is sure to bring this month a good harvest may be expected. I sometimes wonder if the same moon shines at Yuma, Julian and San Diego? with such a wide difference of rainfall.

The result of feeding the crop all it can take is shown in Mr. Ray's field of oats. The growth is so luxuriant that he has turned his cow and horses in to keep it in condition for mowing. This is his usual practice always with good success compared with other portions of the valley, when the grain stunted by starvation from the removal of crops year after year, without the slightest return, shows a want of observation, and a failure to read the agricultural papers.

A LESSON TO HORTICULTURISTS.

D. B. McFadden—who shoes our horses, mends our plows and cultivators, the most enterprising man in the valley—has shown us old horticulturists a good example. Four years ago, after I came up on these mountains, two or three persons asked if there was any more land to be taken up? Yes, I said, there was 80 acres, but too rocky, "and not worth taking." The next year Mac looked the tract over, entered it, cleared and cropped—between the rocks. Two years ago he put out 100 orange trees, and this season must have averaged one-half box of oranges to the tree without an orange having been pinched by the cold or a leaf bitten by the frost. The trees are not stunted, but growing thriftily. He has added 100 more this season. To-day these 100 two-year-old trees are a model of beauty, pruned a little too high, but otherwise hard to beat in the whole county, and I, an orange-grower of 15 years's standing, was afraid the soil was not rich enough! Mac took the bull by the horns, added the fertilizer necessary, and now rejoices in trees any man might be proud to own.

GEO. C. SWAN.

El Cajon.

SAN MARCOS.

We are all highly pleased with the interest THE GREAT SOUTHWEST is taking in the welfare of the back country, and wish it a long and prosperous career.

Corn and other spring crops are looking well, and the wild oats are nearly ready for mowing. Wilhelm Meyer has just shipped three carloads of hay to San Diego.

Mrs. Nancy McLoon is having a neat five-story cottage erected on a beautiful knoll just east of the Twin Oaks postoffice.

MORE SALES.

Joseph A. Bent, a leading real estate dealer of Sioux City, Iowa, has purchased ten acres of land, part of which he has surrounded with a cypress hedge. He intends making other improvements soon.

Stanford Newton of Pomona has bought a 37-acre tract just north of the railroad bridge. He intends to plant a row of olive trees along Thomas avenue in front of the land, and as soon as the grain which covers it is harvested he intends to begin work in earnest.

Mr. Wilie of Joliet, Ills., who recently bought twenty acres on Grand avenue, is preparing to have ten acres planted to fruit.

"WALKER."

San Marcos.

VALLECITOS.

In the Vallecitos country, twenty-eight miles northeast of San Diego and four miles from Poway, Dexter Parker is homesteading a quarter section of good land that is supplied with springs. He filed on the tract two years ago, and has now ten acres under cultivation. He has an orchard of deciduous trees, mostly apricot and peach, which is just maturing its first crop. Alfalfa takes up a half acre, and five and a half more are devoted to barley and oats. Mr. Parker cut his first crops last year. He has just set out fifty-six seedling oranges, intending to bud them and is fully satisfied with the results of his labor there.

SAN JACINTO.

This valley is under obligations to THE GREAT SOUTHWEST for one of its new citizens.

WANTS LAND THAT YIELDS MORE.

Oscar Pixley and family of five, who arrived in March from near Oakland, Wis., say their coming is due solely to a year's reading of this journal, which was sent them by C. H. Roberts of San Diego. Mr. Pixley disposed of a 160-acre grain and stock farm and is now located a mile from town on an improved place of ten acres purchased of Mr. Smith. It has a dwelling, some four acres of deciduous fruit trees, berries, vegetables, etc. Mr. Pixley proposes to put in good sized crops of grain and alfalfa this year, and next season will plant more trees. His object in coming out is not health at all, but being a good farmer he wants to handle land that will yield crops the year through.

OTAY.

The 10-acre place which Isaac Smith of Poughkeepsie, N. Y., has been improving at Otay since the spring of 1890 is being largely

DEVOTED TO LEMONS.

W. J. Wheeler, the former owner, already had about a half acre in oranges and lemons. Mr. Smith, after 25 years in the banking business, had found recuperation a necessity. Here he has largely regained his health, having a thrifty orchard of new growths to show for the time spent in the sun. He has added 200 deciduous fruit trees and grape vines, some 525 villa franca and eureka lemons, besides washington navels and mediterranean sweet oranges, etc. Improvements in the mail service have been brought about by Mr. Smith's suggestion, and it was he who headed the petition for the 10-company post to be located on the Otay mesa. His ranch is on the county road a mile and a half east of the station.

DULZURA.

The school district of this name has its postoffice in the mountains twenty-eight and one-half miles southeast of San Diego on the road to Potrero and Campo, and begins just beyond the Jamul grant. It is a succession of uplands and small valleys, rocky and picturesque, and was first invaded by the bee men, followed by cattle men. Four years ago the district was organized, and 24 is the highest vote yet polled. The elevation is from 1,000 to 2,000 feet. At this latter altitude lives E. R. Miner, his 160-acre tract being untouched by any other government claim and including a little oak-surrounded level valley with a fine spring. Mr. Miner dwells there out of sight of any other civilization than his own handiwork shows, but the overflow of his productive vegetable garden finds its way to many other isolated homes. The diversion of breakfast is sometimes interrupted by the sight of deer passing through the timber.

Mr. Pringle, formerly of San Diego, began cultivating some 80 or 100 acres last year, and has put out still more deciduous and orange trees this season. Oranges do very well on his place.

The apiary of Mr. Donohoe and sons is one of the best in that region, their extracted honey bringing in $2,000 last year.

Mr. Dunham has 300 hives. His watermelon patch is one of the supplies for

San Diego, and he is succeeding well with apricots, grapes and apples. These latter commanded $2 a box last year, and are considered equal to those of the Julian belt.

CHOLLAS VALLEY.

To live in climatic comfort and alongside an ocean view were the causes that located A. G. Stokes and family of Denver on the west side of the valley across from H. L. Story's fruitful "Del Terrace" about two years ago. The seventeen acres with its large dwelling is now known as "Isla Vista" ranch, as its view takes in nearly all of San Diego and the marine stretch to the south.

GUAVAS AND ORANGES.

Mr. Stokes began planting the entire tract to citrus trees about twenty months back, and every 96 feet has pipes from the Sweetwater system. He says that his oranges—mostly washington navels and tangerines—one year from the bud exceed in prolificness any growth of the kind he has seen, some branches bearing 15 in a cluster. There are also nearly 750 villa franca and lisbon lemons. Between the orchard rows 1,200 strawberry guavas have been set every twelve feet. This was a year ago, and they yielded in January last fully 1,000 pounds of fruit. A very full crop is expected in the fall.

BUYS AN IMPROVED RANCH.

Just beyond "Del Terrace" on the east side, and adjoining Mr. Allen's "guava" property, G. D. Hayes and family have taken possession of the Lockhart tract of fifteen acres. Mr. Hayes' health required the change, after twenty-two years' application as senior partner in the office of the daily *Press* of Oxford, Penn. This place has been two years under cultivation. It has 340 lemon trees, 280 oranges, 300 guavas, 500 grape vines, 120 figs, 112 olives, 80 apricots, and 40 each of peaches, pears and prunes.

PAMO VALLEY.

Rheumatism does not thrive in Pamo valley according to T. L. Moore, yet those who have seen the improvements wrought there in four years by his industry are more inclined to believe that he simply worked the malady out of his system. Mr. Moore's 270 acres are included in the 2,000 or more acres of the valley that is above the overflow line of the projected reservoir for the Pamo water company. His ranch is forty miles north of San Diego and seven miles from Ramona. Pamo creek runs through it, and Mr. Moore has a reservoir for irrigating purposes, though as water can always be reached ten to fifteen down in the black, sandy loam, there is seldom need for an additional supply.

A FARMER WHO FARMS.

He has fourteen acres in fruit, mostly peaches and apricots, with a few figs. Peaches do best there, and Mr. Moore has about 1,000 including the muir, hale's early and the early and late crawfords—300 having been set this season. There were originally over 400 figs, but the gophers destroyed fully three-fourths. He has just bought 2,600 orange trees to bud, and has put out 2,600 tomato vines. There are also between three and four acres in pink beans, and seven acres in corn. Forty acres of 4-feet high barley, one-half being ready to cut for hay, is one of the finest grain fields in that region.

Mr. Moore says he learned from farmers of San Pasqual valley that green sorghum cane is equal to alfalfa as food for stock. He is growing the "amber sugar cane" variety—seven acres of it—and finds that his cows' milk is improved. His twenty head of horses also feed on this cane. Mr. Moore sends a copy of THE GREAT SOUTHWEST to his brother in Arkansas, and two weeks ago received word that a neighboring farmer who had been reading it had decided to move out. The letter asked many questions, and for a list of the settlements within a 20-mile radius of San Diego bay. Mr. Moore is a brother-in-law of J. S. Harvey of Jamul, whose "La Belle" ranch is so well known for its fruits.

Near the Moore place 160 acres of hill land was recently sold to Mr. Peterson of Nebraska, who spent several months in Poway valley. He is a practical farmer and horticulturist, and expects to induce some eastern friends to join him.

Author of California's Ode.

Mrs. Elizabeth M. Wills-Walton, the veteran educator, passed away on April 21st last at San Francisco. She it was who composed the ode in honor of the admission of California into the Union, and which she read Sept. 9th, 1850, on "Admission day," at San Francisco. The people recognized it with a bracelet and a gold medal, which was inscribed: "Presented to Mrs. E. M. Wills by the citizens of San Francisco as a token of gratitude for her ode in honor of the admission of California to the Union, Oct. 29, 1850." Mrs. Wills was a native of New England, was first married in New Orleans, and arrived at San Francisco in June, 1850, where she established the first school for girls. She has since taught at Marysville, where she was married to Mr. Walton. Up to a short time ago she was instructor of the higher English branches in a girls' institute at San Francisco.

The new South California experiment station on the Chino tract, San Bernardino county, already shows 738 trees, including 360 varieties: Olives, 31; lemons, 3; citron, 3; oranges, 8; almonds, 14; cherries, 10; peaches, 37; nectarines, 8; apricots, 16; plums, 13; prunes, 18; pears, 25; apples, 46; figs, 22; grapes, 75; date palms, 9; besides rare fruits and ornamental shrubbery.

The cultivation of the liquorice plant has been suggested for South California says the Redlands *Citrograph*. It thrives best in a rich sandy loam, requires but little cultivation, and the manner of procuring the extract is simple. The product is extensively used in medicinal compounds, confections, tobacco, beer, etc.

World's Fair.

Frank A. Kimball, National City, San Diego ›unty, the Pacific coast's member of the Ad-sory Board of the Horticultural department the World's Fair.

California World's Fair Commission: Sixth ›ngressional District, L. J. Rose of Los An-les. Seventh Congressional District, C. W. rguson of Bakersfield. Thos. H. Thompson Tulare, general manager and secretary of the ›mmission, 59 Flood building, San Francisco. ember of the commission's board of lady anagers: Sixth District, Mrs. Olive Colegrove ›le of Colegrove. Seventh District, Mrs. Flora . Kimball of National City.

Queen Isabella Association: Dr. Maria B. rerill of San Diego, vice-president for the xth Congressional District.

World's Fair Executive committee for San ›ego county: W. C. Kimball, National City, airman; R. H. Young, San Diego, secretary; rs. D. H. Horne, Oceanside, Mrs. Sara ›rn, Escondido, Mrs. A. L. Peabody, Nestor, rs. M. Hazard, Elsinore, J. P. Jones, San ›ego, L. N. Bailey, Wynola, M. L. Ward, Chula sta, W. H. Somers, El Cajon, Harry Bantz, n Jacinto.

Woman World's Fair society of the bay region, n Diego: President, Mrs. Eunice Young; sec-tary, Mrs. E. B. Melville.

THE STATE CONVENTION.

The world's fair convention of county ›legates called by the state commis-›ners at San Francisco on April 20th et in the Academy of Science. Vice-›esident J. D. Phelan of the commission ›esided. Elwood Cooper of Santa Bar-›ra was chosen president; for vice-pres-ents, H. M. Larue of Sacramento, I. J. olf of Placer, L. B. Adams of Yolo, C. . Allen of Santa Clara, S. D. Woods of ›n Joaquin; John Craig of San Fran-›sco, secretary; R. H. Young of San ›ego, assistant secretary. The commit-e on credentials was made up of Thos. ›ffries of Alameda, Thos. H. Thompson Tulare, E. W. Maslin of San Francisco, avid Lubin of Sacramento, F. A. Kim-all of National City.

The thirty-two counties represented ere Alameda two delegates, Amador one, lumboldt two, Inyo two, Kern four, Los ngeles four, Marin one, Mendocino two, ›onterey two, Nevada two, Napa two, range two, Placer five, Plumas one, Sac-›mento five, San Bernardino four, San ›ego four [W. C. Kimball and Mrs. Flora ›imball of National City, R. H. Young San Diego, J. W. Nance of Perris,] San rancisco two, San Joaquin two, San Ma-o four, San Luis Obispo three, Santa arbara two, Santa Clara six, Solano four, skiyou one, Stanislaus three, Tehema ree, Trinity two, Tulare four, Ventura ur, Yolo four, Yuba one. The others ›re: State board of forestry two, state ining bureau two, state board of viticul-re three, state board of horticulture ›o [Frank A. Kimball of National City is one of these], academy of science e, state grange one, children's progres-re lyceum one. The state's national mmissioners and the state's board of ly managers were in attendance.

The twenty-three counties not repre-nted: Alpine, Butte, Calaveras, Colusa, ntra Costa, Del Norte, El Dorado, esno, Glenn, Lassen, Lake, Mono, Mar-›sa, Merced, Modoc, Sonoma, San Be-›o, San Joaquin, Sierra, Sutter, Santa uz, Shasta and Tuolumne.

The following resolutions were adopted:

Resolved, That the California commis-n make in the California building first, a ›eral classification, and, secondly, a ›nty classification of exhibits.

First—In the general classification coun-s making contributions thereto will be en in labels, catalogues and other publi-ions credit for such contributions. There l thus be a harmonious California exhibit its horticulture, floriculture and viticul-e, its forest products, mining and agri-ture, its arts and educational progress, fish and its game, etc.

Second—In the county classification each nty will receive on application a reason-e allotment of space commensurate with amount of money raised for its exhibit. this space the county will be entitled to ke a compact exhibition of its products fer such rules and regulations as the com-›sion may adopt. The general classifica-a and the county classification shall be ›er the control of a manager or managers ›ointed by the commission, but the wishes the county representatives will be con-ted so far as is consistent with good order l the making of a harmonious exhibit.

Third—It will be required that the coun-ties applying for space give a plan of their exhibit drawn to a scale, with a statement of the general character of their proposed display, and at the same time they must agree, in the common interest of the state, to contribute to the general classification when called upon by this commission to do so

The Lady Commissioners.

During convention intervals the board of lady managers held sessions at commission headquarters. All the members were present, also the state's members of the national board of lady managers. Mrs. Flora M. Kimball of National City was chosen temporary chairman, and the election of permanent officers resulted: President, Mrs. E. O. Smith; first vice-president, Mrs. Kimball; second vice-president, Mrs. Amelia M. Marsellus. Mrs. Hester A. Harland, who has been secretary of the state commission ever since its organization, was chosen secretary.

The work of the year was very generally discussed in all its phases, and important suggestions made that if carried out will be of immense advantage to the state. That their work may not be retarded and its usefulness impaired, resolutions were adopted asking for five per cent of the state appropriation. When the decision of the state commission is reached the board will then shape its course.

On suggestion of Mrs. Smith it was decided to have a crystal palace constructed of glassed jellies, so arranged with interior lights as to give the effect of stained glass. She, Mrs. Bradley and Mrs. Cole were appointed to have this arranged.

Each member intends visiting the principal towns in her district to assist in organizing woman's societies and to help on the work to the extent of her power. The board is to meet monthly at the San Francisco headquarters. Adjournment was taken to May 11th.

Concluding Biographies.

The April number of this journal gave the biographies of four members of the state board of lady managers, and is now able to present the other three:

MRS. AMELIA M. MARSELLUS,

the member from the third district, is a resident of Alameda but a native of Pittsburg, Penn. Her father, the late Hon. Chas. Kent, brought his family to California in 1855, and in time represented Nevada county in the legislature. Commissioner A. T. Hatch has pleased his constituents by the appointment of Mrs. Marsellus, as her thorough knowledge of California, her practical ability and her experience in public life eminently qualify her for this important duty. The late E. P. Marsellus, her husband, was a pioneer of California, and at the time of his death last month was secretary of the "Society of California pioneers." He had been postmaster at Oakland and United States marshal.

MRS. E. O. SMITH,

of San Jose, who was selected by Jas. D. Phelan to represent the fifth district, was one of the four eligible ladies whose names he referred to the Santa Clara county world's fair association. They preferred Mrs. Smith, as she had been foremost in woman's work and possessed the necessary public spirit and energy. Carrie Stevens Walter of the *San Josean* favors THE GREAT SOUTHWEST with a sketch of this lady commissioner:

Mrs. Smith is a native of Massachusetts, born in the little village of Cummington, among the western hills. She was the daughter of Deacon Hiram Brown, a prominent local leader of the anti-slavery movement. His farm adjoined that of William Cullen Bryant, and his hospitabe home was a resort for such progressive thinkers as Wendell Phillips, Wm. Lloyd Garrison, Lucy Stone and others.

Miss Brown's only opportunities for education were the country school and village academy, yet at the age of fifteen she became a teacher. Shortly after this she was married to Samuel J. Hillman of Worcester, and three years later was left a widow with two children, their father having given his life in defense of his country after a service of three months.

Subsequently Mrs. Hillman became the wife of the late Hon. E. O. Smith of Decatur, Ills., and with him removed to San Jose.

A multitude of domestic responsibilities, consequent upon raising a family of ten boys and girls, have prevented Mrs. Smith following the active public career for which she is by nature and instinct so admirably fitted, yet she has always been a successful leader in local affairs of public interest. She had charge of the Santa Clara county exhibit at the Mechanics' pavilion during the competitive exhibits of counties, and succeeded in carrying off the $500 prize the first, and the $1000 prize the second time.

Mrs. Smith's chief elements of success are unbounded enthusiasm, energy and perseverance, united with peculiar originality, and unusual executive ability.

MRS. COLE.

Olive Colegrove Cole, the sixth district's representative, was born in Tompkins county, central New York. Her early youth was spent upon a farm not far from Ithaca, her grandparents being among the early settlers of that section. One of the first houses in Ithaca, now the seat of Connell university, was built by her maternal grandfather. Her school education was completed at Geneva college, Lima, N. Y. Soon after leaving school Miss Colegrove met Cornelius Cole and six months afterward was invited to join him in San Francisco to become his wife. Her journey via the isthmus, her wedding in San Francisco, and experience through flood and fire in Sacramento, have been graphically described by her in recent papers read before the Friday Morning club of Los Angeles. The Cole place is at Colegrove, near Los Angeles, and is most beautifully situated.

During the civil war Mr. Cole was a member of the house of representatives, and sat in the U. S. senate from 1867 to 1873. Their family includes four sons, four daughters and five grand-children.

Having resided in Sacramento, Santa Cruz, San Francisco and Los Angeles Mrs. Cole can justly be termed a woman of the whole state, being always interested in everything that concerns the weifare of her country and neighborhood. She is certain to prove a useful member of the board of lady managers, and has already submitted a plan for having erected in the California department a typical adobe house. The building could be used for the display or sale of California art works, Indian, Mexican or American, that would not be specially adapted for a place in the California or general exposition buildings, she shows. Souvenirs in the way of the peculiar art work of the state, such as flowers fruit and scenery could be sold there. A committee of ladies could have charge of the building and attend to details. Wild flowers peculiar to Califoria could be grown about it and ollas and hammocks be arranged in the wide verandas. If advisable the building could be called "Casa de Ramona" or "La Ramona." Mrs. Cole thinks that such a building could be made a most attractive feature.

San Diego County.

On page 78 will be found a portion of the paper on "Woman's work at the world's fair," which Mrs. Flora M. Kimball of National City read at the last County Horticultural convention.

The vacancy in the county world's fair board caused by the resignation of Mrs. W. W. Horine of Escondido has been filled by the appointment of Mrs. Sara Dorn of Escondido. The committee regard Mrs. Dorn as a strong acquisition, her interest in county representation at recent fairs being well-known. Mrs. Dorn has done much excellent painting, especially on china, and twice has had charge of the art deparment of the fair.

This seventh district's world fair commissioner, Capt. T. H. Thompson, has resigned to become general manager for the commission, and to continue as secretary. Gov. Markham has filled the vacancy by appointing C. W. Ferguson of Bakersfield.

WORLD'S FAIR HEADQUARTERS OPENED.

The San Diego County World's Fair executive committee has elected its secretary, R. H. Young, to the office of manager also. Headquarters for the society have been opened in the Snyder building on Sixth street where a "housewarming" was held on April 29th.

The speakers were R. H. Young, Mrs. Flora M. Kimball, Judge Puterbaugh, Mrs. Carl Schutze, E. C. Thorpe, Warren C. Kimball and Frank A. Kimball. The latter furnished an important item of news, that in his correspondence as the Pacific coast's member of the advisory board for the world's fair horticultural department he had recommended to Chief Samuels that instead of diplomas the premiums should be largely in cash. This view had been coincided in. Both he and Warren Kimball explained the successful fight made at the recent state convention to preserve the integrity of Southern California by county exhibits and their opposition to the "dress rehearsal." Mrs. Kimball said that the crystal palace to be made of jelly would be 18x20 feet. The plan for a continual banquet during the 140 days of the fair, as Mrs. Waite had proposed, was that California's counties should divide up the time between them in serving whoever might be their invited guests on those two or three days of illustrating Californian hospitality. Everything is to be of home manufacture and growth. The table will seat twenty-four persons.

The State.

The state commissioners have decided not to have Alfred LaMotte make California's fishery collection, but have authorized that eminent ichthyologist President David Starr Jordan of Leland Stanford Junior university to provide the display. Dr. Jordan will be assisted by his students in that branch.

Miss F. Butler of San Francisco has been employed by the commission to furnish for $2,500 plants, bulbs, etc., for the California building, besides painting over 600 varieties of the state's 5,000 wild flowers and grasses. These studies are to be botanically correct. Miss Butler has about completed this work for central California and will shortly begin in the southern counties. After the close of the fair this exhibit will become the property of the state.

California's World's Fair magazine, published by B. Fehnemann at San Francisco, shows that fifteen more counties of this state have organized for world's fair work.

Acting on the suggestion made at their January meeting the state commissioners have arranged to hold a "dress rehearsal" of the state's world's fair exhibits in the Mechanics' pavilion at San Francisco Aug. 30th to Sept. 29th. This will be competitive between counties, several thousand dollars being offered in premiums and medals. The intention is for the commission to pay all freight, take charge of the exhibit and forward it to Chicago. Chas. B. Turrill, formerly secretary of the San Diego chamber of commerce, has been chosen for superintendent.

From the Grounds.

The latest circular issued by the Queen Isabella association—which was incorporated at Chicago Aug. 17th, 1889—announces that Congress hall in the Woman's pavilion will be furnished with a desk for each congressional district and foreign country represented in the association's membership. The best thought within each district is desired on every social and industrial problem on the programme, which is to be arranged by correspondence with the vice-presidents. For this reason proxies will be allowed when, in the judgment of the vice-president, any question can be better discussed by some other member of her district.

The national board of lady managers are endeavoring to secure the manuscript of Ramona from the heirs of Helen Hunt Jackson, for exhibition in connection with the exhibit to be made by the Ramona Indian school of New Mexico. They are also about to invite competitive designs for a badge for women.

The Citron.

METHODS OF CURING.

In the last issue of this journal a La Presa correspondent asked "Will some one tell me how to cure the citron of commerce?" The following replies have come in response:

Its Propagation.

Having found a citron tree in bearing on the ranch I am occupying, I felt sufficiently interested to glean from all available sources a knowledge of its nature and modes of production, as also its curing. I have compiled from a number of consulate reports sent to our government from Rome, Leghorn, Messina, Sicily, etc., points on the subject of its propagation, which I submit for the benefit of others:

"The citron tree or shrub, will grow wherever lemon or orange trees flourish. It succeeds better in sandy soil, however, and in the neighborhood of the sea. Great care is needed in its cultivation. The average crop per acre can hardly be ascertained, as the size of crop depends on so many conditions, such as the climate and soil. The citrons which are subsequently converted into the candied citron of commerce are grown chiefly in Greece, Calabria and the islands of Sicily and Corsica. The latter place is said to produce the finest fruit. There are four ways of raising this plant—by cuttings, by seed, by grafting and by budding. The latter is preferable, and the bitter orange is used as stock upon which to bud, it being more hardy and less liable to disease than those that produce the choicest fruits. The trees should be fertilized once a year, between October and March, with old stable manure, and unless the ground be moist or damp they ought to be watered in the dry season twice a week. This plant is much more tender than the lemon, and does better placed in a sheltered location. It blossoms between March and May, and up to the months of September and October, at which time the fruit is ripe."

F. A. Kimball of National City has a number of trees raised from budding on orange stock. He says: "I have seen no other tree which has so quickly adapted itself to our conditions, nor one which exhibits such a robust character. The foliage is beautiful; the growing shoots being of a reddish-purple color and very rich. The ripened leaves are not so dark as the orange, nor yet so light as the lemon. I have no hesitation in saying that from all I can learn, the citron will pay an enormous profit, as the fruit may be kept many months after it is picked, and can be processed by anyone who understands the art of preserving."

In regard to profit, I do not exactly see where it is to come in unless there should be a factory established for its curing, and in that case, should a market be found in the east, the profit would come to the curer, the shipper and the retailer, not to the grower, as according to my observation is the case with lemons and oranges.

We have experimented in candying the citron, having studied up the process used in several factories, as given in the consular reports, although not strictly following anyone. The fruit is halved, and placed in strong brine for three or four weeks, then boiled in clear water until it can be pierced with a straw. The seeds must then be removed, and a syrup made in the proportion of two and one-half pounds of sugar to a pint of water, and poured while hot over the fruit. In about a week or ten days, just as it approaches fermentation, the syrup must be taken off boiled again, and additional sugar put in to make it very thick, then poured over the citron again. This process is repeated three or four times, and at the end of about a month the fruit is taken out and put to dry in the sun. The last time the syrup may be boiled down very thick, and put on to crystallize. When prepared in this way it does not have the green color that characterizes the imported article, (which is produced I believe by a coppering process) but the flavor is as fine as any I have tasted.

E. KOCHERSPERGER.

Paradise Valley.

ANOTHER METHOD.

From El Cajon valley Geo. C. Swan, ex-president of the County horticultural society, writes: "Consul Alden states that citron is put in a salt pickle for three months. It is next divided into halves and quarters, and packed in a weak sugar syrup. The strength is gradually increased by adding sugar, and after remaining in the sugar four weeks it is ready for market."

He adds: "Sixteen years ago, when sugar was high here, there was no money in it. We removed the pulp, boiled the rind in salt water till a broom straw would pass through and the bitter was out. We then soaked the salt out and used the sugar syrup till sweet and then dried it."

CALIFORNIA BRANDY.

The State board of viticulture has just issued "Appendix A" to its biennial report for 1891-'92, with the following introduction: "Brandy production in California is now recognized as one of the leading branches of the viticultural industry. Its importance has assumed such proportions that this board has deemed it imperative to publish a work on distillation, supplemented by the translation of one of the best foreign works on the subject. The American market for brandy within the past few years has passed into the control of the distillers of this state, and large shipments are now made to Germany and England. It is therefore to be expected that the production of brandy will constantly assume greater relative importance until there shall be a general replanting of wine grape vineyards in the state, which would be brought about by a season or two of prosperity."

This illustrated pamphlet of 125 pages can be obtained by any wine maker who will forward four cents for postage. Part I treats of grapes suitable for fine brandy, of the stills in use, how to establish and operate one, the foreign markets, and of distillation in France. Part II is a translation from the German of Antonio Dal Piaz "Cognac distillation and manufacture."

On April 16th Gov. Markham made the following appointments for the Viticultural commission: Jno. T. Doyle of San Francisco, commissioner at large; Geo. West of San Joaquin district; Isaac De Turk of Sonoma district—all reappointed; Allen Towle of El Dorado district vice G. W. Blanchard deceased; E. C. Bichowsky of San Gabriel to succeed L. J. Rose, term expired.

Pomological Society.

The Southern California Pomological society is to hold its spring meeting at Redlands on the 5th and 6th. The subjects on programme are vine diseases, fertilizers, orange stock, lemon culture, the fruit market, insect pests, can irrigation prevent frost, etc. "The duty of our fruit-growers to the Columbian exposition in 1893" will be treated by L. J. Rose of San Gabriel, the 6th distict's commissioner, and Mrs. Flora M. Kimball of National, lady manager for the seventh district. "The value and importance of good roads and shade trees along the same" will be handled by Miss Kate O. Sessions of San Diego and W. S. Lyon of Los Angeles, state forester.

One of the most noted trees at Santa Barbara is the "ahuacata" or "alligator pear," growing in E. H. Sawyer's grounds. The seed were brought from Mexico eighteen years ago, where the fruit is known as mantequilla silvestre or "butter of the woods." The Independent says that in Mexico and the West Indies it is eaten raw with salt and bread, made into salad with the usual accompaniments, and prepared in a variety of other ways.

Horticulture.

TREES AND SOIL.

Before assuming his new duties at Leland Stanford Junior university, as regular professor of horticulture, Emory Evans Smith proposes to travel in this and foreign countries on a tour of horticultural observation. In resigning the editorship of the *California Fruit Grower* he adds: "I expect to give the balance of my life to California in endeavoring to elevate and ennoble horticulture, the first and noblest of arts and sciences."

Following the second of his special lectures at Palo Alto, on "Selection of fruit trees," is given the supplementary lecture on

Locating Orchards.

From a commercial standpoint next to the selecting of trees and varieties comes the locating of the orchard. But as there is a vital connection between the two, they should always be considered together, for if knowledge of either be at fault partial or entire failure must result. The oft-repeated assertion that nearly every temperate and semi-tropical fruit can in California be grown in one orchard, while literally true from the home-garden standpoint, has been the cause of many disastrous failures with well-meaning but misguided orchardists, who have failed to distinguish between the simple growing and fruiting of a tree and the making of its product a commercial success. While many of our failures are made through the unwise location of orchards, a certain experimental period had to be gone through and many valuable lessons have been learned. There are yet portions of the state of whose fruit-producing capabilities we know but little, and each season expensive but necessary principles are learned.

But fruit-growing has now reached a point in California, in which fatal blunders of this kind are to a large extent inexcusable. There are always, however, a lot of inexperienced men who have mere notions that they allow to outweigh the experience of all their predecessors. California has been overrun with such novices, and many sins of omission and commission, generally attributed to the legitimate fruit-grower, must be laid at their door.

The prime considerations in the location of orchards in California are climatic or atmospheric conditions and soil, but the value of the character of either to the production of fruit is incident to the variety of fruit to be produced, the stock upon which the trees are budded or grafted, transportation facilities, water supply and other minor conditions.

THREE DISTINCT CLIMATIC BELTS.

The value of the climate, or rather climates, of California to the orchardist cannot be overestimated. Indeed, if it were not for our peculiar climate, brought about by conditions which will be referred to, our great fruit-growing industries would never have existed in like manner to those of the Atlantic states of the same latitude. Our climate, which is in many respects similar to that of the west coast of Europe, is termed by meteorologists as "insular or moderate." Our range of temperature is not so great as that of the western European countries, which is greatly in our favor. This mildness is due to contemporizing forces, which by greater or less intensity of degree bring about our local climates. The two greatest forces are the "Japanese current," the warm streams of which flow diversely frow the Indian ocean, coming together off the coast of Japan, from where they proceed northerly. The main body, coming toward the west coast of Oregon and California, the warm air currents from this stream flow over California to an elevation that includes the foothills of the Sierra Nevada, giving an elevation and temperature which, combined, give locations especially adapted to certain fruits.

The other great moderating agency of our climate is the great Nevada and Cascade mountain ranges, which extend along the east and north boundary of California and Oregon, cutting off first the hot winds of the desert, and, bending around the southern and western shore of Alaska, deflect the polar winds that otherwise would lower the temperature of the two states mentioned. There are in California what may be defined as three distinct climatic belts—coast, valley and mountain—all resembling one another in having but two seasons. Their dissimilarities depend upon the topography of the country, and are rather of degree than of kind—altitude, distance from the ocean, relation to mountains, hills and watercourses, all of course having modifying effects. Coast climate is characterized by cool summers and warm winters, and a somewhat humid atmosphere as compared with the interior. Here the rainfall is more abundant, and fogs and overcast skies are more frequent. The valleys opening upon the coast are consequently somewhat cooler and have a moister air than those which are cut off from the influences of the ocean by mountain barriers. The effect of coast exposure upon fruits is to retard their ripening; thus, we find that fruits in Vaca and Pleasant valleys ripen far in advance of those in Southern California, hundreds of miles south.

THE CALIFORNIA "VALLEY."

The word "valley" is applied in California indiscriminately to all bodies of level or comparatively level land, regardless of extent and often without well defined boundaries, causing much confusion to new-comers, until they have become familiar with the complexity of the hill and mountain ranges and intervening stretches of country. The temperature of the interior valleys is higher in summer and lower in winter than of those opening directly on the coast. The rainfall in the interior valleys decreases as you go southward. In the lower counties irrigation has to be resorted to; fogs and dews in summer are few, and occasional hot winds are experienced. Small valleys, protected by hills from northerly winds and westerly fog-bearing winds, being warm and dry give us our earliest fruit-producing sections.

Slight elevation on the floor or sides of both the large and small valleys, or an elevation on the floor of the great valleys, or the lee side of large rivers, secures a certain freedom from frost, and is conducive to early ripening. Such elevations or protected sections are often termed "thermal belts."

The foothill climate varies in degree of warmth and frost with the local topography; but, it may be said in a general way that for several thousand feet on the western slope of the Sierra Nevadas the rainfall increases per annum about one inch per hundred feet elevation. The hill-tops and slopes are naturally freer from frost than the low lands, depressions and cañons into which the cold air settles.

The mountain climate may be said to begin at about 3,000 feet elevation, where marked changes begin to show themselves. The more tender fruits are liable to injury in winter and returns are irregular. Here apples and pears reach their highest perfection of flavor and beauty of color, and have keeping qualities that do not characterize the same varieties in the valleys and foothills. It should be noted, however, that locations for planting even the hardier fruits in these great altitudes should be selected with care, the open levels being preferable to depressions or the bottoms of small valleys, and cold rather than warm exposures, it not being desirable to have the trees where there will be cold drafts or where the cold air will settle, nor is it desirable to have the blossoms appear early on account of liability to damage from severe late spring frosts.

THE SOILS

suitable for the production of fruit in California can only be regarded briefly, as a general discussion of their merits here would consume too much time. We are indebted to Prof. E. W. Hilgard for nearly all of the scientific investigations of our soils which have been made. Prof. Hilgard's wide experience and special taste for this class of work has been of great value to the fruit-growers of California. A systematic and complete survey of our soils is to-day one of the greatest needs of the state. The soils of California are, if possible, more complex than the climate, and it is not unusual to find a half a dozen distinct kinds of soils in the space of a hundred acres. This makes it necessary for those contemplating the planting of an orchard to consider the adaptability of the soil to each variety to be planted, as well as the suitability of the exposure and elevation. I have seen orchards that were perfect failures which, had they been planted upon another part of the same farm, would have been beyond a doubt successful. Time will not permit the consideration of the origin of our soils, of soil analysis, nor of the great lakes which our interior valleys once formed, all of which facts have a bearing upon the location of orchards.

With these soils we are most familiar: Adobe or heavy clay—varying in color and known as "black waxy," brown and gray, vary greatly in chemical composition and are more or less impregnated with alkali. Loam soils—generally loose, rich and warm, vary in color and are sometimes mixed with clay. Sedimentary soils—deposits of alluvium found along watercourses, are deep and well drained, and at varying width, merge into surrounding characteristic soils. Vaca valley and other of our finest fruit-producing districts have soils which may be termed alluvial wash, derived from adjacent hills of red, gravelly loam. River bottom or sedimentary soils are usually dark, rich, moist, and easily cultivated. "Hog wallow" soils are sharply undulating, varying from heavy, gravelly clay to sandy loam and cobblestone land, and are often, as in the Fresno district, of a reddish color and are generally underlaid at a greater or less depth with hardpan.

Many kinds of red soils are found in the state. Red loams, broken stone, gravel and clay, usually found on the borders of the valleys and on the foothills, are generally rich in plant food, though of widely varying quality. Besides there may be mentioned the white ash, red sandy loam, alkali sand hill ridge, tule, slate, decomposed granite and trap soils, but there are other types and between all of those mentioned there lie many transitions and intermixtures. The Santa Clara valley is composed chiefly of rich, dark blackish loams, sandy loams and sedimentary deposits, and is capable of producing any variety of fruit suitable to the climatic conditions. The bordering hill lands are varying in kind and richness, and much land now given up to chapparal and other wild growth will doubtless produce the very finest fruits.

In selecting an orchard site, the water supply should be a joint consideration with that of climate and soil if, indeed, it should not be the first. There are many fertile districts in California in which the water supply is inadequate or is unfit for either domestic or irrigation purposes. The volume of the natural flow of water or the depth and other expenses of sinking artesian or ordinary wells should be definitely ascertained, and a careful analysis secured. Careful regard of this may prevent the destruction of health and the expenditure of money and time from which there will be no return. This particularly applies to new districts and soils, in which their general adaptability to fruity-growing has not been demonstrated. The desirability of a location also depends largely upon transportation facilities, and this again depends upon the varieties to be planted. As the shipping of the crop is a most important item, it is desirable to be as near the railroad as possible, on a main line and near a shipping center, and where there are smooth, hard roads. The adaptability of the soil for the making of good roads or the availability of material for such work, is often a very important consideration. This is of greater importance when green fruit is to be shipped than when the product is to be marketed in a dried state, as the latter is much reduced in weight and is of correspondingly greater value per pound, thus admitting of more expensive transportation.

If the land to be planted is already in the possession of the prospective orchardist, all idea of following pet fancies in regard to varieties should be banished, and strict adherence given to those sorts which have proved profitable and which are especially adapted to the climate and soil of the location. Watching a few growing trees is a much better method of testing this than any amount of talking.

SOIL FOR ORANGES.

The orange tree is a greedy feeder and therefore a soil rich in the required elements needs be selected, but it will thrive in a lighter soil, if loose enough for the roots to easily penetrate and if the trees are at greater distances apart. But few soils, however rich, will long produce first quality oranges without annual application of fertilizers. The correct method is to have the soil carefully analyzed and then by supplying deficiencies to never allow it to become impoverished. The best orange soils are strong, black or sandy loamy deposits, strong reddish clay and decomposed granite, and some special combination soils containing considerable broken stone and gravel are excellent. Adobe soil subjects the orange tree to disease. The location should be sheltered from winds as the fruit is heavy and therefore liable to thorning and bruising, and it should be free from frosts, since the young growth is very tender. The nights should be equitable and warm, otherwise the fruit will be greatly retarded in ripening and deficient in sweetness, which continuous heat alone develops in the orange.

Irrigation facilities are necessary because in California the orange must be grown upon well drained ground, and the roots naturally feed close to the surface. The leaf exposure is broad and from them is particularly rapid evaporation, owing to the dryness of our air. The roots are unable to supply the requisite moisture; hence the necessity for artificial supply. The water should be analyzed, for it may contain the most needed fertilizing qualities; or on the other hand ingredients that might make failure inevitable, although every element of success might be present. Since oranges must be marketed as a green fruit direct rapid transportation is of prime importance, anything else meaning unduly expensive production and poorly conditioned fruit when it arrives upon the market.

FOR DECIDUOUS TREES.

The prune for its highest development requires, as a rule, heavy, rich, deep, soil when myrobolan roots are used, and alway comparatively level ground so that the crop may be economically harvested. No irrigation is required, but a naturally moist soil is and to an extent a moist atmosphere is necessary. A hot sun is required to evenly ripen and quickly dry the fruit. Artificial or natural protection is also essential where strong winds are prevalent, to prevent the whipping off of the fruit and the breaking of the heavily laden branches. When it is desired to grow prunes upon lighter soils peach roots may be used, but it should be borne in mind that some varieties of prunes do not take lightly to this stock. Peaches thrive best on a deep porous, sandy loam thorough fertility and drainage being especially desirable, as the tree is a gross feeder and impatient of a retentive or moist soil. Excellent results are oftentimes obtained upon gravelly soils, when the needed elements of fertility are present.

The peach is more liable to injury from frost at the time of blooming than almost any other fruit; therefore, cold strata of air and chilling drafts should be shunned. The low foothills, small valleys or sediment land bordering the creeks and large rivers of the interior valleys,

as a general thing, supply the proper conditions. As an orchard fruit, the peach should not be grown close to the coast, except in the more southerly counties; and even then at an elevation sufficient to neutralize in part the influences of the moist sea air, which retards ripening and hinders the development of the requisite flavor and sweetness.

The english walnut and fig are fruits, about the requirements of which we have but limited knowledge. The adaptability of the english walnut to soils can be varied by using the native black walnut as a stock, for which it is admirably adapted. The english walnut generally requires for its highest development a very deep, rich soil, though it sometimes thrives in a variety of soils, which are deep, rich, well-drained and free from stones. It seems to like the sea air and a slightly moist but well-drained soil, but the trees will quickly sicken and die if the roots enter a wet stratum, or if water stands for even a short time on the surface. Perhaps the most desirable conditions are found in the gently sloping lands of Carpenteria valley, Santa Barbara county, Santa Clara valley, Ventura county, San Gabriel valley, Los Angeles county, and Santa Ana valley in Orange county. [Mr. Smith has never been in San Diego county.] In these localities the soil is generally of very great depth, as can readily be seen upon examination of the barrancas. I remember seeing in Carpenteria valley black soil taken from an artesian well nearly 500 feet below the surface, in which corn was immediately planted and in a few days sprouted and grew thriftily. But in these favored localities spots have been found where the trees do not thrive after reaching the age of ten or twelve years, when from no apparent reason they die back from the tips of the branches.

A notable instance of this is found in the Ventura valley, a narrow strip of rich hill-locked land bordering on Ventura river and extending back from the sea for some miles toward the Ojai valley. This soil in part is underlaid at a considerable depth with boulders, through which the water from the river to some extent doubtless precolates. The roots of the english walnuts, which go straight down rather than turn aside like the roots of most trees, have doubtless some of them penetrated to this stratum, and their days are numbered.

While a great many fig orchards have been planted in California, and a great deal has been said about the successful commercial culture of the fruit in almost any locality, it is my opinion that the area adaptable to the varieties which we now have, from a commercial standpoint, is exceedingly limited, and that many of our early ventures will prove very unprofitable investments. We probably know less regarding the proper locations for the fig than for any fruit that we have. The general climatic adaptability of the black or mission fig is no criterion, for the more highly cultivated, imported varieties often refuse to mature their fruit, or it sours before it can be used in localities where the black fig develops perfectly. Choice sports in the foothills of the Sierra Nevadas will perhaps eventually prove the most satisfactory localities. Irrigation is not desirable for the fig, but sufficient water hould be at shand to prevent the trees from suffering from drought in case of necessity. Deep, rich sediment, adobe, clay or decomposed rock soils which are naturally moist enough to grow trees, and a warm, dry air, are essential to success.

Pears have a wider range of adaptability to location than almost any other fruit, and the seasons of ripening may be largely regulated by planting at different elevations. Like most fruits the pear thrives and bears best in rich, well drained, alluvial soils, but it can be profitably grown on clayey loams, adobe and moist retentive lands upon which other fruits will not thrive. A clayey subsoil seems to impart to the fruit superior keeping qualities and lands slightly impregnated with alkali and shallow hardpan soils will sometimes grow pears fairly well.

The apricot being one of the earliest blossoming of fruits, a location should be selected with a special view to freedom from untimely frosts. When grown upon its own roots, the apricot thrives best upon strong, somewhat heavy but easily worked soils, naturally moist but well drained. When grown upon peach roots, most any soil suitable to the latter fruit will do. Almond roots are sometimes used for dry locations and myrobolan for heavy, moist or retentive soils, but the two latter are not recommended for use except in an experimental way.

The failure of the cherry in some locations has not always been satisfactorily accounted for, but is probably due to adverse atmospheric conditions, and we have yet much to learn regarding its requirements as to soils, elevation, moisture, etc. But the general deductions are that only late varieties should be planted near the sea coast, and they should even then be sheltered from the direct influence of the sea air. The early varieties are best adapted to the warm interior valleys. Cherry soils must be mellow and free, rich and deep, and slightly moist, both drought and excessive moisture being very detrimental. In dry locations sufficient irrigation facilities to keep the trees from suffering must be provided. The cherry, like the apricot, being an early bloomer, cold winds and frosts must be guarded against. A southern or southeastern exposure is, of course, conducive to early ripening.

There are several considerations that have been only casually mentioned which have an important bearing upon the location of orchards. If it be desired to take advantage of the fancy eastern markets, the recognized early and late districts should be sought.

The value of drainage is but little understood in California, but in time will be recognized as a most important principle in the production of fruit. There is much excellent land that could be reclaimed and that would produce fruit, if proper systems of drainage were introduced, and much land now cultivated could be made more productive in the same way. In the Fresno raisin districts, it has now become almost as important and in some cases even more important to drain the land than to irrigate it.

DANGER FROM FROST.

Another thing imperfectly understood in California is the damage to be expected from frost. Our atmosphere is of so peculiar a character, that the same degree of frost does not have the same effect that it has in other countries, or in other parts of the United States. The difference is most striking when comparisons are made with Florida, where one or two frosts, such as are quite usual on our winter mornings, would kill every flower in Florida and would lay her orchards desolate. I have there seen a four-year-old eucalyptus tree killed to the roots by a slight frost, and here I have seen ice formed upon the branches and leaves without doing the slightest damage. This is perhaps due to the large degree of moisture in the air, but careful investigation along this line is most desirable.

The special location requirements of some of the most important fruits have been given more in detail, and not only to convey definite information, but to awaken an interest in this, and to point out the importance of properly locating orchards.

It has been seen that the conditions of climate, soil, elevation and similar matters are, in California, extremely varied, and that individual varieties, stocks, purposes, transportation and numerous other considerations have an important bearing upon a successful commercial orchard. It has also been seen that each fruit, when studied, develops many peculiarities, the catering to which has much to do with one's success or failure. I would particularly impress upon you the desirability of intelligent observation and experiment in the adaptability of fruits to special locations, and conditions, so that there may be a better general understanding of a subject regarding which there is at present comparatively limited accurate information.

Grape Fruit at Coronado.

A shaddock or grape fruit tree in the Coronado botanical garden is in bearing for the first time, and all the fruit in one bunch. This cluster of nine big yellow spheres is so heavy that it has to be propped to prevent the limb breaking.

A Grateful Woman.

I am so thankful that Mrs. Wymen told her experience in your columns last month. My husband has been sick and we have several small children and I had to do something. Mrs. Wymen's success with the plater led me to believe that I could make a little money too. I obtained a plater for $5 and have been plating for the last three weeks, as I could find the time to leave the house, and have made $36 50. I would not have believed that it was so easy to make money with the plating machine. Everybody has a little work they want done, and I sold two plating machines and made $5 apiece on them, to friends who wanted them for their children. Any one can plate and anybody can succeed as I have done. There is no experience needed. My husband says when he is well he is going into the plating business. Anyone can obtain circulars by addressing H. F. Delno & Co., Columbus, Ohio, where I got my machine. MRS. TORRY.

The Salt Industry.

LA PUNTA'S PRODUCT.

Around the-bay travelers on the Coronado motor road pass through the La Punta salt ponds, ten and a half miles south of San Diego, at the head of the bay. And when the bay boulevard shall be completed sightseers will find themselves driving along the eastern line of this 140-acre tract diked from high tides for the salt industry. It is the only manufacturing works on the coast south of San Francisco, the Salton output being from mines. All the other California salt manufactories are in Alameda county, and they as well as the La Punta works are conducted on the "solar" process. The advantage which San Diego bay shores have over those of San Francisco bay in the matter of a more equable climate is just that much less risk to be figured on. Where the "solar" process is tried elsewhere, especially on the Atlantic coast, the expense of sheds borne on rollers that can outrun untimely rains is a heavy addition to the outlay. The "kettle" process is also expensive. Here, where salt-making is not attempted until after the wet season, there is no danger from rains, or from the humid conditions that increase evaporation.

The grounds of these works would all be submerged at high tide were it not for the 3-foot dikes standing at five feet that make four series of ponds over thirty-five acres. Within this are located the buildings and three warehouses, as salt has to lie a year to drain or dry before being marketed. A fresh water belt some 100 feet wide runs through the tract and furnishes a spring for the dwellings.

Twenty years ago Josiah Shaffer of San Diego, who had an inventive faculty, conceived the plan of salt making after noticing salt deposits in pools at the Ocean Beach mussel beds. The works he established are now owned by his sons—Eugene E. and Josiah E. Schaffer—who ship to Arizona, to San Bernardino, Los Angeles, etc., the bulk however being consumed locally. All the salt used at Hotel del Coronado is from these works. It is considered the finest made on this coast, as San Francisco dealers have offered higher prices for it than their own product will bring.

Pumping has been in progress since the last rain and the capacity has been increased about one-third for the new crop. The output of 1890 was 600 and last year about 450 tons.

One of the brothers, who for the present year has leased his interest to his partner, gives the following explanation of the

SOLAR PROCESS.

At the close of the rainy season water is let into the outside, or first receiving ponds, through large flood gates at the extreme tides that occur at the new and full moon. It is retained there until next high tide, and is then drawn off by a paddle wheel, operated by wind power, into the second receiving pond. Here the water is allowed to remain for from ten to twenty days, depending upon the humidity of the atmosphere. When the water has attained a sufficient strength, which is determined by the hydrometer, the brine is drawn off into the pickle or settling pond to remain until crystallization has begun. It is then turned into the last series of seven ponds, called crystallizing ponds, which are kept constantly covered with water so that evaporation goes on uninterruptedly the year round. The salt is allowed to form undisturbed for three months, in which time it forms a floor and bed of sufficient thickness to support the weight of a man. Thereafter it is raked every two or three days to keep the new formation from adhering to the bottom or floor. At the end of the dry season the top or loose salt is raked into winrows like hay, the brine being drawn off first, and wheeled into sheds that protect it from rain. The bottom salt is then taken up with tools made for that purpose, piled together and covered with portable roofs. The clean salt in its natural state is used for curing meats and salting fish, but has to be ground for dairy purposes. The table salt has not only to be ground, but dried on a steam dryer and then re-ground. Probably the largest pump in the county is used to force salt water from the bay when tides are not high enough in spring to flood the more elevated parts of the ponds. This is a 10-inch centrifugal pump and when forced to its fullest capacity, throws 450,000 gallons of water an hour. The salt is shipped to San Diego by water, principally on a sloop made for shallow water, and will carry twenty tons.

The consumption is mostly local, the better salt being used for fish, meats, the dairy and the table; the bottom salt for hides, stock, ice machines, etc., and for seal skins, cargoes for this latter purpose going out on coast-wise vessels.

E. E. SHAFFER.

San Diego.

Fruit Tree Tax.

THE ASSESSMENT.

The necessity of assessing fruit bearing trees and vines as ordered by the last legislature of this state, and as subsequently scheduled by the state board of equalization, brought about a meeting of the supervisors of the fruit-growing counties of Southern California—San Diego, Orange, San Bernardino, Los Angeles and Fresno—June 19th last. The object was to compare valuations placed by assessors on fruit trees and to adopt a schedule to recommend for their future guidance. In the discussion an understanding was reached that trees and vines must be assessed under the law, that young trees and vines have a value, although not in bearing, and that the valuations should be more nearly uniform between the counties. A committee composed of A. E. Davis of Los Angeles, I. W. Lord of San Bernardino, J. S. Buck of San Diego, T. C. White of Fresno and S. Armor of Orange submitted the following schedule of valuations to be recommended to the various assessors of California and which was adopted:

SCHEDULE OF VALUATIONS.

Orange trees per acre:	Budded	Seedling
1, 2 and 3 years from setting,	$10.00	$ 5.00
4 years from setting,	20.00	5.00
5 " " "	40.00	10.00
6 " " "	60.00	10.00
7 " " "	70.00	15.00
8 " " "	80 00	20.00
9 " " "	100.00	30.00
10 " " "	125.00	40.00
11 " " "	150.00	60.00
12 " " "	150.00	80.00
13 " " "	150.00	100.00
14 " " "	150.00	110.00
15 " " "	150.00	120.00
16 " " "	150.00	130.00
17 " " "	150.00	140.00
18 " " "	150.00	150.00

Lemons same as budded oranges.

Deciduous fruit trees per acre:	
1 year from setting,	$ 2.00
2 years from setting,	10.00
3 " " "	20.00
4 " " "	30.00
5 " and all after,	40.00
Walnuts:	
1, 2 and 3 years from setting,	$ 5.00
4 years from setting,	10.00
5 " " "	15.00
6 " " "	20.00
7 " " "	25.00
8 " " "	30.00
9 " " "	40 00
10 " " "	50.00
11 " " "	60 00
12 " " "	75.00
13 " " "	85.00
14 " " "	95.00
15 " " "	100.00
Citrus nursery stock per tree:	
1 year from setting in nursery,	.01
2 years from setting in nursery,	.05
3 " " " and upward,	.10
Vines per acre:	
1 year after setting,	$ 2.50
2 years after setting,	5.00
3 " " "	20.00
4 " " "	25.00
5 " " "	30.00
6 " " "	40.00
Olives per tree:	
1 year after setting,	$ 2.00
2 years after setting,	3.00
3 " " "	5.00
4 " " "	8.00
5 " " "	10.00
6 " " "	15.00
7 " " "	20.00
8 " " "	25.00
9 " " "	30.00
10 " " " and upwards,	40.00

The Tax in this County.

While the supervisors and assessors of all Southern California are conforming to the law under protest—possibly also the state board of equalization—these officials are making the assessment as low as is consistent with the intent of the law, hoping that it may be repealed by the coming legislature.

Last year this assessment was not made in San Diego county, but with the possible threat of an increased rate of taxation such as menaced San Bernardino when her officials objected to making this new assessment, County Assessor C. H. Shepard has prepared the following schedule with which his twelve outside deputies began their duties the first Monday in March:

Orange and lemon trees per acre:	
1 and 2 years from setting,	$ 10.00
3 years from setting,	15.00
4 " " " and to bearing	25.00
Full bearing, per acre	100.00
Fruit trees non-bearing, per acre	10.00
Fruit trees bearing, per acre	20.00
Vines per acre	10.00

Nursey stock assessed the same as any other merchandise.

These assessment rolls will be turned over to the supervisors the first Monday in July, and the assessment may be lowered or raised when the supervisors sit that month as a board of equalization. The tax rate for the coming year will be made in October. Thus it is seen that should the levy be, say, $1.70 on $100 of valuation, the assessment on a ten-acre orchard would be $1.70.

THE ACT.

In the last issue of the *Revenue laws of the state of California*, compiled by the board of equalization, the definition of "improvements"—page 36—includes "all fruit, nut-bearing or ornamental trees and vines not of natural growth." On the same page a foot note says: "The act defining 'growing crops' intending to include under such term trees and vines, approved March 16th, 1892, is not inserted here because it is clearly unconstitutional."

Real Estate.

For sale—A ranch of 100 acres, 4 miles south of Escondido, on the Pamo water line. Land suitable for all kinds of fruit and grain, is well watered and has some timber. Has a good rustic house of four rooms, good barn and other out-buildings. Price $2,500.

Also two lots at Bernardo, good house of five rooms and blacksmith shop for $500. Address, WM. OBER, Julian, Cal.

Will it pay? This question is the universal touchstone nowadays. If it pays to spray, we want to know it, that we may adopt this method of fighting insects and fungi. If it does not pay to spray, we want to know it, that we may not be led into an unprofitable undertaking.

Note what E. Clark, Osage City, Kas., says: "I sprayed my orchard, and my apples are clean of worms. I had one plum tree, around which I had to build a scaffold to hold up the fruit. It had at least five bushels of fine plums on it, while my neighbor's plums all rotted and fell off. I would not take $100 for my sprayer and do without it, for I have gained 70 per cent. over last year."

And writes John F. Williams, of Lawrence, Kas.:—"I sprayed all my apple trees—about 300. They are eight years old. Last year and the year before they bore, but not so heavily. The fruit was mostly large and smooth, but nearly every apple had a worm in it. This year the trees are very full, the apples are large, smooth and not more than one in twenty-five has a worm in it. I also sprayed my plum trees. They have borne a very large crop of plums. It pays."

The above parties both use the Excelsior Spraying Outfits, manufactured by WILLIAM STAHL, Quincy, Ill., who will mail free, upon application, his book entitled "Spraying Fruits—How, When, Where and Why to Do It." The book contains much valuable information on this subject.

Poultry.

STANDARD AND COMMERCIAL.

In his series of poultry papers for THE GREAT SOUTHWEST Mr. Roberts proposes to have, for the June issue, a study of standard fowls, or their description and habits. The list is to be headed with the brahmas, light and dark. "Standard and commercial poultry," are considered in

Paper No. Four:

Though failures are frequent where reckless attempts are made to build vast fortunes from its pursuit at once and without capital, without experience or conception of requirements necessary to success, they argue not against the possibilities of great successes when properly pursued.

The very universal idea respecting poultry culture is that, like Divine Grace and the practice of christian virtues—which are wise and good as well as ornamental luxuries if only one be not required to study them, and they cost nothing—it must call for no thought or systematic purpose, no reading of literature upon the subject, and shall cost nothing as to the expenditure of money.

France, from 98,460 square miles of land capable of cultivation, realizes over $200,000,000 annually from her poultry interests. She sends 800,000,000 eggs to England, and consumes over 2,000,000,000 herself. Of exported and consumed eggs and poultry France realizes over $75,000,000 annually, besides $45,000,000 worth of stock kept on hand and carried over from year to year.

CONSUMPTION OF POULTRY.

Careful research reveals this: New York, city and state, consumes $45,000,000 worth of poultry and eggs yearly, and her population being between 5,000,000 and 6,000,000 it shows that each individual consumes about $8.50 worth of poultry food annually, independent of her transient population; for the state and city, it is learned, consumes and supplies to her merchants and out-going vessels more than $90,000,000 worth. It is easily seen, therefore, what the entire population of our country consumes at $8.50 per capita. Say 60,000,000 people, at $8.50 each, gives $510,000,000. Add to this $65,000,000, value of breeding stock, and $650,000, value of blooded fowls, it reveals the sum total of this industry in America of $575,650,000 annually; or, as full statistics would show, $600,000,000. In 1872 we imported 6,000,000 dozen eggs; in 1882 13,000,000 dozen; in 1890, between 18,000,000 and 19,000,000 dozen. Why do we not pursue this profitable industry, so far, at least, as to supply home demand? As it is, the wheat crop falls below poultry and eggs $72,000,000—in this greatest of all wheat growing countries—an amount four and a half times as great as President Jefferson paid France for the western half of the United States. Hogs, hay, corn, cotton, cattle, oats, fruit, etc., are each and all cultivated extensively in certain sections while unknown in others; but poultry—like the blessed sunshine and rain and dew that lend their favors to rich and poor, high and low—brings its benediction to cottage and castle wherever man has set up home relations, and this universality is its strength and gives it almost fabulous private and commercial magnitude.

THE "HEN FEVER."

It is not quite forty years since the first attempts were made to breed thoroughbred fowls in America, and less than forty-five years since any considerable number of men engaged in it. The breeding of thoroughbred fowls has now obtained a solid footing as an acknowledged industry, though in its infancy from a comparative view. Poultry fancying is so closely identified with poultry culture, now, as to be accepted as the author and esential support of the poultry of commerce. The poultry crank first operated in 1843, in our states; then in 1848, 1853, and 1859, when the events that followed stopped the "hen fever" from again raging until 1865. Then poultry journals began to find their readers and a new impetus was given the business. In 1872 the first national organization met. Here the "American standard of excellence" was compiled, whose influence at once vindicated the wisdom that announced its necessity. Every five years it is revised. It is the poultry fancier's law—it is statutory. Poultry literature of all kinds is moving along full well advanced along the line of modern thought.

THE BUSINESS NEEDS WORKERS.

The demand for poultry products, by the increasing millions of our population, evidences the inherent need of scientific poultry culture. Our population increases in a faster ratio than our poultry products. How, then, shall we feed these increasing millions with good marketable poultry and eggs? Standard. the author of true commercial fowl culture, is full of worth, pleasure and profit, fascination. Much of the surplus talent to be found in the land everywhere might be taken from profitless pursuits, or such as yield but the bare necessities of life, and diverted into channels of absolute demand. Everywhere may be observed intelligence and education and virtue and moral merit embodied in young men and women who find scanty reward for their labors. May I not humbly urge such to give this work—scientific poultry culture—careful investigation? The inventive genius of man has placed at the disposal of this culture such appurtenance as makes of the business, in a sense, a pastime and pleasure. The old ways have been superseded by newer and better, and quicker and safer ones. Fanciers are learning how best to build comfortable and yet inexpensive houses; how to guard against diseases; how to prepare food and to know what constitutes the best food elements. Incubators for hatching, brooders for mothering, feed mills for the crushing green bones, corn, wheat, etc., green food cutters, shell grinders, tools for caponizing, sensible shipping coops, patent exhibition coops, nest boxes, feed troughs and water vessels—all these and more are found to be of service and to pay over the old ways and things.

It requires less capital to engage in either branch of poultry culture—standard or commercial—and realize a living therefrom than in almost any other that might be mentioned. Because Vanderbilt of railroad fame has gone into it extensively with yards and houses worth $15,500, it does not argue that a dollar with him goes any farther than a dollar with you, my friend, in this line of work. And of all others, fruit ranchers and orchardists should consider this business from a financial view, to engage in it.

S. L. ROBERTS.

San Diego.

[Mr. Roberts has purchased a ten-acre tract near Lemon Grove station on the Cuyamaca railroad, and is preparing to build. He will invest in lemons and poultry.]

The Revisal Committee.

The following California members were appointed by the president of the A. P. A. to serve on the revisal committee, whose duties it is to report recommendations for revisal of the standard of perfection at the next meeting of the association: Langshans, H. G. Keesling, San Jose; leghorns and spanish, Chas. R. Harker, San Jose; wyandottes, S. Tyler, Pasadena; french breeds, Jas. T. Brown, Los Angeles; water fowl, John D. Mercer, Los Angeles.—*California Orchard and Farm.*

San Bernardino Fanciers.

The San Bernardino county poultry association has grown from forty members at the organization, little over a year ago, to more than 300 fanciers. Their first show is to be held next January.

The Age of Eggs.

To test the age of eggs dissolve two ounces of salt in a pint of water, and a fresh laid egg placed in it will sink to the bottom, while one a day old will not quite reach the bottom. If the egg be three days old it will swim in the water, and if older still will float partly above the water like a boat. Eggs for setting may be thus tested in lukewarm water without injury.

Women's Success.

Marion Harland's *Housekeeper's Weekly*—Philadelphia—says that the young women of Hammonton N. J., are competitors in raising chickens, and the town has more poultry than any other in that state. Under a single roof a prominent breeder had as many as 8,000 broilers at once, as well as 2,000 hens.

Money in Poultry.

A woman named Erwin, who lives in Soledad canyon, just above Saugus, is making money raising chickens. She sends 1,000 dozen eggs to market every month and sells enough chickens to make her income $300 per month.—*Redlands Facts.*

Several years ago, when driving through Orange county, the writer was told by a thrifty farmer's wife that if it were not for their flock of 200 hens they would have had to sell their entire crop of dried fruit at a low price, while as it was the hens paid all running expenses, and enabled them to hold the dried fruit for a raise. Truly, poultry-raising and fruit farming go hand in hand.—*Southern Cultivator and Poultry Keeper.*

Marketing Oranges.

PICKING AND PACKING.

Knapp Bros. of San Diego, dealers in coast fruits, and who own a tract of red land in the Linda Vista irrigation district, are among the leaders in introducing home growths to the exclusion of importations. At the March meeting of the San Diego County Horticultural society

S. E. KNAPP

presented the following paper:

The picking, packing and marketing of the orange are matters of vast importance to every grower of and dealer in this most delicious of all citrus fruits. Important to growers because they more than anyone else are interested in its proper handling and marketing that the best results may be obtained. Important to dealers because it is always more remunerative to handle fruit that is put on the market in fine order.

In picking oranges the greatest care should be used not to injure the fruit. The stems should be severed with a sharp knife close to the orange, and placed carefully in a basket especially constructed for this use. The Cogswell fruit basket is undoubtedly the very best device invented for this purpose. It combines the greatest utility with the most absolute safety, and I take great pleasure in recommending this invention for general use in fruit picking.

After gathering, the fruit should be laid on a floor and allowed to remain a few days to shrink, that any bruises it may have sustained in picking shall be discovered. In packing, all sunburned, scarred, off-colored or puffy oranges should be excluded, classed as culls and sold as such. The fruit should be carefully selected in uniform sizes, wrapped in paper and placed snugly in the box; the first layer blossom-end down, all succeeding layers blossom-end up. The box should be as smooth, neat and attractive as possible, with owner's name on the end, the number of oranges contained in the box, and name of variety.

The marketing of the orange crop of California is a question that involves many difficulties. Until of late years the crop was consumed on the Pacific coast, the east drawing its supply from Florida and Europe, but within the past few years the orange business stimulated by the phenomenal success of Riverside orchardists, has assumed vast proportions, and already the problem of a profitable market presents itself to the grower Necessity suggests a more perfect system of distribution, the chief aim of which is to reach every part of the east with our fruit, that all may have an opportunity to buy, and to avoid gluts in the large eastern markets, thus insuring profitable returns. Heretofore most orchardists have sold their crop on the trees, or intrusted the handling of their fruit to companies especially prepared and equipped for that business. Upon the latter plan the bulk of the orange crop of the future will doubtless be marketed. With increased production lower prices must be expected, and the enormous profits of former years must inevitably be greatly reduced. The time is not far distant when none but first-class oranges will sell in the east at paying rates. It is the duty of every grower and shipper to raise the standard of excellence of fruit shipped to eastern markets. This can only be accomplished by earnest and conscientious endeavor upon the part of producer and packer. Much fruit is worked off in market that is defective and unwholesome. This cannot but have a bad effect upon the sale of good oranges. Frozen fruit should never be put upon the market. Some oranges that have been frozen are of beautiful appearance, but are dry pithy and tasteless. The marketing of such fruit serves to prejudice people against California oranges, as a person buying such oranges a few times is apt to conclude that the entire crop is equally as bad. The fact is that large quantities of worthless oranges are thrown upon the market every year, the effect of which cannot but be detrimental to the interests of both grower and dealer. The practice of working off culls as first-class fruit—done by many growers—is foolish and dishonest. No dealer or consumer will accept a brand of oranges the second time that is below what it is represented to be, except at a reduced price. Dealers are the best possible judges of fruit, quick to notice any departure from conscientious packing, and growers that send first-class fruit to market will find themselves amply repaid. Favorite brands always sell well at good prices, while poorly packed and graded fruit drags in the market.

PERSONAL.

The passing from life's activities of one whose intellectual endowments and consequent responsibilities compelled her to leadership among women has never, on this coast, caused more sincere and wide-spread sorrow than followed the announcement, late in April, of the death of Mrs. E. T. Y. Parkhurst at San Francisco. While Mrs. Parkhurst was recognized as a gifted writer, reviewer and journalist, it was her success in founding and maintaining the Pacific Coast Woman's Press association, organized nearly two years back, that brought her into sympathetic touch with sister workers, and who will now feel desolate indeed without her wise counsel, gentle influence and ambition-stimulating example. The association held a Parkhurst memorial meeting at San Francisco on the 30th of April.

* * *

Late last month there arrived in San Diego, direct from Arizona, Prof. Wm. F. Ganong of Harvard college and Rudolph Blaschka of Dresden, a distinguished naturalist, on a botanical expedition. The professor is assistant instructor in botany with Dr. G. L. Goodale, and his companion is a representative of the Blaschka establishment in Dresden that has originated the modeling in glass, in their natural size and color, of animals and marine forms for museums, etc. Dr. Goodale heard of it, and induced the junior member of the firm to come over in January last and undertake the same thing in flowers. Harvard is therefore the first institution of learning in this country to provide its botanical department with such a non-fading and perennially fresh representation of the United States' typical plants of different genera. Mr. Blaschka is making drawings only of the perennials, and will take from California sketches of wild flowers, shrubs, etc., that are not found elsewhere. He has begun here on cacti, the deer weed, the wild sweet pea, and others. The seed and bulbs of annuals, which he can grow and sketched from at his leisure, will follow from C. R. Orcutt's collection. Prof. Ganong has been going over the adjacent valleys and mesas with Mr. Orcutt to collect plants, and Mr. Blaschka has continued in San Diego his studio work, from which models will be made at Dresden. He has already had completed about 200 floral models for the college.

* * *

Mrs. Agassiz, widow of the eminent scientist, is visiting Southern California, and was in attendance at the floral carnival at Santa Barbara.

* * *

Prof. A. J. Cook tells the American Bee Journal, Chicago, on his return from this state that California is a wonderful state—"as near Eden as one can go by railroad."

Northward			Southward	
Los Angel's Exp. Daily.	Overland Daily.	STATIONS.	Overland Daily.	Los Angel's Exp. Daily.
2.10p	8.10a	lv.....National City.....ar	8.20p	1.10p
2.40p	8.40a	..... San Diego.....	8.05p	12 50p
4.16p	10.15a	..... Oceanside lv	6.23p	11.22a
6.03p	12.02p	..... Santa Ana	4.18p	9.33a
6.15p	12.18p	..... Orange.....	4.10p	9.25a
7.35p	1.17p	ar.... Los Angeles lv	3.05p	8.15a
8.00p	2.05p	.... San Bernardino.....	2.15p	7.30a
7.35p	1.38p	..... Riverside.....	2.41p	7.55a
7.52p	1.56p	.....Colton	2.24p	7.32a
7.30p	.....	ar.... *Escondido* lv	.....	8.50a
.....	5.00p	..... *San Jacinto*	11.55a	

*Tains to and from Escondido and San Jacinto daily except Sunday.

Chamber of Commerce.

San Diego Chamber of Commerce, 1230-34 F street, between Third and Fourth streets. President, Daniel Stone; First Vice-President, Frank A. Kimball; Second Vice-President, Hosmer P. McKoon; Secretary, F. H. Pearne; Financial Secretary, H. K. Coon; Treasurer, Chas. D. Long.

Directors—Frank A. Kimball, Hosmer P. McKoon, Daniel Stone, F. M. Simpson, Eugene Frandzen, C. N. Flattery, W. J. Murphy, J. C. Frisbie, H. L. Titus, Chas. D. Long, L. Mendelsohn. Executive Board—Messers Stone, Kimball, Flattery, Simpson, Long.

Directors meetings—First Friday of the month at 4 p. m. Board meetings—1 p. m. daily, Sunday excepted.

WORKING FOR THIS PORT.

During April the directors were in active correspondence with Representative Bowers and others at the National capital to compel the Pacific Mail steamship company to carry out with San Diego the requirements of the postal subsidy law. Among other papers forwarded were the complaint of the Asbestos company that freight for New York had been refused, the affidavit of Mr. Hammack that he had been refused passage from San Francisco to San Diego, etc. For his services in bringing about the delivery here of all mail for the north and east the directors forwarded Mr. Bowers a vote of thanks. They have also invited Senator Warner Miller, president of the Nicaragua canal company, now on this coast, to visit San Diego in the interest of this enterprise.

DONATIONS.

More names have been added to the enrollment, and a number will come in the first of this month. Over 400 signatures have been registered, representing twenty-eight states, Canada and England.

Donations have been made from sixteen localities of the county, including oranges, lemons, grape fruit, olives, grapes, loquats, tobacco, "indian tea," cassava starch, crackers, eggs and flowers.

The silk reel invention of Mrs. Lou Haley of 1033 State street, San Diego, (patent applied for March 15th,) has been added to the silk exhibits, also six skeins of her reeled silk. Mrs. Carrie Williams pamphlet, *Hints on Rearing Silk Worms*, appears in the case of the Southern California society.

The citron of commerce and a box of preserved citron come from Mr. Kochersperger of Paradise valley.

From "Villa Caro," Cajon, S. M. Marshall has contributed another fine display of citrus fruits, eleven varieties.

Although the almond is not expected to bear until the third year, W. Fish of Old Town shows full-fruited branches of a tree thirteen months from the seed.

Miss H. VonLowenfels, formerly of Central America, sends a sample glass of preserved shaddock or grape fruit.

The Chicago Exhibit.

Messrs. Nolan and Fishburne of the county committee for Chicago have shipped twenty-seven boxes of oranges and lemons, a framed picture of this county's display at the State citrus fair, 400 copies of THE GREAT SOUTHWEST for April and a box of ivy. They have secured a 6 foot date palm from the Coronado botanical garden to be placed in the window of the Santa Fe ticket office at Kansas City, by request of Agent Geo. W. Hagenbuch. It will be set in a zinc-lined box of curly redwood, and accompanying it is to go a large photograph of the centenarian date palms at the San Diego mission.

The Los Angeles Exhibit.

Mr. Woolman, chairman of the Supervisors' committee on the Los Angeles chamber of commerce exhibit, has forwarded another supply of superior citrus fruit for the San Diego table.

CURRENT LITERATURE.

The May number of The Californian magazine—San Francisco—completes the first volume of a monthly which in only six months has brought its illustrations to a perfection not excelled by any other periodical. The first of a series on the summer resorts and points of interest on the Pacific coast appears, and there are interesting sketches of the press of San Francisco, the national guard, another paper on the Nicaragua canal, and an expose of the opium traffic illustrated by flash-light photographs.

Tile Drainage is a pamphlet in the form of the "science primers," from W. I Chamberlain of Medina, Ohio—a "practical book for practical farmers."

With the April number the Review of Reviews entered upon its second year. One year ago it was known only to a few readers, while now its edition is 70,000 copies. The nature of the northern part of the new British empire that Cecil Rhodes is establishing in South Africa is described in an article entitled "With Mr. Rhodes Through Mashonaland." The department of Leading Articles of the Month opens with a summary of "Ten years of practical electricity."

Old literature in a new, and cheap form, is offered by John B. Alden of 57 Rose street, New York city. These are Hawthorne's Scarlet Letters and Longfellow's Evangeline, illustrated, both for 10 cents post-paid.

Strong interest has been felt in the first number of the Cosmopolitan magazine—New York—to be issued under the editorial management of Wm. D. Howells. The May number brings a distinguished list of authors, including James Russell Lowell, Thomas W. Higginson, Murat Halstead, Edmund Clarence Steadman, Brander Matthews, Edward Everett Hale, Edgar Fawcett, John Hay, Henry James, Frank R. Stockton, Theodore Roosevelt, H. H. Boyesen.

American Notes and Queries—a Philadelphia weekly—is offering $100 monthly in cash prizes for best answers to one question; for March, it was the longest word in the English language. Massachusetts and Pennsylvania furnished these—"palatopharingeolaryngeal" and "transubstantiationalists."

The April California World's Fair magazine reports progress in the Pacific coast states, and gives California's work by counties, besides papers on the literary exhibit, preservative fluids, etc.

The Business Woman's Journal—New York—shows the "business woman's dress," as designed by Anne Jenness-Miller. The skirt is short and over it falls a long redingote-coat.

Lee & Shepard—Boston—are publishing Harriet R. Shattuck's Woman's Manual of Parliamentary Law.

Julian Hawthorne furnishes the complete novel in the May Lippincott—Philadelphia. It is entitled "The golden fleece," and the scenes take in the Pacific coast and its desert slope.

County Convention.

THE HORTICULTURISTS.

The tenth quarterly meeting of the San Diego County Horticultural society met at the San Diego chamber of commerce March 29th, President R. H. Young in the chair and F. D. Waite as secretary. President Daniel Stone of the chamber of commerce welcomed the delegates, who represented Encinitas, Fallbrook, Oceanside, Escondido, Chula Vista, National City, La Mesa, the Highlands district, the Sweetwater, Mission and Chollas valleys, and the bay region. During the two days session a number of questions were discussed, and the following papers were presented: "The orange seed and seed bed," H. Copeland of Chula Vista; "How to begin on irrigated land with a minimum of capital," Dr. Wilson of La Mesa; "Marketing the orange," S. E. Knapp of San Diego. The night session, on the 29th, was held in world's fair headquarters at the Snyder building, when W. H. Somers of El Cajon, Mrs. Flora Kimball of National City, Mr. and Mrs. Young of San Diego spoke respectively on national work. woman's work, state and county work for the world's fair.

MRS. KIMBALL,

as this congressional district's representative on California's board of lady managers for the world's fair, said: "Never in the history of the race has woman been the recipient of so flattering and yet so deserved a compliment, as that by which an act of congress, creating the world's columbian commission, required to be appointed a board of lady managers to cooperate with it in making the greatest exhibit of arts, industries, manufactures, products of the soil, sea and brain ever made. The idea of woman's participation in this stupendous enterprise is purely American."

Reference was then made to the great world's fairs of London, Paris and Vienna in which women were not legally recognized, while at the centennial exposition in Philadelphia women came conspicuously to the front but without the recognition of congress with which they are today honored. A brief account of what women are doing in many of the states and foreign countries was given, the manner in which they were carrying on the work, their unprecedented enthusiasm and desire to do the sex credit. She suggested that some woman adapted to the work should make a specialty of the industries of San Diego's Mission Indians and their history, legends and educational advancement. Their laces, pottery ware, baskets and school work could be an attractive feature of the county's exhibit. Another important suggestion was that the women of each congressional district furnish for the state building a panel of wood, marble, stone, gold, silver, tin, copper or other mineral or metal to advertise the resources of California.

"If women do not succeed in this great undertaking and justify the appointment of the lady board of managers," she added, "it will be rather from lack of a knowledge of what is required of them than from a lack of enthusiasm in the undertaking. More world's fair lectures and literature are needed to make our duty plain to us."

TO ORGANIZE.

The following day was largely devoted to plans for forming an association and doing away with the old convention of delegates. The articles of association have since been engrossed in a book by Secretary Waite and left with President Young for signatures. These recite that the name of the organization shall be the "San Diego County Horticultural society" which has for its object the development of the county's horticultural and floricultural resources. Any person may become a member on payment of $1, such membership to expire at the end of the fiscal year. Any member who will plant a fruit tree or vine, or flowers sufficient to cover a space of twenty feet square, and care for them five years and report annually for that time the method of culture and success attained, and turn over to the society the gross proceeds, shall become a life member, entitled to all the privileges of the society, and shall thereafter be exempt from dues. Or, any member having an orchard now planted who will annually for five years make a detailed report of the method of culture, any insects or disease, and remedies applied, etc., together with the general results of the orchard, shall be entitled to a life membership.

The members are also to have free admission to any exhibitions held by the society. Its officers will include a president, vice-president, secretary, and treasurer, and an executive committee of five, three of whom shall be the society's president, secretary and treasurer. The regular meetings of the society are to be held on the first Tuesday of January, April, July and October, and in San Diego unless otherwise ordered. Elections will take place at the last regular meeting in each year. The executive committee is empowered to call "field" meetings.

At the July meeting officers will be elected and organization effected.

IRRIGATION DISTRICTS.

A London mortgage investment company has sent on for information as to the bonds of the Perris irrigation district.

The San Jacinto and Pleasant valley irrigation district voted, on April 16th, to bond the district of 20,000 acres in $350,000. There were but six votes against to seventy-five for the proposition.

The California supreme court ruled, in the Modesto irrigation case, on April 12th, that irrigation district property cannot be assessed to raise money unless previously ordered by a vote of the electors within the district.

The proper thing for Escondido and San Marcos to do, advises the *Times* of Escondido, is to secure independent water rights and privileges on the San Luis Rey and in Bear valley, and this need not cost to exceed $25,000, if that much, in the bonds of the district. Such rights will carry with them valuable tracts of land that can be sold for enough to cover all additional acquirments.

While the Bear valley water company is repairing Morena tunnel a pipe carrying forty inches of water has been laid through it to afford a supply for Perris and Alessandro. To provide for irrigation, the Perris *New Era* says, a four-days run of 300 inches is to be turned on every fortnight. The first run was made April 2nd. The company has begun suits against several persons who had torn up gate boxes to obtain an extra supply.

Up to April 1st the Escondido irrigation district paid $12,044.78 in claims out of $17,062.80 collected. This was divided up: Surveying and drafting $5,458, salaries of collector, treasurer and secretary $1,539, services of director $1,292, confirmation of district and issue of bonds $1,150. A statistician shows, in the *Advocate*, that for every $5 in tax collected residents of the district have paid $2, and non-residents $3; for every $5 expended residents have received $4 and non-residents $1.

J. W. Nance of Perris, president of the State association of irrigation districts, has resigned the position of director for that district owing to press of other business. The supervisors appointed L. E. Leeman to succeed him on the board.

Every one seems busy spraying trees, or getting ready to do so, with the California tree wash. Agent W. S. Hill reports large and increasing sales, both from old customers and many new ones. It seems to be the only genuine tree wash on the market, chemically combined, which both cleans up trees, fertilizes them and prevents young fruit from dropping. By using it in early spring and late fall clean trees and clean fruit for the market are assured.

Money in Cabbage and Celery.

"Blood will tell." Good crops can not be grown with poor strains of seed.

For sixteen years Tillinghast's Puget Sound Cabbage, Cauliflower and Celery Seeds have been gaining in popularity. The most extensive growers all over the Union now consider them the best in the world. A catalogue, giving full particulars regarding them will be sent free to any one interested. When writing for it enclose 20 cents in silver or postage stamps and we will also send "How to Grow Cabbage and Celery," a book worth its weight in gold to any grower who has never read it. Address

ISAAC F. TILLINGHAST,
La Plume, Pennsylvania.

COMING TO THE COAST.

For the benefit of eastern readers of THE GREAT SOUTHWEST, who desire information about Southern California, the following list of newspapers, commercial and immigration bureaus is given to which inquiries for such information may be addressed:

SAN DIEGO COUNTY.

San Diego Chamber of Commerce.
San Diego Board of Trade.
Southern California Bureau of Information, H. P. McKoon, vice-president, San Diego.

DAILIES—San Diego *Union*. San Diego *Sun*. *San Diegan*.

WEEKLIES—*Sued California Deutsche Zeitung*, San Diego. San Diego *Advertiser*. Coronado *Mercury*. National City *Record*. Otay *Press*. Oceanside *Herald*. Escondido *Times*. Escondido *Advocate*. Fallbrook *Union*. Elsinore *Press*: Perris *New Era*. Murrieta *Valley Union*. San Jacinto *Register*. Julian *Sentinel*. Banning *Herald*. Encinitas *Transcript*, *El Cajon Valley News*, Cajon. Winchester *Recorder*.

MONTHLIES—THE GREAT SOUTHWEST. The *Golden Era* magazine.

SAN BERNARDINO COUNTY.

San Bernardino Board of Trade.
Riverside Board of Trade.

DAILIES—San Bernardino *Times-Index*. San Bernardino *Courier*. Riverside *Press*. Riverside *Enterprise*.

WEEKLIES—South Riverside *Bee*. Riverside *Phœnix*. Colton *Chronicle*. Beaumont *Sentinel*. Ontario *Record*. Chino *Champion*. Redlands *Citrograph*. Redlands *Orange Belt*. Rialto *Orange Grower*. Needles *Eye*.

ORANGE COUNTY.

Santa Ana Board of Trade.

WEEKLIES—Orange *News*. Anaheim *Gazette*. Santa Ana *Standard*.

LOS ANGELES COUNTY.

Los Angeles Chamber of Commerce.
Southern California Bureau of Information, Los Angeles.
Pomona Board of Trade.

DAILIES—Los Angeles *Times*. Los Angeles *Herald*. Los Angeles *Express*. Pasadena *Star*.

WEEKLIES—Pomona *Progress*. Monrovia *Messenger*. *California Farmer*, Los Angeles. Alhambra *Review*. Azusa *Pomotropic*. Compton *Independent*. Downey *Champion* East Los Angeles *Citizen*. Lancaster *Times*. Santa Monica *Outlook*. Pasadena *Crown-Vista*. Whittier *Register*.

MONTHLIES—*Rural Californian*, Los Angeles. *Cultivator and Poultry Journal*, Los Angeles.

SANTA BARBARA COUNTY.

DAILIES—Santa Barbara *Independent*. Santa Barbara *Press*.

WEEKLIES—Santa Maria *News*. Santa Ynez *Argus*. Lompoc *Record*.

VENTURA COUNTY.

DAILIES—Ventura *Vidette*.

WEEKLIES—Ventura *Unit*. Santa Paula *Chronicle* Nordhoff *View*.

Floriculture.

FLOWER FARMING.

The result of J. P. Cavallier's effort to inaugurate flower-farming for perfumery is that the "Franco-American Flower Farming company of California" has been organized at San Francisco, with Mr. Cavallier as agent. His relatives, Messers. Cavallier of Grasse—whose perfumery house has been established in Southern France over a century—also have an interest in the California company.

THE PIONEER IN THIS INDUSTRY.

Its object, Mr. Cavallier shows, is "to acquire and lease land, to engage in flower farming and flower distillation as it is carried on at Grasse, to procure plants, bulbs and seeds, to erect a distilling plant and the buildings necessary to carry on the business of manufacturing perfumes." He continues: "It is well known that no industry of this kind exists in the United States, where perfumes imported from abroad, and chiefly from France, are so largely used. A duty of 50 per cent. ad valorem is levied on imported perfumes, and, allowing a profit of 25 per cent. to the French distiller, an article made in this country would have an advantage of 75 per cent. over and above the same article of foreign manufacture. It is also known that perfumery gives very large profits. Often only a few drops of a certain combination of scents are required to produce a large quantity of perfumed liquid, which is retailed at fancy or even exorbitant prices. While it is admitted that labor is more expensive than in France, yet flowers can be cultivated quite as cheaply here, for they grow in such profusion that a crop would not cost nearly so much to raise as in France. Taking the import duties into consideration, it can be easily realized that the profits would be very large, as real essences of flowers are expensive. For instance, real French attar of roses costs $250 a pound; orange blossom neroli costs $60 a pound; and geranium rosa, $50 a pound. As to the fitness of our climate, several trials have been made in Southern California, which have proved that flowers produced on ground which lies high, enjoys a dry atmosphere and a southerly exposure, and which is sheltered from cold winds, give, after close analysis, a percentage of essential oil equal to that obtained in France; and the geranium rosa, when grown on a large scale, has yielded by distillation an even higher percentage. These experiments have been conducted for the past two years, and should dispel the illusion that our flowers have not as much aroma as those grown in Southern France. This criticism is true when applied to flowers grown on low lands and in the fog belt, for cold fogs burn the leaves and flowers of tender growth, and too much dampness, though often helping the excessive growth of the plant, will cause an overproduction of leaf, thus interfering with and preventing the formation of the essential oil and the development of the aroma of the flowers and leaves.

"The cultivation of flowers would be carried on as in Southern France, boys and girls being employed at low wages to pick and sort the flowers in the preparatory room. The culture of scented plants would be spread outside of the company's farm among the neighboring population, instructions would be given free of charge, seed, plants, bulbs would be sold at cost price, and help and personal supervision given when necessary. At the proper seasons the neighbors could unite among themselves, as in France, to gather the flowers and leaves and sell them to the company. In this way flowers can be grown cheaply, and their culture spread over a large district, creating a new industry in the state, and giving employment and comfort to hundreds of families."

A CALIFORNIA PERFUME.

It is suggested that instead of following eastern taste there might be formed a ladies' committee, to blend and combine the perfumes of California flowers, and to decide which combination should be adopted for use on the Pacific coast.

THE OTHER VIEW OF IT.

A New York subscriber to THE GREAT SOUTHWEST writes: "I enclose a reply to an article that I see in your March issue entitled 'Perfume from Flowers' as I think the item is calculated to possibly mislead some of your readers into an unprofitable enterprise. Of late I have received a number of inquiries from the Pacific coast indicating wide-spread interest in this question. While in a small way—more for personal amusement than for any substantial commercial use—certain flowers may be raised for this purpose, the existing natural and economic conditions make it absolutely impossible to establish the industry on any large commercial scale." He heads it

"AN IMPRACTICABLE SCHEME:"

From a long experience and connection with this industry I am able to state some grave difficulties standing in the way of its successful accomplishment. A number of similar schemes have been proposed and attempted in this country during the past ten years, but without a single exception all came to grief. Several enthusiastic but deluded Frenchmen have lost considerable fortunes in Louisiana and Florida in their efforts to transplant the "perfumery material" industry from France to America. Experience has fully demonstrated the fact that there are insuperable difficulties in the way. In former days I cherished a dream of this sort myself and plunged into its investigation in California, the southern states and in Europe with the greatest enthusiasm and hopefulness, "believing there were millions in it," but fortunately discovered its commercial impracticability in time to save both purse and reputation and have since then had the satisfaction of placing this experience at the service of others similarly afflicted.

To enumerate some of the difficulties in the way of acclimatizing this French industry among us, the following may be mentioned:

1. *Quality of Flowers:* There is a peculiar change and deterioration in the odor elements of our native growths. Special qualities of soil and air in Bas Alps about Grasse have made these products peculiarly fine and delicate and so highly esteemed, that the world has given to this little mountain village the monopoly of this most interesting and delightful industry. Compared with the French products, those of the Algerian, West Indian and South American plantations and those of Florida and Louisiana are coarse and rank, and though offered for several years in our markets here at ruinously low prices, no experienced perfumer can be persuaded to imperil the quality and reputation of his products by using them—except occasionally for the coarser kind of toilet soaps. These native products are not of that fine subtle quality necessary in the better class of the perfumer's productions. A consignment of this kind has long been kicking about the market here, without takers and at any price. The experience of every manufacturing perfumer who has investigated the subject will fully confirm this.

2. *Character of Labor:* There is a wide difference in the character of labor with us, as compared with Grasse, which constitutes another great obstacle to success. The French peasants—both parents and children—have been trained to this work of growing and gathering flowers, generation after generation since A. D. 300. Darwin's theory of cumulative development in hereditary instinct and habit indicates how these workers have become so wonderfully expert and deft of touch, for the slightest carelessness or inefficiency in culling and handling the flowers is absolutely fatal to a fine product. Before sunrise hundreds of peasants may be seen winding their way down the mountain paths toward Grasse, carrying upon their heads huge baskets filled with freshly picked violets, jonquil, jasmine and other blossoms, gathered quickly while the night dew was still upon them and so cleverly and cleanly culled that in thousands of pounds of flowers not a leaf or stem could be found. Such perfection and delicacy of peasant labor would be almost impossible with us and its lack proved ruinous to the prospects of one of the finest flower plantations in Florida. The projector of this enterprise, though selecting the most capable workers in the neighborhood, found that they were quite unable, with speed and thoroughness, to separate the delicate petals of the flowers from the useless portions. Much effort was given to training this unskilled labor, but it was found impossible to overcome the difficulty; the owner—a Frenchman from Grasse—finally abandoned his purpose of large production on a commercial scale, and confined himself to a very small retail trade, with the few winter tourists who visited the locality.

3. *Cost of Labor:* Not only the quality but the cost of labor will prove prohibitive on the Pacific coast. In Grasse a sturdy peasant, his wife and three well grown children will work together contentedly in the field for less than eight francs ($2 a day, that is for their joint labor) and yet all these people are expert trained workers. Five times as much work—and better work—for only one-fifth the price that similar labor would command here! What possible chance is there for the proposed enterprise which you mention, unless this problem of cheap, expert peasant labor can first be solved? This is one of the largest elements of difficulty in successfully marketing a good domestic product against foreign competition. You must first create a peasant class like that of Grasse—content patiently to toil their lives through in poverty. Such a class, simple, ignorant, unambitious and tied to the soil, is unknown here, and the alien contract clause in our present immigration laws will prevent their importation in any large numbers.

The vast quantities of flowers required to produce even a small quantity of essential oil, or pomade by enflurage or infusion, make the cost of labor important. For instance, from twenty to thirty successive 20 kilo portions of violets or orange blossoms are thrown into a single caldron of fat to make fifty kilos of pomade. To a visitor in Grasse, this enormous quantity of flowers necessary in producing so small a product is most surprising and impressive. It takes 350 pounds of rose petals to yield only an ounce of attar of rose and 1,000 kilos of jasmine blossoms are scattered upon enfleurage frames, (being replaced daily for a month) to produce 100 kilos of saturated pomade.

An abundance of choice flowers and a large class of cheap laborers are the two essentials of success; and while both exist on the Pacific coast, yet the flowers lack that subtle, delicate quality required by the perfumer's art, and the labor is certainly neither sufficiently expert nor cheap, and so your product cannot successfully compete with that of our French neighbor. Too many thousands of dollars have already been wasted in this vain attempt to wrest from nature what she is not willing to grant. Difference of race, climate, soil and economic laws shut us out from any large success in this direction.

4. A further difficulty is found in the fact that our "great American hog" will not yield the right kind of body for making a good pomade. For many uses he is most worthy, but for this he is most worthless. Grasse manufacturers import a special lard from Spain peculiarly hard and pure. This is due to the fact that the hogs live in the forests, feeding upon the acorns, and thus their fat takes on a hardness and firmness unknown here.

5. The present customs duties—averaging twenty to twenty-five per cent. ad valorem—do not offset the disadvantage of our greatly increased labor cost, as compared with the French growers. I am personally familiar with the leading manufacturing establishments in Grasse which are devoted to these products. Several of them are exceptionally large and well organized—notably those of M. Antoine Chiris, Lautier Fils, Roure-Bertrand and Bruno Court. These firms possess the most extensive modern machinery and every economic improvement, involving the investment of millions of francs and the employment of the highest scientific skill and practical experience; yet with every advantage that nature and human ingenuity can give, present competition gluts the markets of the world, steadily bears down prices, narrows margins of profit and promises but little hope of success to any new and heavily handicapped claimant. My only object in writing this is to prevent the disappointment of hopes and the loss of capital which are sure to result from an enterprise of this kind. All who have investigated its conditions know it to be entirely impracticable, that is to any sufficiently large extent commercially, as would justify the expenditure of capital required.

F. R. W.

New York.

SAN DIEGO FLOWER FESTIVAL.

The fifth annual Flower festival for the benefit of the "triple charities"—the Woman's Exchange, the Woman's Home and the Day Nursery—will open at the Snyder building in San Diego on May 4th to continue through the 7th. Mrs. Chas. Wolfsheimer is chairman of the executive board for this festival, assisted by Mesdames Chas. Pauley, G. K. Phillips, J. D. Wood, Dr. Lottie Park, Lesem and Dr. Young.

Los Angeles' festival is set for May 16th to 21st.

Mexican Orchids in San Diego.

The tropical orchid, now in demand as the most singular and desirable of all decorative flowers, sells from $1 up to $25 for a slip. For a recent wedding in San Francisco a bouquet of them cost $150; and a similar event in Paris was distinguished by a bouquet of still rarer varieties, for which $5,000 was paid. Last week slips of the Mexican orchid, that shows a yellow blossom, found their way to San Diego, where they are now hung up to feed on climate in the greenhouse at Fifth and C. Heretofore this epiphyte or air plant has been lashed to blocks of wood or terra cotta plates, or placed in baskets of openwork wood. But better than these, some genius has found, is the block of cork. Twenty cents worth of this cork oak bark purchased at a San Diego ship chandlery store, a string and a little moss, were soon adjusted, leaving the rootlets of the bulos partially exposed. This variety is known as the "cool-house" orchid, and will thrive in a lath house in this region. Whether it will bloom in six months, or wait three years, remains to be seen. San Diego has imported orchid blossoms, but this is her first attempt at growing them.

Cost of Cut Flowers.

One of the pleasures that the majority of visitors to this region unnecessarily deprive themselves of is an indulgence in cut flowers, and solely because they are too indifferent to make inquiry as to Cal-

ifornia's prices compared with rates prevailing in other states where hot-house expenses increase values. Instead of paying $1.50 to $3 a dozen for roses to the San Diego florist, but 35 to 50 cents is required for even more beautiful blossoms than the east affords at the higher rates. The length of stems is what makes the 50 cent rate, while stock roses may be had for from 15 to 20 cents a dozen. Carnations, which are profuse bloomers here, average 15 cents a dozen. Violets, in season, are from 10 to 25 cents a bunch, according to size. Daffodils and jonquils average 50 cents a dozen; fuchias 15 to 25 cents a dozen.

According to size a corsage bouquet costs from 25 to 75 cents. Bouquets vary from 25 to 50 cents and $1 50. A basket will cost from $3.50 to $5 for the best flowers, or a smaller one may be had for $1.

During the short season of roses—February and January—a single choice rose will bring 10 cents. Boutonnieres sell for 5 and 10 cents, etc.

THE APHIS.

During spring time when the rose bushes are making a most vigorous growth and every red, juicy shoot is tipped with flower buds, the "aphis" or green louse is most abundant and destructive. Its reproduction is so marvelous that it is impossible to destroy the pests with one dose of anything, but all remedies must be frequently repeated. The most effectual cure for it is tobacco, either as a dust sprinkled upon the plant and parts affected, or smoke if the plants are in a close room, or as a decoction sprayed upon the plants. In every case plants should be thoroughly syringed off with clean water from twelve to twenty-four hours after the application of the tobacco. Another method is to treat the parts most affected with a strong spray of clear water with force enough to hit and kill and wash off the destroyers. This pest has a peculiar sucking apparatus, so that its nourishment is obtained by drawing the life from the thrifty shoots and most tender parts.

The lady bird eats the aphis and should therefore be encouraged to forage over the plants. The vedalia, which is parasitic upon the cottony cushion scale, is a lady-bird. If the leaves and buds of plants show that they have been eaten it is not the work of the aphis but of some beetle, or possibly a caterpillar. If the culprits cannot be found that are eating the posies take a lantern and no doubt they will easily be found enjoying their evening meal. Pick them off and destroy in the stove. This is sure as far as it goes, only it must be continually repeated.

REMEDY FOR BLACK SCALE.

An excellent remedy for the common black scale is 5 gallons of water, 1 pound of resin, 1 pound common washing soda. Boil till soapy and well mixed, and apply when tepid with a small spray pump or garden syringe. KATE O. SESSIONS.

San Diego.

Another Flower Farmer.

Col. Jules Berton, who was vice-consul for France fifteen years ago at Sacramento, is again in California. He is here to study the silver production for leading bimetallists and newspapers; also to see what the opening is for manufacturing perfumes from flowers. He is of the opinion, according to the *Chronicle*, that flower-farming would succeed here and has written back to France advising an experienced man who was waiting for the word from him to come on and try it. The bitter or wild orange could be cultivated for its essential oils, the neroli from the flowers averaging $50 a pound. Rose geraniums do remarkably well here, and it is significant that in France the product of this flower is being largely substituted for that of the rose.

Santa Barbara's Carnival.

The floral carnival that opened at Santa Barbara, April 20th, with a parade of flower-decorated vehicles and horsemen, was a sight unequalled in California, or even the United States. The prize-winners competed for best decorated float, carriage, phaeton, tubcart, bicycles, miniature vehicles, jockeys, equestrians, boys and girls on ponies, and handsomest Spanish costumes. There were Flora and her nymphs, haymakers, two Charleston sailors in a Malay canoe, a carriage and team draped in white marguerites, purple pampas plumes covered another, and a third was of callas under a bell canopy of these flowers. The prize float was in basket shape and made up of the gray of moss, the purple of wild violets and the pink of duchesse roses. The young women who rode in it were costumed in pink and gray, and fought in the "battle of flowers" behind shields of duchesse roses. All the vehicles had their wheels hidden by flowers. The great floral dance closed festivities the following night.

Coronado's "Flame" Trees.

Those who have never seen the "Australian flame tree" or stercula, in blossom would best keep an eye on the Coronado botanical garden at Coronado. It has three varieties of this tree now in their fourth year of growth and they are full of buds.

Poinsettias for Iowa.

The paragraph in the April issue of this journal about the success an Ohio man has had with the regal "Christmas flower," brought an order to a San Diego florist from Red Oak, Iowa, which was filled the second week in April.

F. C. Finkle, civil and hydraulic engineer, of San Bernardino, has been a resident five years and has proven himself one of the best engineers of the state. He is chief engineer of the East Riverside Irrigation District and the Grapeland Irrigation District and city engineer of the City of San Bernardino.

Each Five Gallon Can is guaranteed to contain as much fertilizing material as 300 pounds of barn manure.

This fertilizer is put up in Five Gallon Tin Cans in a clear, limpid, liquid form, free from all dirt or sediment to clog the spray. It contains all the elements of growth and maturity the tree requires. It is a perfect and reliable insecticide and fungicide. It can be used any time of the year, on any kind of tree or garden shrubbery, and will clean the blackest tree, if applied as a fog spray with the improved spray pump, in from four to six weeks after spraying. **Price $3.00 per Five Gallon Can.** One can dilutes to 200 gallons of wash. This preparation contains no caustic alkalies, no grease, soap or arsenical poisons, and if applied on the fruit, foliage and flowers full strength will do no harm.

USE COLD, NO HEATING REQUIRED.

REFERENCES:

E. P. FOWLER. H. SHAUBUT. E. AYLWORTH.

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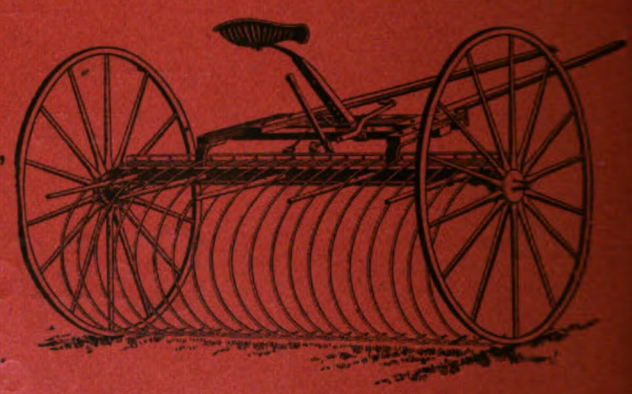

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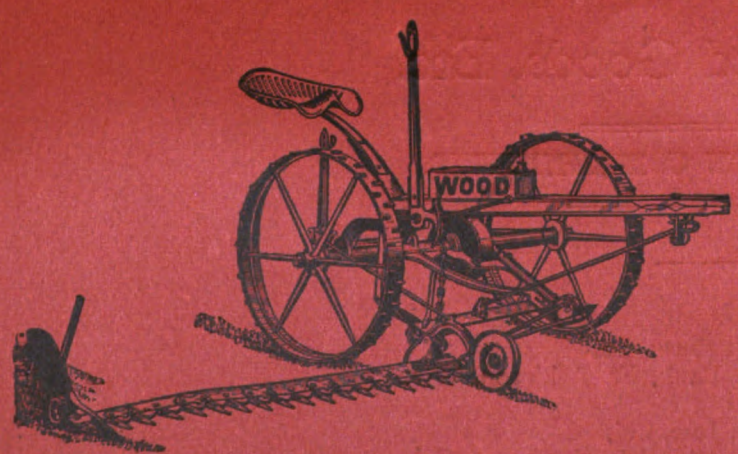

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San Diego

VOL. V. NO. 3.

DEVOTED CHIEFLY TO HORTICULTURAL INTERESTS.

THE GREAT SOUTHWEST

MARCH,

1893.

20 Pages. $1 Per Year.

LINDA VISTA LANDS.

The Linda Vista Irrigation District consists of 42,000 acres of mesa land. It is 450 ft. general elevation, with a gentle slope toward the sea. It is sheltered on the north and east by a range of foot-hills, bounded on the west by the Pacific Ocean. Between this Mesa and the ocean a high bluff arises that breaks the cold wind from off the Mesa, causing it to have one of the mildest climates on the California coast.

A gentle breeze blowing, and a dry climate makes it very beneficial to those afflicted with lung and throat trouble, having been thoroughly tested by people that are living there—especially Mr. Fred Bagby, who will substantiate the above statement. 'Tis not only a healthy climate, but is especially adapted to the culture of lemons and oranges, it being a decidedly citrus belt; pronounced so by an experienced fruit inspecter [James P. Jones] the present incumbent of the district of Southern California. This District has a light, rich red soil with a depth from 18 inches to 3 feet, with a general adobe sub-soil, continuing to a depth of 10 feet, here you strike a formation of cobble stones. The soil is easily worked and does not bake, when under cultivation.

This Mesa is free from frost, and what fogs visit it, are free from the chill and dampness of the low lands.

The Southern California Railroad runs along the western border of this district, giving easy access to and from the city. A Motor line has been surveyed, across the Mesa from Escondido to San Diego, and it will be built, as soon as it will justify the projectors.

THE GREAT SOUTHWEST

DEVOTED CHIEFLY TO HORTICULTURAL INTERESTS.

VOL. V. SAN DIEGO, CALIFORNIA, MARCH, 1893. No. 3.

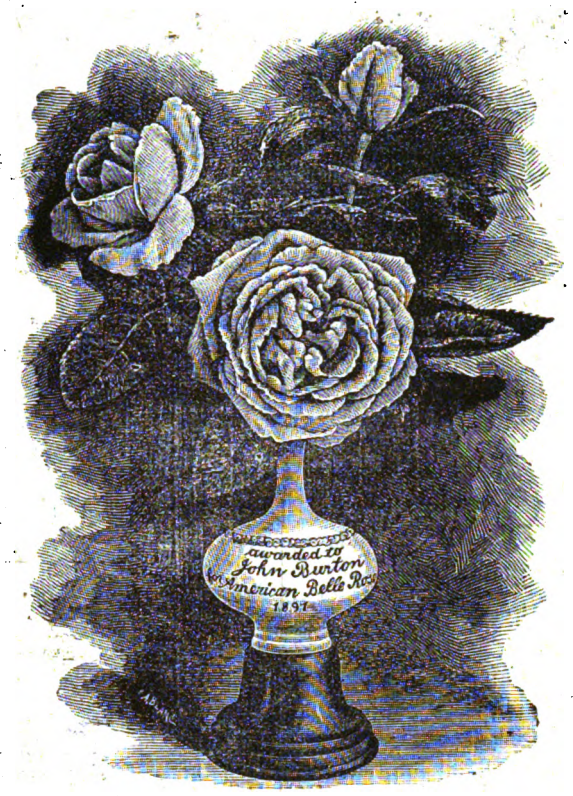
CARE VS. WATER.

BY F. H. HEALD.

Much has been written in favor of the methods and hoped for results of the Wright irrigation law and much has been suppressed in order to catch irrigation district advertisements, which has been written to point out its faults and weaknesses. I therefore appreciate the very delicate nature of an article which shall in any way detract from its support or point out any possible good which might be the result of some other method of farming in southern California, and wish to fortify with a preface that what follows is not an attack upon the Wright irrigation law at all, but is simply an appeal to the reason of thinking people who have the good of southern California at heart and the intelligence to take into consideration everything which may have a possible bearing upon so important a subject as the mortgaging of the homes of ourselves and our children.

It is possible that some of your readers will admit that there may be a spot in this county where no water can be obtained with which to flood the ground in summer. If so, then let us consider to what advantage that particular piece of ground may be used. It is very rich, well located and possesses the very perfection of climate. Can it be possible that it is entirely useless without an extravagant water supply? In the first instance, that is the piece of ground which produces some of the world-renowned San Diego honey. It produces honey because the ground is rich and a few bunches of shrubs are growing upon it in defiance of the hot sun and contrary to the idea that it will not produce without summer irrigation. It is possible that the sugar contained in the honey taken from an acre of this land will not equal the sugar contained in the raisins which might be taken from the same acre were it properly cultivated, but to add irrigation in summer you would not add sugar — only adulteration. The same ground would produce much more honey, however, if cultivated between the native shrubs. It is a law of nature we must not overlook which produces the same substance from one acre, as from another of equal strength, both having the same care and independent of which has the most water Both may be planted with grapes. One without irrigation produces 10 tons and the other with irrigation produces 20 tons, and yet each has produced five tons of sugar. The raisins grown upon the land without water are 66 per cent. sugar, while those which were irrigated large, but only contain 33 per cent. sugar. I will venture the assertion that there are twenty fruit dealers in the City of San Diego who can tell by the taste and appearance of fruit the exact locality in which it was grown. Is there a teamster in this county who does not know that his horses will thrive better and longer upon a ton of hay grown back at a high elevation in the interior dry mesa land than upon 2 tons of hay raised on the river bottom down near the sea? The difference in price is considerable, too, but not equal yet to the difference in value. Is there a housewife in the county who canno tell in a moment whether the sack of potatoes she is purchasing is the product of the dry mountain mesa or of the wet river bottom? While she may admit the superior appearance of the large, fine potatoes of the "Gospel Swamp," she will as surely invest her money in the little, smooth, hard, brittle ones, which grew upon the mountain mesa. Why? Because in the same weight she secures double or treble the value. There is no excess of water in them. When they are boiled or baked they are dry mealy and sweet, They have not been adulterated with water by irrigation or otherwise. So it is with all products of the soil. That which is adulterated makes a better showing in size only. The little gnarly Ensinetos or Manzaneta trees which grow on the dry mountain side contain as much real substance per acre at the same age as the great willow or cotton-woods which grow down by the lake with their roots in the water. The difference in size, is water. Season an acre of each in the hot sun and weigh them.

Do you know the differance in wines? Their values depend upon their substance. Champagne is made from wines grown upon terraces hemn in the steep slate bluffs of the skirting river Rihne. Sometimes they are started in soil dipped up from the bottom of the river and carried in baskets upon the heads of women and children. True they do not raise so many quarts from an acre as they would if they could irrigate their vineyards under the Wright act, but they raise more dollars worth. If they irrigated, they would not grow champagne at $5.00 per quart. but instead, they would grow claret at 30 cents per gallon. It is dollars they want, not bulk of business entirely. The work and care which they bestow upon the rock is rewarded in the value of the wine they produce. Some future day our children or our grand children will appreciate the differance in value of what they produce in this climate, better than we do now. I am firmly convinced that our climate is of more value in the production of superior excellence in our fruits, wines, and honey, then would be the difference of value in added bulk if we could flood every inch of Southern California with water. Our wine is far superior to the wine of San Joaquin Valley where there are rivers of water with which to irrigate. If we wish to grow a poorer and cheaper articie we can easily irrigate the wine or brandy af er it is made, at some hydrant, and after we have taken it to the rail road, or after it has reached its final market, thus saving the expense of ditches and time in irrigating as well as the expense of transporting by rail the added water. In other words the walue of a crop is in the sugar it contains. It may be a large crop and yet not contain as many tons of sugar as if the weight of the crop had been less. The sugar beet is very small rarely weighing more than three or four pounds, but it is almost like a stick of candy when compared with the beets of other varieties grown on swamp or irrigated lands, a single one of which often reaches the immense weight of more than 100 pounds. Let us not then say "we must have water at any price." Let us rather expend more labor in properly pulverizing the soil, and keeping it in condition to retain the natural moisture of the earth together with what rain does fall, that by so doing we may raise a smaller crop of a better quality and more easily handled. We have plenty of time to labor in our vineyards. Labor is honorable, therefore we can do it ourselves, and if it is lost we are still the winners in this, that we have better health, better nature and sweeter dreams when we work, than when we do not. If labor will return us as much or nearly asmuch additional value as irrigation will, then we make the same money without taking the risk of losing our land by bonding it for two or three times its assessed value. Of course where we can get water for what it is worth to the land there should be no objection to it and probably never has been. The only question is, what is it worth to our land. Is there not lands in this county where water as a gift would be a detierment. Will it not pay us to be more careful about these immense bonding schemes. Try the scheme of raising some fruit which does not require a flood of water and find out if its real value is not equal to the value of something cheaper, which we might have raised with a flood of water. In doing this we do not mortgage our homes; we do not leave an indebtedness for our children to pay; we are not under obligations to some great corporation, who loan us money with the hope of bleeding us, and we cannot then be dictated to by other people to whom we must pay tribute. Instead of leaving a vast bonded indebtedness for an inheritance let us by honest toil and thoughtful activity, leave them a legacy of unincumbered, producing realty. Transmit to them, health, muscle, and braens enough to give to them the independance of American Citizenship.



"AMERICAN BELLE" ROSE AND THE CUP WON AT NEW YORK, 1891.

Through the courtesy of Messrs. John Gardner & Co., Seedsmen, 21 North Thirteenth street, Philadelphia, we are enabled to present our readers with the above cut of the "American Belle," which has taken first honors at recent exhibitions at New York, Philadelphia, Boston Chicago and Cincinnati.

PLANT THE LEMON.

If we were going to give any advice to those contemplating the planting of a citrus fruit orchard this season we should say, "plant the lemon," if the location is all right for it.

The lemon tree will not stand as much cold as the orange tree, but both trees will stand more cold than the fruit of either tree will stand. A locality may be subject to so cold weather tha neither the orange nor the lemon crop can be saved, and yet the trees of both varieties will grow nicely—after they are in orchard two or three years.

There are many reasons for planting the lemon. The demand is greatsr than the rupply and will be for twenty, or probably fifty years to come.

It is more trouble to care for the lemon crop than for the orange crop, and hence there will be more failures, or at least unsatisfactory results, and hence it will take longer to supply the United States market with United States lemons

If the right locality is found, the returns are more rapid from a lemon orehard than from an orange orchard, because and only because the lemon ree is a more vigorous grower, hence has more bearing capacity when in orchard four years than the orange.

A lemon tree ehould bear as much at five years as an orange tree at seven years. If in a right locality there is no necessity for a failnre in lemon culture; all it needs is intelligedce and strict attention to business. This is necessary in almost any kind of business, although in some kinds of farming moderate returns are had when there is lack of both elements.

The time is coming when the orange market will be overdone, and the orthardist will be compelled to play second fiddle to the packer and middlemen. Such a state of affairs cannot obtain in the lemon business during the lifetime of anyone now ready to plant an orchard.—*Orange Belt.*

Southern California growers have demonstrated that fresh vegetables grown in this State can be profitably shipped to the East. This result has more importance than the mere fact that vegetables can be remuneratively raised here for export. It means that settlers cultivating new land for orchard purposes can make their holding return them an income the first year. In setting out new orchards there is always ample room between the rows of young trees for planting small fruits, such as berries and vegetables, without interfering with the growth or development of the orchard. The trouble in the past has been to find a ready market for such product. This has now been secured and is sufficiently extensive to make improbable any oversupply. —*Pacific Rural Press.*

To persons who travel over San Diego County from north to south and from the mountains to the sea, the extent of rich orchard lands is surprising. A hundred thousand people could find homes witnout crowding and could find any climate to suit and soil that would be adapted to raising citrus or deciduous trees and all small grainsat prices to suit all pocket books.

AS OTHERS SEE US.

THE GREAT SOTTHWEST is now under the management of W. T. Brown, and one of the San Diego journals, "devoted chiefly to horticultural interests." *Science and Horticulture.*

THE GREAT SOUTHWEST has changed hands, W. T. Brown having assumed the management, and under his able direction shows a marked improvement. —*Julian Sentinel.*

THE GREAT SOUTHWEST is now edited and published by W. T. Brown. The February numbor, just received, shows a marked improvement editorially as well as in typographical makeup. —*Escondido Times.*

THE GREAT SOUTHWEST this month comes in a highly improved form with a handsome cover. The publication is now in the hands of W. T. Brown, whose efforts during his first month have been so successsul as to guarantee continued success.—*San Diego Union.*

THE GREAT SOUTHWEST, under the new management of W. T. Brown, is at hand. It is a beauty typographically and valuable and interesting editorially. It deserves the hearty support of all horticulturists.—*National City Record.*

Quite an improvement is noted in THE GREAT SOUTHWEST under the new management of W. T. Brown. It comes in an attractive form, and shows the marks of careful editing.— *Chino Champion.*

The February number of THE GREAT SOUTHWEST announces a change in management, W. T. Brown having taken charge of the editorial department. In this unrivalled southwestern country there is a magnificent fieid for a high grade horticultural jovrnal, and there seems no reason to doubt that the new editor will make a success of the publication.—*Recorder.*

THE GREAT SOUTHWEST now appears under the mnnagement of W. T. Brown. Its well-filled columns, replete with information on matters horticultural, idicates an experienced hand at the business. Its typographical appearance is decidedly neat, and the paper should receive liberal patronage. The subscription price is only $1 per year.—*El Cajon News.*

THE GREAT SOUTHWEST comes to the front again in a February number. It has been greatly improved and remodeled and bears a neat typographical appearance, well filled with interesting matter for the horticulturist, whose experience and support should be given to the publisher, W. T. Brown. We welcome this interesting monthly to our exchange list.—*Otay Press.*

THE GREAT SOUTHWEST, a publication issued at San Diego in magazine form, comes to us again full of good things, put up in excellent shape for the delectation of the public. It has just passed into new hands, and to judge from the present number, the management is posted on what constitutes a good publication, or in other words, know their business. Success to 'em.—*Orange Belt.*

THE GREAT SOUTHWEST is the name of a very able and interesting publication, issued at San Diego, California, by W. T. Brown, and devoted chiefly to horticultural interests. It is a neatly printed and well conducted newspaper in all its departments. It is issued monthly in quarto form, with an attractive cover. Subscription $1 per year.—*Lower Californian.*

Our Egg Business.

We have often mentioned the fact tnat the Santa Ana District is a great egg producing section, but we wish to again assert the truth of our statement and back it up with afew figures. During the past six days 366 cases of eggs were shipped from this city. Each case contains 30 dozen, so that 10,980 dozen eggs were sent out in the past week. This means still further reduced, 131,760 eggs. The average price paid was 18 cents per dozen, so that the income was $1,976.40 Considering the fact that the weather has been disagreeable, the hens of this district are to be commended for the industry exhibited. —*Santa Ana Blade.*

Mammon should not make all our laws.

Almost anyone can milk a cow but few can do it properly.

A good breed of men is as important in business as good breed in live stock in farming.

The Eastern tourists are becoming infatuated with the country around Merle. It is rapidly becoming a garden spot.

The Otay mesa, east of the town of Otay comprises a large, level stretch of fertile land. Although but little known is among the best land in the country and is selling at very low figures.

Z. M. Potter, living on the Mustard Ranch, has one hundred and sixty-two acres sowed to mus'ard and he says with sufficient rain he can raise enough mustard to put a plaster all over California.

Flattering reports come from Fallbrook. With water their country would soon be covered with orchards and vinyards from West Fallbrook east including Old Fallbrook, the Red Mountain District and south taking in the San Luis Rey valley.

Mr. Bowman from Nuevo reports every one in his neighborhood as wearing a smile. There was never so much ba.ley growing as there is this season and the general outlook is good for the rancher. Mr. Bowman is an extensive orchardist.

Gulick Bros. have been very busy filling larger orders this season than ever before for citrus orchards. They have still a few very choice trees in stock to dispose of. They solicit correspondence. Their principal offices are at Riverside and San Diego.

The Sweetwater Nursery Company report thus far the largest sales they have ever had. The quality of their stock has been first class and their prices have been popular. They are reliable. They will offef great inducement the balance of the season to all who want nursery stock.

OUR RAINFALL.

The total rainfall for San Diego, for the year 1891-2, was as follows:

	Inches.
September	.0[illegible]
October	.04
November	.10
December	1.[illegible]3
January	1.58
February	2.[illegible]6
March	.9[illegible]
April	1.41
May	1.15
June	.13
July ann August	.0[illegible]
Total	9.75

Are you an orchardist? If so you can't afford to do without THE GREAT SOUTHWEST.

In answering advertisemenus in this journal be sure and say where you saw the ad. You will gain thereby as our readers are served with the best.

THE GREAT SOUTHWEST goes across the land like the perfume of the sweet violets—inspiring its readers with joy and satisfaction. Only one dollar does the business for the next twelve months.

Our Mr. Richa dson does not receive a single advertisement from any one whom you cannot safely patronize. Read every one of them and make your purchases from them.

We believe that farmers should have seats at the first table.

If you want the mortgage paid off take THE GREAT SOUTHWEST.

The attention of postmasters is especially directed to onr great club offer in this issue. Remember it is good only until May First.

Ranchers can safely patronize the merchants who advertise in THE GREAT SOUTHWEST.

Hughes and Co. are strangers in our city. Call and see them at 944 Sixth street, San Diego.

C. W. Pauly and D. C. Reed of this city have been named as state harbor commissioners by the governer. No better selections coul dhave been made.

R. A. Thomas has sold 220 acres of his ranch in the east of the valley to Henry Timpkins of St. Louis. Mr Timpkins is a man of unlimited means and we understand that he will set 100 acres of the land to citrus trees this season. Mr. Thomas only reserved the 80 acres which is occupied by his house and orchards.—*Escondido Advocate.*

Mrs. Webb and daughters will sow five acres to onions th s spring. They ive in Chula Vista.

If you are a farmer, why don't you take THE GREAT SOUTWEST? If you are a good horticulturist, why don't you take the only horticultural paper in San Diego county? If you read THE GREAT SOUTHWEST you will encourage the interest for which you are laboring so hard.

A BARGAIN.

One fine upright piano cheap and on easy terms—parties want to leave town. Address P. O. Box 816, City.

CALIFORNIA ITEMS.

The Palo Alto stock farm is the most noted in the world for raising valuable horses.

An English walnut tree at Vallecito, Calaveras county, measures nine feet in circumference, and is probably the largest in the state. It produces annually a large crop of superior nuts.

The Mariposa big tree grove has 427 big trees. The largest is thirty-four feet in diameter. Through a tunnel or hole cut in one, a four-horse stage is driven daily.

The largest sequoia tree in circumference is in Tulare county, given by United States surveyors at 109 feet. The tallest is the "Keystone" in Calaveras, being 365 feet high.

The first olive trees planted in this state were at San Diego in 1769. They are still producing fruit.

The tallest cornstalk ever reported was raised last year in Anaheim, Orange county. It was thiriy-six feet high.

The largest Irish potato reported last year was from San Luis Obispo county. It was forty-six inches long and weighed thirteen pounds.

Yosemite valley is not equalled in the world for sublime scenery, with El Capitan 3.300 feet perpendicular and Yosemite falls over 2,500 feet high.

San Bernardino county has the greatest number of miles of railroad in operation, 647, assessed at $1,469,145.

San Mateo is next to San Francisco, the smallest county, containing 459 square miles.

The largest onion reported last year was on exhibition at Los Angeles. It was thirty-six inches in circumferance and weighed seven pounds.

The largest tomato tree in the world is at Rialto, San Bernardino county. It is nineteen feet high and on the third day of last December, 119 ripe tomatoes were picked from it.

It is claimed that Sierra has produced more gold than any other county in the state.

The first printing press used in California was at Monterey in 1834.

The largest flouring mill in the state is at Crockett, Contra Costa county with a capacity of 6,000 barrels a day.

The first shipment of wines to France was in 1891 from Napa county, consisting of 800 puncheons.

Ventura county is the largest producer of Lima beans in the world; one ranch alone produced fifty-six car loads in one season.

The oldest settlement in the northern part of the state was by the Russians, who built Fort Ross, Sonoma county in 1811.

California is the only country using the combined harvesters, run by a traction engine cutting a swath forty feet wide and threshing and sacking grain as it proceeds.

Oakland has more miles of patent stone sidewalk than any other city in the world. She has over 110 miles.

The largest fruit orchards in the state are those of General Bidwell, of Chico, consisting of 65,250 trees, producing in 1891, 5,780,000 pounds.

Sacramento is the largest shipper of green fruit, hops and vegetables of any point in the State.

At Ontario there is a street railway where horses draw the cars up grade on Euclid avenue, for six miles and then ride back.

A train of seventeen cars loaded with hops left Ukiah, Mendocino county, consigned to London, valued at $30,000.

The country seats about Menlo Park are not exceeded in this country, millions having been spent in beautifying residences and grounds.

San Bernardino has the largest number of artesian wells, over 400 in number varying in depth from 100 to 400 feet.

CANNED OLIVES.

The following letter which has been received by Mr. R. H. Young, secretary of the Chamber of Commerce will prove of especial interest to San Diego county people emanating as it does from so high an authority.

Prof. Henry, the writer, is the owner of a twenty acre lemon orchard near Chula Vista. He is also director of the Agricultural Experiment Station, Madison, Wisconsin.

"*R. H. Young, Secretary,*
Chamber of Commerce,
San Diego, California.

"DEAR SIR:—As you are aware I spent last summer in San Diego. I was very desirous of bringing back east with me some of your San Diego olives. Fearing that glass bottles would break in transit, I thought of placing olives in tin cans. Mentioning the subject to different individuals I was told by some that the olives would not keep, and by others that the tin cans would in some way poison the fruit. Just as I was in despair in the matter, Mrs. Dean of the Woman's Exchange told me that her daughters, when visiting her from Montana had purchaeed olives in San Diego, had them sealed in tin cans and had taken them to their homes in Montana, keeping them for months and that the fruit had proved satisfactory.

Acting on the evidence I purchased at Sill's six quarts of olives from the Old Mission. This was about the first of August, and thes olives were the only ones I could find in the market. At a tin shop on Sixth street I secured three two-quart common tin fruit cans and, taking these to the store, filled them with olives and brine to the top. Again back to the tin shop, where they were sealed up and later placed in my trunk where they remained during a two-week's visit at Riverside, and a ten-day's stay in San Francisco and thence home about the first of September.

Shortly after arrival one can was found to be just as good as when sealed up. Two months later a second can was opened and a week ago the third can. My only regret now is that I did not bring more cans with me, as the fruit was just as good as when put into the cans at Sill's in August.

In reply to the objection that the cans would in some way taint or poison the fruit, let me say that on several occasions I partook very heartily of the olives and watched closely to detect any unpleasant effects. So far as I could see the more I ate of the olives *the better I felt.*

Why cannot California olives be placed in tin cans the same as other fruits and vegetables and thus pass into the general trade. Put up in this way the cost of the package would be very small as compared with the present high-priced fancy glass packagss in which all European olives are sold. If in tin, a person knowing the brand could be certain of what he was purchasing even though he could not see the fruit at the time.

Olives cannot come into general use until they are sold at a reasonable price. The European olive put up in fancy botties is not a general food article, but as a rule used at special dinners, suppers, etc. The California olive should occupy a new position in our food list, and become a common article on the tables of well-to-do people. I believe this can can be made possible by shipping them in tin cans of various sizes.

There may be objections to this system, but so far I see none.

Another point. These olives were entirely different from those of Europe, and as far superior as a ripe peach is to a green one. When our people have learned the taste of a properly cured California olive I think there will be very little demand for the foreign fruit. Californians should not attempt to imitate the foreign fruit either in its green color or fancy way of packing, but place the choice, properly cured article in such form and at such prices as will command a large trade. This seems easily possible if fruit can be shipped in tin cans.

W. A. HENRY,
Director Wisconsin Agricultural Experiment Station.

ADVICE ON LEMON CULTURE.

As the acreage being set to lemons is steadily increasing, a few general hints upon the subject of curing lemons may be of use to the amateur lemon grower, writes R. L. Threlkeld for the Los Angeles Herald. Gathering the fruit is the first step in the process of curing. Care should be taken to remove the fruit from the tree as tree as soon as it is large enough, without reference as to its greatness, or rather its ripeness. The fruit should be clipped, not pulled off, as it reaches proper size—about the size that will pass through a three-inch ring may be called the proper size. Care should be taken to clip the fruit at a uniform size and to handle it with caution to prevent bruising. After gathering, lemons should be placed in boxes, about the size of an ordinary apple box, and set in a cool, dry place, there to remain, say two or three days, when they should be carefully removed from the boxes and wrapped in tissue paper and carefully packed in lemon boxes (such as are used for shipping lemons and oranges.) Care should be taken not to pack too closely or to pack the boxes too full. When they are carefully wrapped and packed in the cases they shouly be put away in a cool; dry places, placing these carefully packed cases in tiers about five cases high and side by side—fifty, sixty, or 100 boxes may be stacked together. When the cases are thus placed they should be covered with old sacks, horse blankets or other ordinary covering, where they may be permitted to remain for say fifteen or twenty days unmolested. It may be well to remark that dryness in curing lemons is quite as essential, if not more so, than coolness; for if the temperature is lowered in any manner whatever by contact with dampness, lemons will rot before the chemical process of wilting, yellowing and absorption begins. The cases, after being packed, should be placed say half an inch apart, so as to admit of the circulation of pure air, not forgetting that a draft of air should be avoided. After the fruit has remained in the cases, piled and covered as indicated, for say fifteen or twenty days, the grower in the meantime lookin into some of the cases occasionally to see what progress it is making in the way of curing, the fruit should then be upacked, unwrapped and permitted to lie in the open air—carefully avoiding a draft—for an hour or two, when it should be carefully re-wrapped with new tissue paper and re-packed into dry, clean cases and again piled and covered as before, and again permitted to remain in the cases for twenty, thirty, sixty or ninety days before being placed upon the market.

It may be best to say that in the repacking and re-casing if any of the lemons are found not to have any assimilation with the process of curing; if they show no signs of discoloration; are green, knotty and rough, they should be thrown out, as they are, and always will be, worthless stock, and a few such in each box would condemn the whole lot.

That uniformity in size is a very important factor in establishing the grade, and thereby the good name and market value of lemons grown and placed upon the market from Southern California, and growers should look well to that point.

Varieties are not so important as the clipping, assorting and handling. Some buyers prefer the Eureka, others the Lisbon and others again the Villa Franca; but all agree as to uniformity in size, great care in clipping and absolute caution in handling the fruit, both in removing it from the tree, in placing it in cases and with watchfulness in its curing.

If these suggestions are carried out, we believe that California cured lemons will command in the market as good prices as foreign grown stock. Very many people in this part of the country have not undertaken the cultivation of lemons from the fact that they feared they would fail in curing them—unless they first provided themselves with double walled houses and cemented cellars, which they deemed necessary for the purpose, and which they, many of them, were unable to do. We believe, from tests made, that while double walls and double roofs would be quite useful in the curing of lemons, curing can be done without these, care in clipping and handling being more important than anything else. It is true double walls and roofs would tend to reduce the temperature, but it is not of so much importance as care in handling.

THE GREAT SOUTHWEST,

BY W. T. BROWN.

$1.00 Per Year. Published Monthly.

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The Advertising and Subscription Bureau of the city has control of all advertising in THE GREAT SOUTHWEST, for California and the Pacific Coast; All orders for space and payment for same from the above territory should be addressed to J. S. RICHARDSON, 1422 D Street, San Diego, Cal. All other communications should be addressed to THE GREAT SOUTHWEST, San Diego, Cal.

MARCH, 1863.

THERE is a rich harvest in store for the company that first builds a line of railroad directly east from San Diego. A line built through Yuma, Phœnix and Albuquerque to a connection with the Rock Island at Liberal, Kansas, would traverse a territory destined to be the greatest wealth producing section of our country and would shorten the distance to Chicago many hundreds of miles. It seems strange that railroad builders do not improve this opportunity. It sounds very well to say railroads will come when business warrants it, but railroads must make the business and bring the population to a country like that referred to; in which it is impossible for people to settle and build homes without some way of reaching the markets, and a way, too, that does not absorb the larger share of the product. That climatic changes will occur as the country is settled and the lands plowed and trees planted, which will render irrigation to any great extent unecessary, there can be little doubt. There are many precedents to warrant such a conclusion. No man need hesitate to put his money in a railroad from San Diego east.

FROM the Associated Press dispatches it is learned that the executive department at Washington has made a discovery. It seems suddenly to have dawned upon the president that the export demand for gold is a part of a conspiracy entered into by Euopean bankers. This conspiracy has been apparent to the people for a long time but it does not strike their representatives until its purposes have been accomplished The "how not to do it" idea seems to predominate in all our public affairs. Take, for instance, the building of the Nicaragua caual. Why is not the canal itself as good a basis for the issuance of money to cover its cost as the bonds of the government.? There is enough silver in the treasury vaults to build the canal, if economically expended. But nothing will satisfy the politicians and money changers except an issuance of bonds. The object of all financial legislation proposed, seems to be the perpetuation of the National banks.

A Mr. Miller of Winchester has planted 4000 prune trees.

THE NEW ADMINISTRATION.

By the time this issue of THE GREAT SOUTHWEST reaches its readers, the executive and legislative branches of the government of the United States will have passed out of the control of the republican party, the party, which has held it entirely or in part for a period of thirty-two years. In looking back over the last election it can hardly be said that the result was an endorsment of the democratic party. It was rather a repudiation of the republican party, the forceful expression on the part of the people, given to the desire for a change. Viewing the two platforms at Chicago, there is so little difference between them that the result of the election must also be regarded as an endorsement of Mr. Clevelands personalty—and his view of the tariff—views little in accord with those expressed by his party in National Convention. A tariff is a tariff whether levied for revenue or protection, and it will be remembered that the Mill's bill differed but slightly from the old schedule in the average amount levied. Mr Cleveland's past utterances on this subject have clearly indicated that he favors a reduction with a big R. What will be done remains to be seen. If the president is greater than his party, as has sometimes been suggested, we may look to see some of his ideas engrafted up on the public policy, That he is not in accord with his party on either the tariff or the silver question is apparent.

For thirty-two years the democratic party has been a party of negation, opposing anything advocated by its great rival. This is its first opportunity since '60 to originate measures for the good of the people with a fair propect of having such measures enacted into law. If it have the courage to do this, much may be accomplished; if on the other hand it hesitate and attempt to blind the people and spend its time trying "how not to do it," its supremacy will be short lived. The people are awake and are watching their servants as never before. They demand lower taxes, better markets, less extravagance, more money and protection from the corporations which are enriching themselves from the daily toil of the millions, and these things they must and will have.

THE WORLDS FAIR JUNIOR EXHIBITION.

A visit to this exhibition just closed, must establish the conviction that no other territory of the same extent presents so great and varied an amount of material for the developement of the necessaries and luxuries of human existence. The cereal display was excellent beyond comment; the varieties of fresh fruit and vegetables surprising at this season of the year in the north temperate zone.

Among the various contributions, were beautiful specimens of crystalized fruits by Mrs. D. McLaren, Chollas Valley.

Large pears and quinces presevred in sulphur water by F. J. Clark, Dubyer,

Large japan prunes in spirits, by Mr. D. F. Markle, Escondido.

An enormous cluster of dates raised by Dr. Payne, San Diego City.

Fine specimens of Villa Franca Lemons, by San Diego Land & Town Company.

Large pomelos pears, fine Eureka lemons and extra large Washington navel oranges, by I. P. Harvey, El Nido.

Fine lemon guavas, by Mrs. L. D. Bailey, Jamacha.

Japan Persimmons by E. H. Bower, El Cajon.

Large sweet-rind lemons, by Q. S. Roberts, San Diego Cal.

Mediterranean sweet oranges, by D. B. McFadden, El Cajon.

Fine Newton pippins and strawberry guavas, by Lillie Henderson, Chula Vista.

Fine grape fruits and a variety of oranges embracing Bonnie Brae, Malta Blood, Joppa, St. Michael, Majorica and Tangerines, by S. M. Marshall. El Cajon.

Fine Eureka lemons, by E. L. Heins. Olivia.

Large grape fruits, by Miss Anna and Wm. W. Wilson.

Extra large Washington navel oranges, by C. D. Todd, La Mesa.

Large soft shell walnuts, by G. W. Ford, Santa Ana,

Elegant displays of dried fruits, by I. P. R. Hall and H. Culbertson, El Cajon.

Extra fine prunes, by J. W. Carpenter, Fallbrook.

Among the contributions for which premiums were awarded were those of E. L. Williams, Chula Vista, oranges.

Southey and Crosby, El Cajon, large elegant display of raisins.

E. S. Allen, San Diego, fine Eureka lemons and best variety display of fruits jellies, marmalades and preserves.

Manuel Retz, Escondido, dried fruits,

Mrs. T. G. Clellens, Mesa Granda, fine english walnuts.

The elegant display of olives and olive oil, by W. C. & F. Kimball of National City is one of the greatest advertisements of the resources of the state and also of the enterprise and ability of the exhibitors.

G. D. Stead & Co, of San Diego who have established an important industry in the city, exhibited a large case containing a great variety of soaps of their own manufacture.

The La Pinta works exhibited some fine specimens of crystalized salt.

A highly interesting feature of the exhibition was the silk department displaying the different stages of the manufacture, from the cocoon to the woven fabric. In this department premiums were awarded to Mrs. W. W. Collins, Mrs Lou Perris and Ladies Silk Culture Society.

Among the ornamental industries were to be found delicate porcelain painting, by Mrs. M O'Brian, San Diego.

Wood carving, by Mrs. Geo Johnson and A. P Doull, San Diego.

Artistic decorative needle-work, by Miss Florence B Richards, San Diego.

Models of various objects in clay, by Mame Ingram, San Diego.

Handsomely draped and tinted ostrich feathers from the American Ostrich Company.

Crayon portraits, water colors and oil paintings, among the last some striking pictures, by Edith A. Young. whose techique is productive of beautiful effects in brilliancy and harmony of color.

Among the Curiosties, were ripe cotton boles from a plant seven years old, from W. C Kimball National City.

A large case of insects embracing handsome specimens of lepidoptera and neuroptera.

A great variety of specimens of fish and hells.

Among the minerals were some beautiful specimens of rubellite from Point Loma.

On the whole the fair has been a great success, and an occasion long to be remembered by the thousands of visitors who were in attendance during its progress. Mr. R. H. Young, secretary of the Chamber of Commerce and chief promoter of the exhibition was every where and to his untiring zeal the satisfactory results are largely attributable. Our readers need not hesitate to urge their eastern friends to be sure to see San Diego County's exhibit at Chicago.

DIVIDING COLONIES OF BEES.

I will only give you my best way to divide, and where we do not wish to divide but once. We will suppose that the bees are gathering at least honey enough for daily supply, and that the hive is chuck-full of bees. Now bring on the new hive, with its frames filled with foundation, lift out the combs untill you find the queen, then hang the frame of bees with the queen on it in the new hive, and one more with it; shake enough of the bees off of the other combs in front, or into the new hive to make a rousing colony, then fill it up with frames of foundation, and place it on the old stand, carry the old hive off to a new location, and put in the places where you took out the two frames of bees for the swarm, frames filled with foundation, though the bees will not use them until they recruit, but they will be there ready.

Some make colonies this way, except they do not shake any bees into the new hive, and let all the old field workers make up the colony by returning, when they leave the old hive and return to the new one. This is wrong, and the reason I shake what bees I wish with it at once is to get both youug and old bees the same as a natural swarm, and for me they work off as nicely as any natural swarm I ever had. But when you only let the old bees form the colony, you deprive the hive of its active inside workers, and throw it out of natural channels, and then if a honey-flow sets in, the old bees disappear too quickly, or before a new crop of bees come in, and the hive is at a stand-still, or on a down-hill course until the young workers get ready for the field. But this state of things is remedied by shaking, as stated, and the new colony will at once resume a natural course, and work just as well as any swarm; while the old colony will not work at all for three or four days, or at least not much, and should be looked after about stores, until it has a working force.

Now the old colony will state queen-cells, and after they have all their brood

capped, open the hive ahd take out all the queen-cells but one of the nicest ones, and then you have no after-swarming, and the reason that I want you to wait until the brood is all sealed is then the bees have no chance to start more cells and swarm in spite of you, and then this would cause an inferior queen in the hive, should it swarm, as the larva would be to old that they make the queen from.

Should the cell you leave them fail, from any cause, to hatch, then swap one frame with the new colony, and give a frame of brood and eggs, that they may have a chance to rear another queen. Or should the queen get lost on bridal trip, or fail to lay from any cause, take her out and give the bees a chance to rear a good one; or if you do not wish to wait, send to queen breeder and get one. In short, if you are going to make a beekeeper, you will not let the conoly perish.

Now as we have our bees divided and working nicely, we will begin to prepare them for the honey-flow. If the harvest comes on soon after the division, the new colony will need sections first, as we will produce comb honey first, then try extracted.

When the bees seem to be gathering more honey than they need for brood-rearing, or when we see the tops of combs with white specks on them, this is a sign that they are begining to gather a surplus. Now bring the sections, filled with the thinnest foundation you can get (and when I say "filled," I mean to have it fasten at the top of the section, and lack one-fourth of an inch of touching it any where else). The reason I want them filled is from a common-sense standpoint, that if a slice of a watermelon is good, a whole melon is "gooder" Why? Just because there is more in it. I have found that it paid me to fill the section with foundation.

At first we will only put on one tier of sections, and when the bees get well started on them, we will, if honey still comes in and the general prospects warrant it, put on another crate, by lifting up the first crate, and placing a new one under it. I usually leave a partly-filled section in the lowest crate; this serves for a bait or for a string of bees clear from the top of the brood-nest to the upper cate, as the bees will at once cluster where the honey is; but this is not so very important, as they soon go to work and fill up the empty space as soon as possible, any way.

As soon as the old colony needs sections, we will give them in the same manner We will not discuss any particular hive or crate, but will be expected to use those that some of our most extensive and successful honey-producers use as they are sure to use the best. —*Mrs. Jennie Atchley, in American Bee Journal*

Capt. Keene, living in the Sweetwater valley, has sold from two acres of lemons five years old, since last November, 380 boxes, and expects to sell as many more before next November. The ones sold were sent to San Francisco, the net receipts amounting to from $5 to $6 per box. Who comes next?

SMALL LAND HOLDINGS AND LARGE PROFITS.

The most desirable and prosperous agricultural communities are those in which the ownership of land is limited to small holdings. Any rural community which has passed the stage of large land-holdings and imperfect tillage, and has arrived at the condition of small holdings intensely cultivated, has made notable progress in civilization. There is as wide a difference between the two conditions named as between the Texas cowboy and the Riverside orange grower. The man who owns in any part of the United States a thousand acres of land from which he derives a support for himself and family by its cultivation, is far less likely to be a man of the highest type, and to enjoy the comforts and luxuries of our best modern life, than the man who owns and cultivates ten or twenty acres in California fruits.

The owner of a hundred thousand acres and ten thousand cattle often feeds his family on canned milk made in Switzerland and oleomargarine made in Chicago The man who harvests 5,000 bushels of wheat in the northwest must send his children to the county seat to school, and supply his scanty table with such luxuries as he may purchase in distant markets. In short, large holdings of land necessarily indicate a more or less crude, if not even barbarous, mode of life. The school, the church, even the home, does not exist as become civilized man in this age.

HIGHER CIVILIZATION DEMANDS SMALLER HOLDINGS.

Most demands for a subdivision of land in all ages and in all countries have been born of the promptings of a higher culture and mode of life. The nomadic tribes of the great plains and mountain fastnesses, are little amenable to civilizing influences so long as no separate or individual proprietorship in land is recognized. Our own government has found out at last that whenever land is apportioned in comparatively small allotments among Indian tribes, however little civilized, the influeuce is for good, and progress marks the event. In short, it is the almost universal testimony of the ages, that whenever man has wrought out his destiny by the careful tillage of small areas, he has assumed with time a more gentle nature, and the savagery in him has been more effectually subdued than elsewhere.

ONLY TORRID REGIONS PERMIT SMALL HOLDINGS.

Unfortunately, however, climatic and other conditions render it impossible in many parts of the earth for mankind, however industrious and prudent, to subsist in a manner becoming our era upon very limited individual holdings of land. In the far north, whatever might be the fertility of the soil, or the facilities of making the most from its cultivation, only a simple crop of some specific kind may be forced from the half warmed soil during the course of a year. Large areas there to a great extent are a prime necessity, and a sparsely populated region is a final result. In fact, the experience of mankind from remote ages has shown that it is only in such countries as are blessed with mild climates, wherein the soil may be kept in crop-bearing condition throughout most of the year, that densest populations have most comfortably subsisted.

DENSE POPULATIONS ON SMALL AREAS

We need scarcely refer to the immense population sustained for thousands of years in the valley of the Nile, nor to the teeming populations along the shores of the Ganges and the Indus. In modern times we may cite the nations around the shores of the Mediterranean. Italy, with only three-fourths that of California, now sustains a population of over 30,000,000; and we may add, a standing army nearly thirty times as great as that of the United States. Spain, only one-fourth larger than California, has over 17,000,000 people; and France, with a territory smaller than that of Texas by over 61,000 square miles, maintains in comparitive comfort more than 38,000,000 people. That the French people are generally content is abundantly attested by the fact that they are little disposed to emigrate to other countries indiscriminately, or to found colonies in new and distant lands. That they are phenomenally prosperous is shown by the enormons deposits in the banks of France, and by the ease with which the Germans collected the prodigious amount of blood money demanded at close of the Franco-Prussian war some twenty years ago. In no country on earth, except one occupied by small land owners, could such a financial feat have been possible.

SOME ASIATIC COUNTRIES.

Japan contains only 94,500,000 acres of which only about 18,000,000 are under cultivation; and yet, so well tilled is the land, and the holdings so small that we find there a population of 40,000,000 in a high state of civilization and enlightenment.

The Punjaub, in British India, comprises much less territory than California, and yet maintains now a population of over 20,000,000, and the recent development of irrigation works in that country under direction of the British government will add very materially to its capacity to sustain human life.

SOUTHERN CALIFORNIA AT THE HEAD.

From the examples above cited, and from a consideration of the remerkable capacity for production possessed by the soils of Southern California under benign influence of the matchless climate, which hovers over that fair portion of earth as a brooding spirit of Beneificence, we may easily assign to the southermost six or eight counties of this state the ability to sustain in comfort or even luxury, a population of at least 200 to the square mile of their entire territory.

Making due allowance for mountain chains, which may never yield other crops than water—really the most valuable of all crops—Southern California has the undeveloped capacity to sustain a population greater than at present living in any other American state. Those now on the ground can scarcely realize the peculiarly happy conditions of their environment. With a soil beneath their feet which, under intelligent husbandry smiles with a perennial harvest, and with an over-arching sky as blue and soft as that of fairest Italy, the dwellers in Southern California may well be envied of all men.

A notion prevails to a great extent in the East that only rich men may own land in this favored land; that orange groves and raisin valleys are only in the financial reach of the capitalists. This is a wholly erroneous conception of the conditions now obtaining in this region. As a matter of fact those who own the finest orchards and vineyards are, as a general rule, those who came to this country almost empty-handed only a few years ago and many of them were shattered in health as well as in fortune. If land was cheaper in earlier times, the orchardist had not the long experience of a thousand who had preceded, to guide him in the selection of land and the varieties of fruit to plant. He must strike out for himself in the wide and ill-defined field of experiment, from which he sometimes returned discomfited though not discouraged.

Happily those pioneering days are over, and the man of limited capital who is able to reach this section of country with a few hundred dollars and a fair amount of physical strength, coupled with a determination to succeed, is as certain of obtaining a reasonable reward for his labors as in any other region of the world. Let no man who has cultivated hundreds of acres as land is usually cultivated east of the Rocky Mountains, be deluded by the notion that twenty acres of Southern California soil, under a good system of irrigation, is too small a farm. It will be found sufficiently large to absorb his entire time and attention; and after a few years of earnest and zealous care, will be found to yield a reward, greater than ten times that area upon the stony hillsides of Connecticut or the blizzard-swept plains of Kansas.

SUGGESTIONS TO NEW COMERS.

Let it not for a moment, however, be understood that a man may come and succeed who does not possess some of the elements nescessary in men who succeed elsewhere. It requires labor, patience, business tact and perseverance to reach satisfactory results in California as elsewhere.

Be content with a small farm. Be satisfied to devote your energies to ten acres, or, if possessed of capital, twenty acres. This latter amount of land is sufficient for the maintenance of any American family, however refined their tastes, provided that reasonable economy rules the household. Be willing to learn of your neighbors. Do not eternally prate about the way pursued "back East." Identify yourself at once with California and with the district in which you locate. You will find good neighbors anywhere provided you are a good neighbor yourself. Send your children to the public school—it will be found as good as the one you left "back East" and probably a great deal better. Don't grumble too much about taxes and the rate of interest—they are always high in new and progressive communities.

Finally, if you come in the spirit and do these things, you will bless the day that decided you to break away from the old associations and establish yourself and family amid new and hopeful surroundings here on the shores of the Pacific. In fact, while basking in the mid-winter sunshine of your new home among orange trees and olive, and, contemplating your own condition as well as that of your neighbors, you will feel that

"There is a land, of every land the pride
Beloved of heaven o'er all the world beside.
Where brighter suns dispense serener light,
And milder moons imparadise the night"

and that land is SOUTHERN CALIFORNIA— *W. C. Fitzimmons in Weekly Orange Belt.*

RAINFALL FOR FEBRUARY.

Mr. M. L. Hearne, Observer Weather Bureau, for San Diego, reports that .47 of an inch of rain has fallen at San Diego, during the month of February. The normal amount of rain for February, should have been 2.36 inches. The total rainfall, for the rainy season, up to March 13th, inclusive, has been for this locality, 7.00 inches. The yearly amount of rainfall for San Diego is between 11 and 12 inches.

During this past winter, feed has suffered somewhat, but there is time enough yet for our usual amount of rain, as it rained last year into the month of May. The rain during the past season has fallen gently, and nearly all of it has been retained by the soil to benefit growing crops. Probably as much good has been done to vegetation by the rainfall this season, as double the amount not so well distributed. Farmers in San Diego county are feeling cheerful, for they have good prospects of making a fair crop.

This last abundant rain will do much good to trees which have been let out this spring in this locality. The sate rain will insure their life, and prouuce a good growth during the coming season.

CASTLE CURE COMPANY.

A WONDERFUL CURE.

TESTIMONIAL OF MRS. LOTTIE ENGLAND

For some six years past I have been a victim and sufferer from the use of both opium and morphine. The habit had become so fastened upon me that I believed the use of these poisons was as essential to my existence as the air I breathed. For quite a period oftime I little dreamed of the terrible evil and its fearful power and effect that I was daily allowing myself to become a slave to. At last I realized the full danger of my situation, and was conscious of the fact that in all likelihood I would have to give up my life as a penalty to my uncontrolable desire for morphine. For a year past I have used daily on an average from thirty to forty grains of morphine. I tried every means in my power to release my-self trom the deadly curse, but could not do it by any will power or resolution of my own. Morphine I must have and would have, and there was nothing I would not do to get the poison, although I knew it was dragging me down to the grave In my despair and loss of all hope to escape from my terrible enemy I became reckless, and there were many times I would have welcome death as a kind messenger or a relief from my suffering, pain and slavery to morphine. In this condition I was induced by friends to go to the Castle Cure Institute, in the Manvel building, on Sixth and D Streets, and present my case and see if anything could be done for me. I went there on the 11th day of January last, and the managers assured me they could and would cure me if I followed strictly their instructions. Then I went under treatment, and from that hour to this my health steadily improved, and now thank God, I can truthfully say, that the Castle Cure Company has done all it contracted to do in my case and has effected a thorough and permanent cure. I am now cured of the fearful habit, and those who are suffering as I was can find a certain cure at the place where I found it.

In passing through the cure I suffered no pain or distress either in mind or body, but kept steadily gaining strength and in two weeks time a new life seemed to dawn upon me, and now the furture looks bright to me once more, and I am in better health every way than I have been for years past. To the able managers of the Castle Cure Company who attended me during my treatment, I am very thankful for their kind and encouraging spmpathy and careful attention at all times, and morphine sufferers will find true friends in these gentlemen who will guarantee a cure, no matter how bad the case may be.

MRS. LOTTIE ENGLAND.

February 8, 1893, at San Diego, Cal.

Pacific Coast Weather Service.

Great injury has been done to fruit growers as well as to every line of industry in California, by the recent breaking up of the Pacific Coast Division of the Weather Bureau, and the withdrawal of the general forecast officer Lieut. John P. Finley, who naturally asked to be relieved from detached duty and returned to his regiment. The Pacific Coast Division of the Weather Bureau was established about three years ago, for the special benefit of the people living west of the Rocky Mountains and as a neccessary adjunct of the Weather Bureau at Washington.

The climatology of California is peculiar, owing to the great length of the state from north to south, and to the varied topography affording unusual differences of elevation from nearly 300 feet below to 15,000 above sea level. California feels the effects of tropical influences as well as those of the temperate zone. Two ocean currents, very different in temperature, touch the western coast. In the Japan current, in the Northern Pacific, there is found an abundant source of food supply for storms. Currents of air arising from this vast stream of warm water, flowing through the ocean from west to east give the initiatory movement to cyclonic disturbances, which strike the Pacific Coast and pass eastward across the continent. The cold Alaskan current, flowing down our western coast, condenses the moisture of warmer currents, and produces fogs, that abound along the Pacific Coast.

The wet and dry seasons of California depend on the movements of the low barometers across the state, which are drawn further south by the southern declination of the sun in winter, and thus precipitate their moisture at that time, giving California its rainy season.

The Rocky Mountain chain divides the continent from north to south into two grand divisions, whose climatology differs essentially, but these grand divisions are dependent and mutually influence each other. As storm centers form in the Japan current and pass across the continent from west to east, it is very essential that they be studied very early in their development, from the nearest point possible, rather than from such a distant point as Washington. On this account it was deemed necessary to station a competent general forecast officer at San Francisco, who would have every opportunity to study cyclonic disturbances arising from the Japan current, and give warning to navigators by danger signals, and who could also give especial attention to Pacific slope climatology.

Fortunately Lieut. John P. Finley was selected for this very important work, which was in fact little inferior in magnitude to that performed at Washington. Lieut. Finley was eminently qualified for this post of duty, through the instruction given in the best colleges in this country, and by a long and successful career as a practical meteorologist. His contributions to our knowledge of storms are very important. His investigations in regard to the dreaded tornado are based on much original observation, for he has followed in their paths for hundreds of miles at a time, and studied their movements from every point of view. He has studied the character of 600 tornadoes, and was the discoverer of the fact that the tornado always develops in the southeast quadrant of the cyclonic disturbance, a discovery which the Institute of France declared to be one of the most important ever made in meteorology. He has been honored by membership in foreign societies, and had been for a long time a forecast officer in washington.

Lieut. Finley was therefore placed in charge of the Pacific Coast Division in May, 1890, and was stationed at San Francisco. At first, with all his former experience as a forecast officer, the meteorological conditions of the Pacific slope were so peculiar, that he found it impossible to attain a high per cent. of verification of his predictions. But by enlarging his area of observations, by a careful examination of his study charts, and by the knowledge which a born meteorologist will naturally obtain by experience, he finally attained as high per cent. as is attained elsewhere. He was highly complimented by the chief signal officer at Washington, and made a host of friends on the Pacific slope, by his valuable bulletins. But in the midst of his work, suddenly the Pacific Coast Division was broken up by political influences and Lieutenant Finley could not do any thing less than to ask to be relieved from detached duty as a general forecast officer, and he returned to his regiment. We will draw a vail over this affair, as it is not very creditable to those who broke up the Pacific Coast Division of the Weather Bureau. Since this time, we regret to say, the local weather bulletins issued at San Francisco have been almost valueless to the Pacific slope.

We trust that our senators and representatives in Congress will look after this matter, and, when it is brought to the knowledge of President Cleveland, we confidently believe he will restore the Pacific Coast Division, and place Lieutenant Finley again in charge of the same, an act that would give eminent satisfaction to the people living west of the Rocky Mountains.

PACIFIC COAST WEATHER—ESPECIALLY THAT OF CALIFORNIA.

BY LIEUT. JNO. P. FINLEY, U. S. ARMY.

It must be accepted at the outset that the weather of any place can not be intelligently explained and certainly could not be comphrehended or successfully forecasted from information based solely upon local surroundings and happenings. This is especially true of a level country and sufficiently true of a mountainous one to make the assertion unquestioned. The weather of any locality depends, in the first place, upon its geographical position relative to the paths along which general atmospheric disturbances travel over continents and about the world. These disturbances are known technically by the designation of cyclones (Low Barometer) and anti-cyclones (High Barometer.) They closely resemble in development, eddies in a stream of water. The water eddies, of a few inches to several feet in diameter move with the general course of the stream, and, although controlled by the entire mass of moving liquid, have a peculiar and independent axial circulation. The atmospheric eddies, having a diameter of 500 to 1500 miles, are under the influence of the general motion of the atmosphere from west to east, but independent of this general control, they have a peculiar circulation about their centers, which is called cyclonic in the case of Lows and anti-cyclonic in the case of Highs. In the former the air flows inward along the surface of the earth to the region of lowest barometric pressure, and there ascends to the upper regions of the atmosphere, say an altitude of 20,000 to 30,000 feet, flowing outward in all directions and gradually descending to the earth. The Highs are formed from the air descending from the overflow of the Lows in the upper regions of the atmosphere and therefore high barometric pressure, gives rise to cold, dry air in contra-distinction to Lows in which the air is warm and moist from contact with the earth.

The weather charts of the Pacific Coast Division of the U. S. Weather Bureau present an outline map of that portion of the United States west of the

110th meridian, upon which are shown the stations where observations are taken daily at 8 a. m. and 8 p. m. and telegraphed to certain centers for study and distribution. The observations consist of readings of the barometer, thermometer, direction and velocity of wind, state of sky (whether cloudless or otherwise), and amount of rain or snow. These data are entered in symbols and figures upon the map. Barometric pressure is indicated by continuous lines, called isobars drawn through stations having the same readings, and for each difference of one-tenth of an inch in the height of the barometer. Dotted lines called isotherms, connect places of the same temperature and are drawn for each variation of ten degrees. The direction of the wind is indicated by arrows, which point the course of the moving air.

The general movement of storms in the United States is from west to east, the areas of which appear to conform to a series of rather rounded atmospheric waves. The crests are marked "High" and the troughs or depressions are marked "Low." These alternating Highs and Lows, several hundred miles apart have an average easterly movement of about six hundred miles per day. Many of these disturbances enter from the Pacific ocean, particularly those affecting the weather of the Pacific slope and plateau regions. Their general features, over the ocean, are much the same as when moving on the land. They strike the coast in the vicinity of Vancouver Island, and, either disappear over the interior or move across the country to the Atlantic.

Upon the latitude of their easterly movements, depends the recurrence of the "Wet" (winter) and "Dry" (Summer) seasons of the Pacific slope. From October to April, inclusive, the Low centers trend farthest south, while for the remaining months of the year they pass eastward north of Washington.

Generally speaking the rainfall of a place diminishes as its distance from average course of storm movement increases. Although strikingly illustrated on the Pacific coast, the varied topography of that region gives rise to local peculiarities of more or less prominence. The extreme southwest portion of the United States is so far removed from the usual course of centers of Lows and Highs that only abnormal developments affect the pronounced uniformity of its climate, which is generally under the influence of secondary effects from these centers, combined with the proximity of the ocean.

During the "Wet" season, strong winds and rain, and, when cold enough in the mountain districts, snow, usually precede the Low centers, often extending a distance of over five hundred miles, but decreasing in amount of severity from the coast. In advance of the Low, and under the influence of its system of circulation, the winds become east to south with increasing cloudiness and warmer weather. When the center of a low passes to the east of a place, the winds shift to west and north, giving rise to lower temperature and clearing skies and, in winter, frosts. The cloud and rain area in front of a Low is about the size of the latter and oval, with the west side touching the center of the Low, ahead of which it advances most rapidly in a southeasterly direction.

As the centers of Low strike the coast, generally from the northwest, the succesive phases of weather progress southward from British Columbia, under the influence of which isobars and isotherms have a strong tendency to conform to the general direction of coast line. Fogs develop along the coast in the "Wet" season as the Low centers pass eastward into the interior.

The weather phases, during the "Dry" season chiefly result from the Highs, combined with the influence of the ocean, the Lows being too few and too far north to exert a predominating influence. An absence of decided waves of High or troughs of Low pressure indicate a continuence of existing weather conditions, a change from which will usually first appear from the north in winter and from the west in summer.

California lies south of the principal path of Highs and Lows across the continent of North America. Not even during the wettest of the wet seasons do the lows pass eastward further south than over the extreme northern portion of the state, near the latitude of Red Bluff. During the summer they pass eastward over British Columbia and California then experiences her dry season. From the north and south fluctuation of this storm path, near the 50th parallel of north latitude, California gets her weather. As a natural result rainfall diminishes from north to south over the state and the deserts are in the extreme southern and southeastern portions. Under the influence of topography as shown in her mountains and valleys, the maximum amount of precipitation is found in the former, next in the valleys and least on the deserts.

The cold Alaskan current along the coast is strongly instrumental in the formation of fogs when the disposition of barometric pressure over the plateau regions is favorable to a pronounced flow of air from the ocean, hundreds of miles to sea, over the Pacific slope. With a contrary disposition of barometric pressure, forming a High over the plateau regions, the flow of air inland from the sea is checked, the temperature rises and "warm northers" prevail.

Thus we find that California weather results from atmospheric conditions which develop and prevail far to the north and east of the state, without a knowledge of which it would be impracticable to make reliable forecasts or ascertain the laws governing the climatology of the most remarkable and promising state in the Union. In no portion of the United States will the careful and comprehensive study of weather and climatology compensate better, or in the majority of instances as well, in the interest of science and industrial pursuits than in California.

THE CITRUS FAIR AT COLTON.

We are in receipt of an invitation to the Fourth Annual State Citrus Fair for Southern California to be held at Colton begining March 15th. There should be a united effort to make the meeting surpass all its predecessors. The following is taken from the premium list, a copy of which can be had by addressing the Secretary, Mr. J. S. Wood at Colton.

"By order of the State Board of Agriculture the Fourth Annual Citrus Fair for Southern Califronia will be held at the new Horticultural Pavilion at Colton, under the direct management of the Twenty-Eight District Agricultural Association, commencing on Wednesday evening, March 15, 1893.

The jurisdiction of this fair extends over what was formerly the Sixth Congressional District, embracing the following Counties:

San Diego, San Bernardino, Los Angeles, Orange, Ventura, Santa Barbara, San Louis Obispo, Kern, Tulare, Fresno.

After full consulation it has been determined to conduct this Fair with a view to developing the citrus fruit industry of Southern California, the main contests for premiums being largely scientific tests as to quality of fruit, under such conditions that neither awarding judges nor even the owners of the fruit can locate the ownership of the fruit prior to making the awards.

Large premiums are also offered for County and locality displays, and also for individual displays and artistic designs, but it is hoped that in making artistic designs the fruit and not the lumber and trimming will predominate.

The Fair management will pay all freight on exhibition goods to and from the Fair; also all drayage from depot to Pavilion and return. This rule is to cover all goods entered for competition and all goods belonging to the World's Fair Dress Parade.

MUSIC AT THE GREAT FAIR.

We are in receipt of an autograph letter from Mrs E. O. Smith, President Board of Lady Managers of California. Requesting the publication of the following:

MUSIC AT THE FAIR.

CALIFONIA MUSICIANS AT CHICAGO THE CHANCE OF A LIFE TIME.

There will be semi-monthly concerts in the Woman's building at Chicago during the great Columbian Exposition, at which only women and girls will be allowed to appear. They may be vocalists or instrumentalists, but must be amateurs. No prodigies or professionals will be allowed. Appearance in these concerts will confer a lasting distinction. Only those will be admitted who have been examined by a local board, appointed by the State Board of Lady Managers, and are prepared with the proper credentials to present to Theodore Thomas. The examining board so far appointed for this State are: For vocalists, Professor H. B. Pasmore, 1424 Washington street, San Francisco, and Theodore Simmis, M. D., of Los Angeles; for instrumentalists, Prof. J. H. Rosewald, of San Francisco, and all communications regarding this department must be sent to them.

There will also be a California musical day at Chicago, the date of which is being arranged for and will probably be some day in the latter part of June, when the National Concert Hall will be turned over to California mucicians and the Exposition Orchestra will be provided for one rehearsal and one performance free. This is open to musicians of both sexes. To increase the interest in this it is proposed to run an excursion, to be known as the California Musical Day Excursion." No examination is required for appearance at this grand concert. An official invitation from Mrs E. O. Smith, President of the State Board of Lady Managers, who is also chairman of the Musical Exhibit, being all that is necessary. All communications with regard to appearance in this concert must be addressed to her at 59 Flood Building, San Francisco. Mrs. Smith has been fortunate in securing for the Excursion Committee Miss Alvina Heuer, 2117 Taylor street, San Francisco, and Mr. Judkins 59 Flood Building, San Francisco who will answer all communications with regard to it. It is to be hoped our musicians will come forward and avail themselves of this opportunity and thereby assist in giving California its place in the musical world.

WHAT WE CAN GROW.

The products of Southern California comprise about everything of use in the way of fruits, vegetables and grain that can be grown anywhere in the world. The exhibits that are now being made up in this part of the country for the world's fair. Show what an extraordinarily large variety of products we have. Hardly another region of the same proportions in the whole world can make a similar showing. Among our fruits are oranges, lemons limes, olives, figs, pomegranates, nectarines, guavas, the raisin and wine grapes, and all kinds of semi-tropic nuts, which flourish side by side with peaches. pears. plums and prunes and some varieties of apples; while among grains, barley, rye and corn and some what are standard crops; and of the grasses, alfalfa is very productive, five or six crops of which can be cut in the course of the year if thourghly irrigated, and on "moist lands" the same can be done without irrigation; and alfalfa, which is a sort of wild clover, as well as the burr clover, grows wild over both hill and vale, affording excellent forage for stock,

All localities are not equally well suited to all of these productions, but Southern California produces all of them in abundance within some portions of her borders, and sustains, as well, immense live stock interests, both in cattle, sheep and hogs, the best blooded stock being largely represented. The honey crop is also an important one and so are the lima bean and pampas plume yields. The grains are grown without irrigation, the winter rains being sufficient to perfect the crops, which are sown in winter and harvested in spring or early summer. A second crop can be easily grown the same year on irrigated lands.—*Pomona Progress.*

DEDCIDUOUS FRUIT ORCHARDS.

The present season has witnessed a market revival in the planting of deciduous fruit trees, and in view of this fact a few figures as to the cost of planting a decidous fruit orchard may be of interest. We would state the figures given allow a liberal estimato for the cost of planting and are conse-vative in so far as the yield is concerned. Further, we have placed the cost of the unimproved land at $200 an acre, but there is much good land for deciduous fruits that can be had cheeper by considerable. We tabulate as followes, basing our estimate on the acres.

Cost of 10 arces, at $200	$2000
Planting, care and water first year	300
Care and water, second year	200
Cost of tress. 100 to an acre	200
Interest at 10 per cent on $2700 for two ye rs	540
Total cost for two years	$3240

The orchard will bear some fruit the second year, and should bear enough the third year to pay for its care and the interest of the investment, After the third year the orchard may be considered in full bearing and will yield. either in peaches or apricots, five tons per acre on an average. If apricots are planted this will equal one ton of dried fruit to the acre, or ten tons for the orchard, The peaches at the same number of tons would average seven to one unpeeled and four to one peeled. Basing the value of the crop on the prices that prevailed last season the yield would be $225 to $250 an acre, or $2250 for the ten acres. A conservative orchardist, who has kept a strict account with his orchard, says that two and one-half cents per pound will cover the cost of the dried product of his orchard including interest on the investment. At last season's prices this would leave an average net profit per pound of nine cents, or, say, $1800 on the investment of $2700 is certainly sufficient and accounts for the great revival in the planting of deciduous fruit tress. —*Citrograph.*

A writer named Atkinson says in the Chicago "Inter Ocean": "The praise of California's climate I believe to be instigated by Eastern people who are loaded down with California real estate and desire to get rid of it, even if they do mislead the sick and dying by their statements. The true California people say little of their climate. Commenting on the above the California Fruit Grower has the following:

"Evidently Mr. Atkinson did not visit San Diego during his sojourn under our sunny winter skies. Yes, we quite agree with Mr. Atkinson that California people say little of their climate. They know it to be beyond all praise and instinctively feel unable to do the subject justice—hence do not attempt it."

Elsewhere in this issue will be found a well written article entitled, "Care vs. Water" by Mr. F. H. Heald, president of the Exchange Bank of Elsinore. Some of our readers may not agree fully with Mr. Heald but his ideas are at least worthy of earnest consideration. This is the initial number of a series of articles on the same and kindred subjects which, Mr. Heald has promised us.

AMONG THE POULTRY.

Give your chickens fresh water daily.

Give your fowls all the exercise possible.

The game is the best table fowl we have.

Give a good variety of feed regularly and not too much of one thing.

Stale bread, milk and a few finely chopped onions maked a fine food for chicks.

Do not handle the eggs in the incubator too much, it will often spoil the hatch.

Remember that fat fowls are not the best layers. Keep them in good flesh, but not fat.

For the incubator "chicks," mix corn meal and bran well together and give it to them in the morning.

Have you attended any of the poultry shows? If not, do so, and find out what other fanciers are doing.

Capons grow nearly one-third larger than cockerels, hence are profitable, as they always bring a good price in market.

Coal ashes sprinkled in the poultry house makes a good disinfectant, keeping away the odors and making it easy to clean.

Some people do not know that eggs that have been chilled are spoiled for hatching. If intending to set some hens very early, keep this in mind.

The size of an egg is not of so much importance to the average buyer as its appearance. Pure white eggs, with clean shells, always sell well, even if small.

Hen manure should always be kept in a dry shud or box, and well mixed with road dust. Handled in this way it is the best fertilizer the farmer produces.

Give your fowls as much room as possible, and yet economy must be used in the matter, or the poultry business will have a balance on the debit side at the close of the year.

Look out that roup does not start in your flock. It is caused by cold, dampness, exposure to rough weather, and neglect. Prevent its presence by care, good shelter, and dry, clean hen-houses.

Remember it pays the breeder to use the best stock, no matter what the cost is. Some breeders are in the habit of breeding inferior stock, and advertising them as choice stock, asking high prices for the same. In all such instances satisfaction is never given.

Fowls are never properly fed unless they are fed regularly. They look forward to meal time as any one may see who notes their actions and are restless and discontented if they do not receive their food, just as their attendant would if similarly treated.

The production of eggs mainly depends upon the quality and proper qualities of the food and upon the laying qualities of the breed. The best layers will not yield a large supply of eggs, unless they have the proper kind of food for the material.

A REVOLUTION IN MUSIC.

Wonders Will Never Cease. Two Papers or the Price of One. $40.00 Worth of New Music and The Great Southwest One Year for $1.50.

The New York Musical Echo is quite a novelty in modern journalism and affords a grand opportunity to amateur pianists and vocalists. It is a large quarto musical publication, published monthly, each number containing *thirty-two full size pages of sheet-music*—the brightest, livliest and most popular selections of the day, both vocal and instrumental, together with a pretty cover on which is a full-page portrait of some beautiful actress or singer. The music and portrait change each issue.

Here is a specimen of the contents of one of the issues of this wonderful musical publication. Every month a complete change, making at the end of the year the most comphrensive and complete musical library to be obtained anywhere.

The portrait of Marie Tempest and the following music in January issue:

INSTRUMENTAL.

La Guitare.
Rain Storm Gavotte.
Dance of the Gnomes.
Please, Another Waltz.

VOCAL.

Farewell, Oh, Farewell.
The Song My Mother Sang.
The Wild Rosebud,

A YEAR'S SUBSCRIPTION

Means 384 pages of music and twelve fine portraits. We want our friends to be careful of each number, to bind and preserve it, as duplicate copies will soon be a thing of the past. If you will bind the Echo you will have the finest selection of popular vocal and instrumental music that could be bought for any price. It will be a constant source of pleasure and delight to you.

We take great pleasure in making the annonncement that by speeial arrangement made with the New York Musical Echo, we can send THE GREAT SOUTHWEST and this popular musical magazine one year for the price of the Musical Echo alone. The price of THE GREAT SOUTHWEST is $1.00 and the Musical Echo $1.50. Both may be had ne year for $1.50.

Sample copies of the New York Musical Echo sent on receipt of 15 cents. Address THE GREAT SOUTHWEST,
909 Fourth Street,
San Diego, Calif.

The Walnut in Southern California.

On lands suited to their growth there can be little doubt that walnut growing in California is a profitable enterprise. Some growers assert that only near the coast in the southern parts of the state can the walnut be grown with the best results; while others, notably Mr. Felix Gille, maintains that the walnut may be profitably grown over a much wider area, extending to altitudes of two thousand feet or more and to distances quite remote from the sea. A Santa Ana writer to an Eastern journal says of the Southern California walnut crop:

"The walnut crop of this region will within a few years, be immense and some persons predict a great drop in prices. But the consumers also increase rapidly and if the grower can have the United States market, with little foreign competition, prices will remain good. I know of no other state that raises them in any considerable quantities. And in California the successful growth of the nut seems to be confined to four counties, where the temperature, exposure to the ocean breeze and occasional fogs. Central and northern California do not seem to have made a success at growing the nut. The hot dry valleys of the Sacramento and San Joaquin are not favorable to the growth of the nuts, although the trees will grow but fail to yeild. So also in San Bernardino and San Diego counties but little has been done at raising these nuts. We have two varieties in this region, the hard and soft shells. The latter find most favor being of thin shell, and bearing for profit at six years from planting, while the hard shells usually require eight or nine years from the setting out. Also the soft shells sell for one cent more per pound; but I presume they go alike in Eastern markets.

I have heard that it requires eighteen years for them to come to bearing in England and France, while in its native Persia it will bear in eight years. And the fact that it bears in six years in Southern California indicates tnat only here it finds the conditions of growth most nearly resembling those of its native home. — *California Fruit Grower.*

Until May 1st.

In order to induce our friends to assist us in placing **THE GREAT SOUTHWEST** in the few remaining homes where it is not found and to enable them to send it to their friends in the Eastwe have decided tomake the following unequalled offer:

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And an extra copy free to the person sending

❀ ❀ in the list. ❀ ❀

❀ ❀

You cannot afford to do without the paper. It will contain much that you want to know. It will be improved constantly. Some of the ablest writers on matters in which you are interested have been engaged to contribute articles to its columns. If you have the welfare of your Eastern friends at heart you will send them the paper that they may learn of this beautiful land of ours.

Remember

This offer positively closes MAY 1ST and do not delay.

Address

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THE GREAT SOUTHWEST.

Vol. V. SAN DIEGO, CALIFORNIA, JUNE, 1893. Whole No. 42.

A PLEA FOR BOTANICAL GARDENS.

The productions of California and the West Coast of North America ought to be vast indeed, and her geographical position should assure her a wonderful commerce. I, for one, think the people of North America are just entering upon an era of commercial development such as the world has never yet seen. It must not be a mushroom growth, a "wildcat" retrogression, nor a wasteful groping in the dark, but a careful, prudent, scholarly, scientific and comprehensive adaptation of means to an end.

Commercial Asia, Oceanica and the Central and South American coasts are willing to take much of your surplus, and they have much to offer in payment. It is not, nor has it ever been, good political economy to wastefully try to produce that which other portions of the earth can naturally produce better and more cheaply. There would be no sense in spending several days in knitting a pair of hose, no sense in spinning your own yarn, weaving your own cloth, cutting out and making your own homespun coat. There is no sense in Florida trying to grow cocoa-nuts, nor in Louisiana trying to grow subsidized sugar; the planters will sometime be convinced that the tropics are the true home of such products, and that their energies would yield greater results in the republics of Central America or the Guianas.

California, as I understand it, has as yet merely scratched the surface of the kernel of agri-horticultural development. Experiment stations, economic and botanical gardens are yet destined to teach her and the great Northwest much, and furnish pointers to the true possibilities of climatic production. Generally speaking, the regions of the earth's surface which may be expected to yield staples for the energetic elaboration of the California progressive population, are those regions belting the tropics of Cancer and Capricorn, and embracing (outside your own State) portions of Mexico, Texas, etc., and in the old world, the great regions of the Mediterranean, Persia and northwest India, together with portions of northern China, and Japan.

In the Southern Hemisphere the sub-tropical arid belt embraces less land, but yields many products which may possibly be cultivated with profit. Already the pampas grass grown in California is sent East by the train load, and the vast region beginning on the coast of Peru, and embracing so great a part of the Argentine Republic, may be expected to yield other vegetable products of great value to Californians. Then again, there is South Africa; no doubt many of the so-called "Cape flowers"—Proteads—would succeed under Californian cultivation, and they are used by florists in ever-increasing quantities. Of course, I suppose the English will try to cultivate them and supply the demand, but they do not seem to have done so as yet, nor are the English as a rule very great at cultivating the indigenous plants of their colonial possessions, usually deeming them too cheap and common. Australian productions you are fairly acquainted with, but there seem to be vast possibilities remaining for the introduction of ornamental trees, shrubs and plants which will succeed in various parts of California.

The establishment of parks and gardens of a useful and educational character has been strangely neglected in the United States, and will seemingly continue to depend upon men of enlightenment and public spirit, such as Shaw of St. Louis, and the founders of the Arnold Arboretum in Massachusetts. It is possible to make these gardens or parks at once picturesque and instructive, on lines that I have urged upon several occasions, and I doubt not, if a good example be once planted, that philanthropically-disposed ladies and gentlemen will endow them to keep pace with the civilization of the country, and they cannot easily do more good for posterity.

NEW JERSEY. JAMES MACPHERSON.

MENTAL PHILOSOPHY.

BY J. W. READING, M. D.

We walk upon enchanted ground when we enter upon the study of mental philosophy. This science is supposed principally to explain and teach the facts and laws of mental operations. Man generally depends for the acquisition of knowledge upon his intellectual powers; and, according to Stewart's enumeration, these powers are as follows: 1st, Consciousness; 2nd, Perception; 3rd, Attention; 4th, Conception; 5th, Abstraction; 6th, Association of Ideas; 7th, Memory; 8th, Imagination; 9th, Judgment and Reasoning. This, according to some, may answer the general character of classifications assigned the primary powers. Consciousness we understand to be a state or condition of the mind, so that we may have a knowledge of whatever passes in our own minds—a knowledge of sensations, perceptions, emotions, volitions or choice, indeed, the mental operations.

Perception. The outer world affects the living organism, making an impression, and the reaction of the organism or any organ constitutes sensation—a feeling. Perception recognizes or takes cognizance of the feeling, and refers it to the object affecting the organ, and external to the individual—the mind perceiving qualities of matter, extension, density—parts, etc., of the object to be known and the subject thus knowing.

Attention. When we wish to more clearly define a quality or render more complete the perception, we concentrate our mental energies upon it, direct our thoughts voluntarily to such object excluding all others; there is more than the simple notice or act of consciousness.

Conception. I may in fancy construct, mentally, of course, an object which lies in consciousness and is termed a phantom. When we give attention we may construct a sensation which really only gives the content in or of the organ, for a particular object, and so gives us in consciousness a mental phenomenon, or perception. For the quality of the object is perceived, has been apprehended—it has been taken through the organ, or off the sensible organ. It has been rested from the outer darkness in sensation, which has become the occasion for an action of the intellect to bring it over into the clear illumination of consciousness; hence a definite object. Now when the phantom or the object is recalled by the memory, this agent or representative from memory by some has been called conception. I have reference to a sensation re-existing which the mind has felt. When the fragrance of a rose is presented or comes in contact with the olfactory nerves and ganglia, sensor odor waves are produced and a change in the olfactory ganglia; the mind feels

itself conscious of an excitation—the result of the vibratory waves excited by the presence of the rose. In this sensation and perceptien of the fragrance of the rose, the subject adn object are present; but when we think of the sensation at some other time, when it is recalled, we term it a conception. It extends farther than memory. I remember not only that flowering bush, but there may be remembered the red flower, the white flower, the yellow primrose; we now may think of the former perception of the flowers, but in thinking we generalize, an intellectual process of the understanding, and think these several individual flowers into concepts and term them rose. Having discerned relations of similarity we gain general notions, and this ability to discern relations and classify is termed conception; and such general representation or recalling is generalized into the representative—a conception, a conceptive enlargement. Conceptions are not limited to material things; we may have conceptions of the old home, a distant friend, a glass world or a mountain of gold, we may also form conceptions of intelligence, a mathematical truth, falsehood, merit, cause and power. These terms of distinction are of internal origin, while the state of mind affected by the rose depends upon something external, exterior to the intellect. We see then that the faculty of power, of conception, is simply the susceptibility of feelings, or of ideas, aided by the principles of association, which presents the qualities or parts properly arranged in a conception or our endeavor to form a conception.

Abstraction. The mind has the power to single out one or more from a train of thought, or switch off from the train, group or cluster of conceptions for distinctness of any one, or take a part of any one conception or quality of an object, and consider it separated from all the rest, giving it only attention. We may look at the sunbeam shining through the stained arcal, or the brow of some beetling cliff, or we may observe some rich landscape of waving fields of grain and winding streams, on either side glades and glens decked with beautiful villas, and musical groves where birds of exquisite tint plume their silvery wings and chant their melting melodies. The setting sun has burnished the ocean, crowned the mountains with gold and set his glory in the heavens. With every alternate view not only the eye is filled but the heart also, while the soul is enraptured with the pleasing associations. Now, we may consider apart any one of these objects. We may take a rose and consider any one of its qualities—color, fragrance, form, etc. So we may form from conceptions and notions, subjective abstract ideas, truths or principles; thoughts may be considered singly, as love, truth, merit, etc. All such principles may be analyzed, indeed abstraction is the chief mental operation in all analysis.

Association. According to Professor Upham and others, we are by means of this power "enabled to combine and compare the ample materials furnished by original suggestion, consciousness and relative suggestion, and thus develop in the mind new elements of thought, and to cast light on the darkened places in the field of truth. In regards to the laws of association we know it to be a fact that our thoughts, feelings, certain sounds and ideas appear in company, and under certain circumstances a strong connection or relation exists. It seems to be in our mental constitution a mysterious and ultimate principle." Says Doctor Young: "When we recollect the train we can trace every new truth, every new analogy, every new feeling to some previous thought of which it is the natural offspring." Our busy, active thinking mind never rests, there is ever moving through it a train of thought made up by the laws of association, and sometimes under such high pressure that they cannot be checked. And there are also night trains that pursue us in our dreams, and that seem to bring or pull up in our consciousness.

TO BE CONTINUED.

CO-OPERATION FOR FARMERS.

If there are two classes of citizens in this county who need to become organized and brought into closer relations to each other, they are the farmers and fruit growers. The above-named classes do not seem to be working in harmony. All other branches of business are conducted on a co-operative plan to a more or less degree. It is a well-known fact that a large share of the profits of farming and fruit growing go to middlemen and local dealers. Usually every sack of grain, every ton of hay, and in fact all other produce, is sold to local dealers, in exchange for goods or to pay an open account. They ship to commission merchants in San Diego, who will ship to commission men in San Francisco or other large cities, who in turn will sell to wholesale dealers, and they to retail dealers who will sell to the consumers. Thus you see, the produce passes through five or six hands, who each adds his percentage before it gets to the parties for whom it is intended, and they may be farmers who ship their produce back here in the same manner.

This can be obviated to some extent by organization and co-operation. I know of no better organization for this purpose than the Farmers' Alliance. The farmers of the Sub-Alliance, of which I am a member, will save themselves over $500 this season in harvesting their grain and hay. By appointing a committee of business men from among their number to attend to it, they save one cent on the price of each grain sack, which will make a saving of $200 on the 20,000 needed. By contracting with one machine to do the threshing they save one cent more on each sack, and fifty cents a ton on getting their hay baled in the same manner. This is only a beginning of what farmers may do by co-operating together.

We pay nearly double for farming tools and machinery what the manufacturers obtain for them. They could be purchased much cheaper by the farmers if a community would club together and purchase all they need at the beginning of the season of one reliable dealer. He could well afford to sell for much smaller percent of profit if he could sell all at once, and thus save the expense of sending an agent out among the farmers to make the sales and collections.

The same rule will apply to everything else the farmer has to buy. By adopting some such plan in marketing produce much better prices can be obtained.

While we are waiting for favorable legislation, let us see what can be done by organizing and working together in harmony.

I. J. GRAY,

SAN MARCOS, MAY 23, 1893. San Diego Co. Secretary of F. A. & I. U.

A BEAUTIFUL MEMORIAL.

The botanical museum of Harvard University, Cambridge, Massachusetts, is being enriched by a beautiful series of models of flowers, intended to represent the leading genera in all the families of plants. The foliage and flowers are represented life size and in natural colors, while characteristic generic details are given on an enlarged scale, such as a section of ovary or fruit, the style, or stamens or general structure of the flower. An average of six pieces are thus made to represent each species included in the series. These models are constructed wholly of blown glass, thus being nearly indestructible, the mineral colors entering into the composition of the glass with few exceptions.

They are the work of Leopold Blaschka and his son, Rudolf Blaschka, of Dresden, Germany, renowned for their accurate models of jelly fish and other marine life. They are the only gentlemen who are skilled in the delicate art which they have mastered. The Blaschkas are to devote ten years to the work. The series was presented to Harvard University by Mrs. Charles E. Ware and Miss Mary L. Ware, of Boston, in memoriam of the husband and father, Dr. Charles E. Ware. Nearly four years have already been devoted to the work, and from eighty to one hundred models represent a year's labor. American plants are given preference in the series.

Mr. Rudolf Blaschka came to America in January, 1892, and visited Jamaica, and also, in company with Mr. Wm. F. Ganong of Harvard University, visited the Pacific Coast, spending a few days in Arizona and Southern California in April and May, and returning through Utah, Colorado and across the great plains, collecting such typical plants as were needed and making preparatory sketches from nature. He visited the Alleghanies before returning to Dresden.

The models already completed have been uniformly commented upon favorably by botanists, and at a short distance are indistinguishible from the living plants even to critical eyes.

SAN DIEGO SUNSHINE.

San Diego is universally recognized as having the most equable climate known in the world. While all Southern California is delightful in summer and winter, the vicinity of San Diego bay is especially pleasing to all who try a season on its shores.

The population of the city is between sixteen and seventeen thousand. There are 15 hotels, 23 churches, 5 banks, 8 public schools, an opera house that cost $100,000.00, 5 miles of paved streets, 7 miles of electric roads, 41 miles of sewer mains, 65 miles of water mains, and many substantial business blocks and palatial residences in the city. The assessed valuation of city property is $15,507,056.00, and the tax rate is 85 cents.

The bay of San Diego has been pronounced the best harbor, not excepting San Francisco bay. The value of foreign exports in 1892 exceeded half a million dollars. Three steamship lines enter the port, and 37,000,000 feet of lumber were brought by sailing vessels in 1892. During the same year a total of 437 vessels arrived in this port.

The largest frostless area in the United States surrounds the city, and the soil is not surpassed for the growing of oranges, lemons, olives, grapes and similar fruits. Over 2,000,000 fruit trees are now growing in the county, and over 2,500 acres more have been planted the past season.

The county, previous to the formation of Riverside county, contained over 3,000,000 acres of arable land, of which 24,000 acres were under irrigation. Land with water is held at from $75 to $250 per acre, while land without water is valued at $10 to $60 per acre.

The finest apples and other temperate fruits are produced in the mountain districts of the county.

The San Diego Union is a long established morning newspaper, and publishes a weekly edition. The San Diegan-Sun is a consolidation of two evening dailies and full of enterprise, and also publishes a weekly edition.

The county is noted for sunshine and flowers and the growing of seeds and bulbs for the eastern florists, and even for European dealers, is becoming a promising industry. Honey is also a noted product of the mountain valleys.

COYOTES HOWL.

Anent the controversy between Madge Morris and Ambrose Bierce, we are permitted to state that a special agent of the United States Department of Agriculture, who has explored the deserts of Southern California and ought to know, has reported that coyotes do howl. If Ambrose Bierce were to define a "howl" the controversy would have been ended doubtless before it was begun. A howl is the cry of a dog or a wolf—and a coyote is a wolf —therefore the cry of a coyote is a howl. That's logic for you.

Editorial.

THE plea for botanical gardens deserves the attention of capitalists who are inclined to develop Southern California. We should aim to produce what others cannot to so great advantage as ourselves, and not waste our energies and opportunities over things in which competition elsewhere is rife. Among indigenous plants the agave is likely to develop into a profitable crop as a source of fibre, if any one will interest himself in the plant.

THE EUROPEAN seed crop is reported as likely to be short this year from the lack of rain. The advantages of California where the grower, by means of irrigation, may be independent of rain, will be the better appreciated.

THE "COAL COMBINE" in the East is another thing likely to bring the California climate into better repute. The coal monopoly oppresses the Eastern public most severely, and calls attention anew to the oppressive policy of the great railway systems. The violation of the rights of the public by the railway corporations will yet lead to their own overthrow, but the American people are not past the school boy age, and will probably bear more punishment at the hands of their "masters," the railway kings.

NEARLY EVERY BANK in Australia has been compelled to close its doors within the past two months. The prostration of every commercial interest is likewise involved by the collapse of the speculative enterprises that were inaugurated in that southern world.

PRESIDENT CLEVELAND has so far failed to perform his duty in the non-execution of the Geary law, and is establishing a precedent for the usurpation of power in the United States. If the president can disregard an American law his power is virtually limited only by the moderation of the American people. Can he evade the execution of a bad law after having sworn to execute the laws of the land? After Congress has passed a law with the president's approval, can the president nullify the law? By the way, will the president give Hawaii to Johnny Bull in the end?

THE Columbian Fair managers, by holding open gates on Sunday, have of course defied the wishes of Congress and the christian sentiment of the land, and thus placed a certain stigma on the great show which is well nigh impossible to remove, and which will, no doubt, work detrimentally to its highest success, to say the least. It is unfortunate, too, we think, that such an appropriation should be conditioned by entire Sunday closing, and thus inextricably associating ecclesiastical with state affairs, when the keynote of American independence is "religious liberty" (not lawlessness, as some think). We look forward to a more amicable reconciliation henceforth.

CALIFORNIA, especially the southern section, is gaining considerable credit for its display at the World's Fair, in spite of the gross mismanagement to which it has been subjected. While the money appropriated by the State and separate counties could have made a much more pretentious exhibit than has been brought together, judging from reports by Californians, yet the State is not likely to suffer from being overlooked.

SAN DIEGO could have had half a ton of mineral specimens at Chicago to illustrate her rich resources in that direction, but for the short-sighted policy adopted by those in charge, who would not undertake the expense because they thought the owners of mines should bear the cost. Consequently the minerals were left out, though all ready for display!

MUCH to our surprise the San Diego exhibit of cacti is said to contain the largest variety at the Columbian Fair. The editor placed any from his collection at the disposal of the ladies' committee, but they were left until the last day when there was time to pack only a few comparatively.

THIS issue is somewhat abbreviated in contents, but we do not fee obliged to make apology, as we hope quality will make up for any lack o quantity. Contributions are welcomed from any quarter, but we do no hold ourselves responsible for the views of contributors. Practical horti culture and the development of the natural resources of this section of the United States will at all times be given preference.

THE NEW ENGLAND farmer a hundred years ago was not a farmer at all is the conclusion arrived at by Mr. Ford, who has studied closely the aban doned farms of New Hampshire and Vermont. The wood lot was the true source of income, and when the wasted forests no longer yielded profit, the arms had to be abandoned.

FRUITS ALL THE YEAR ROUND.

A POPULAR AND PRACTICAL SYNOPSIS OF TEMPERATE AND EXTRA-TROPICAL FRUITS.

THIS SYNOPSIS OF FRUITS has been prepared at the suggestion of a practical student of horticulture whose extensive intercourse with other horticulturists has led him to appreciate the demand for information concerning the many varieties of fruits available to the grower in Southern California.

Many varieties—doubtless some worthy ones—have been omitted, but it is hoped that the work may prove useful for its conciseness for reference.

Corrections, of omissions or otherwise, are invited.

PART I.

ACANTHOSICYOS HORRIDA. Shrub, bearing fruit of the size and color of oranges, of a pleasant acidulous taste; not hardy.

ACHRAS SAPOTA. Sapodilla, or West Indian plum; a handsome evergreen tree, producing delicions fruit.

ÆGLE MARMELOS. The elephant apple, or Bengal Quince: fruit resembles an orange, of delicious flavor and exquisite fragrance; in Ceylon a perfume is prepared from the rind.

ALGAROBA—see Ceratonia siliqua.

ALLIGATOR PEAR—see Persea gratissima.

ALMOND—see Prunus amygdalus.

AMELANCHIER CANADENSIS. Juneberry, or service-berry; a shrub or small tree, producing globular purplish sweet fruit. Numerous varieties occur in a wild state, some being grown extensively for the fruit.

DWARF JUNEBERRY. Hardy ornamental shrub, with glossy dark green leaves, in habit and size similar to a current bush; fruit possesses a rich sub-acid flavor, and excellent for dessert or for canning.

ANANASSA SATIVA. Pine-apple; a fine decorative plant for the greenhouse that is grown for its fruit in tropical regions: the leaves yield a very fine, silky fibre, used in the manufacture of the Mexican "pina" cloth, a very delicate, transparent fabric, which is made into various articles of dress.

EGYPTIAN QUEEN. Very showy, of fine flavor like that of a wild strawberry, very prolific, and maturing earlier and more surely than any other variety.

RED SPANISH. Ruddy yellow when ripe, flavor sparkling subacid; the leading pine-apple of commerce. In Mexico the cultivation of this yields $600 and upwards per acre (1891). Grown with some success in Florida and California when protected, or in frostless sections.

SUGAR LOAF. Sweet, delicious flavor, delicate flesh; tall, conical shape.

ANONA.

The custard apples are beautiful and delicious fruit, becoming more popular and worthy of more extensive trial in California than they have yet received: deciduous trees or shrubs; tropical; order ANONACEÆ.

A. CHERIMOLIA. Cherimoya, or Jamaica apple: fruit the size of a large apple, pale greenish yellow tinged with purple, weighing from 3 to 4 pounds each: native of Peru, where it is said to attain a weight of 16 lb! Flesh is sweet, of the consistency of a custard, with thin skin. Trees in Santa Barbara bear yearly: will stand quite a frost.

A. GLABRA. The Pond apple, or wild custard apple of Florida; handsome and fragrant fruit of the size of an apple; ornamental; thrives in any soil. Florida.

A. MURICATA. Sour-sop: fruit often weighs over two pounds; pulp white, acrid, not disagreeable. West Indies.

A. RETICULATA. Common West Indian custard apple, with yellowish pulp. Not so highly prized for food as some of the other species. In Brazil known as CONDISSA.

A. SQUAMOSA. Sugar apple or sweet-sop; a delicious fruit; in shape resembling an inverted pine cone; yellowish green, ovate, the thick rind inclosing the luscious pulp. The acrid seeds, when reduced to a powder, are used an an insecticide. An ornamental bush. Malay Islands.

APPLE—see Pyrus malus.

APPLE, LOVE—see Tomato.

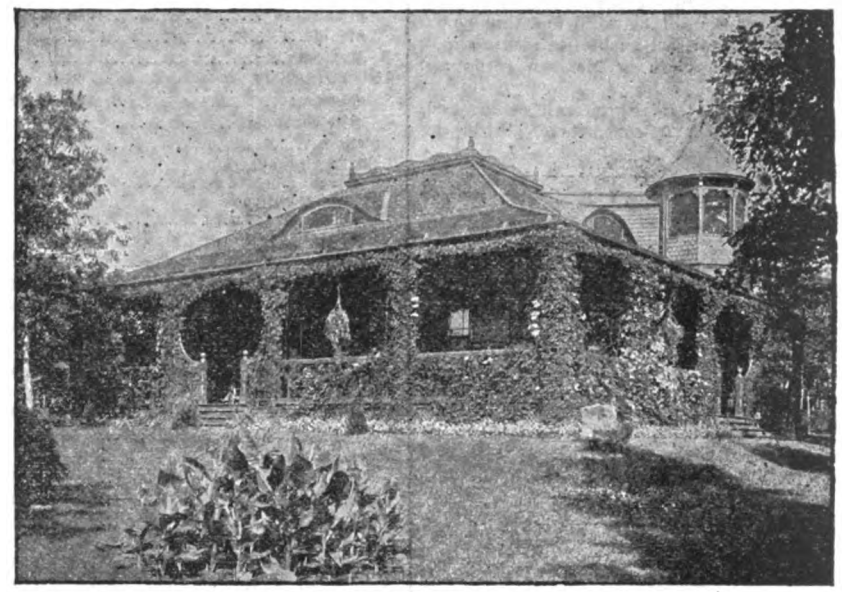
APRICOT—see Prunus armeniaca.

APRICOT PLUM—see Prunus Simoni.

ARACHIS HYPOGÆA Linne. No description of the common peanut is necessary, but there are occasionally new varieties introduced worthy of some attention as, for instance, the so-called Spanish peanut, although raised in Virginia. The kernels are rounder and more delicate than those of the common variety, consequently more highly esteemed by confectioners; but the habitual "peanut eaters" like the others best. Cuba peanuts are occasionally seen in our markets, and they are three or four times as large as the home-grown, and of a reddish color, supposed to be due to the reddish soil in which they are grown.

GARDENING

Edited by William Falconer, tells amateurs in gardening what they want to know. Thoroughly practical, handsomely illustrated.



SPECIMEN OF ENGRAVINGS USED IN ILLUSTRATING GARDENING.

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THE GARDENING CO.

MONON BUILDING, CHICAGO.

Price-Current: No. 1.

Orcutt Seed and Plant Company,
San Diego, California.

JUNE, 1893.

CABLE ADDRESS: ORCUTT. ESTABLISHED 1882.

For convenient reference we have arranged the following list in alphabetical order, and trust it will prove useful to our many friends. Prices are quoted on seeds by the hundred, ounce or pound, as indicated, and on bulbs and plants by the hundred when not otherwise stated.

We are wholesale dealers, importing to order from all portions of the world, and through our staff of collectors are enabled to secure almost any West American or Mexican seeds and plants.

We are also extensive growers of certain seeds and bulbs, and invite contracts for growing for wholesale dealers.

§ Known hybrids are indicated by a section mark, to distinguish from true species.

ABIES (Coniferæ)	Seed,	℔
alba: white spruce	$	6 —
amabilis: Lovely silver fir		5 —
balsamea: balsam fir		2 50
bracteata		10 —
brachyphylla: short leaved fir		6 —
Canadensis: hemlock		4 —
concolor: California white fir		5 —
Douglasii—see Pseudotsuga Douglasii.		
excelsa: Norway spruce		2 —
firma: Japan silver fir		5 —
grandis: great silver fir		4 —
homolepis: Japan fir		10 —
Hookeriana: see Tsuga Pattoniana.		
magnifica: stately in habit		6 —
macrocarpa—see Pseudotsuga m.		
Mariesii: Japan		8 —
Menziesii—see Picea Sitchensis.		
Mertensiana—see Tsuga Mertensiana.		
Nordmanniana: Nordmann's fir		5 —
nobilis: red fir; 200 ft. high		5 —
pectinata: European silver fir		5 —
pinsapo: Spanish fir		5 —
Sachalinensis: Japan fir		10 —
subalpina		5 —
Veitchii: Japan		10 —
Williamsonii—see Tsuga Pattoniana.		
ACACIA (Leguminosæ)		
dealbata		5 —
decurrens: black wattle		3 50
floribunda		6 —
latifolia		5 —
melanoxylon		5 —
molissima		5 —
pycnantha		5 —
ACER (aceraceæ)	₱	oz
macrophyllum		8
saccharinum: sugar maple		25
ACROCOMIA (palmæ)	₱ 100	seeds:
sclerocarpa		2 —
ADIANTUM (Filices)	Roots, ₱	100
emarginatum		6 —
ÆSCULUS (sapindaceæ)	₱	oz
flava		20
glabra: Ohio Buckeye		15
AGAPANTHUS (Amaryllidaceæ)	₱	100
umbellatus: African lily		10 —
" alba		20 —
AGAVE (Amaryllidaceæ)	₱	100
Americana		12 —
deserti: from the Colorado desert		50 —
Pringlei: new		150 —
shawii: compact growth; dark green		45 —
stricta		25 —
Texana		15 —
AILANTHUS (rutaceæ)	₱	oz
glandulosus: Tree of Heaven		15
ALOCASIA,	₱	100
ILLUSTRIS		8 —
ALOE (liliaceæ)		100:
variegata	each, 75c.	—
unnamed sorts	$10, $15 and	25 —
AMARYLLIS (Amaryllidaceæ)	₱	100
Johnsoni: large		5 —
§hybrida Americana, $4 ₱ doz.		
AMELANCHIER (rosaceæ)	₱	oz
Canadensis		20
ANEMOPSIS—see Houttuynia.		
ANHALONIUM (Cacteæ)	₱	100
Engelmanni: Living rock		—
Lewinii		12 —
prismaticum		—
Williamsii		15 00
ARALIA (Araliaceæ)	₱	oz.
papyrifera		1 50
Sieboldi, ₱ 100 seed $1.		

ARBUTUS (ericaceæ)	₱	oz
Menziesii: Madrona Tree		80
unedo: Strawberry-bush		25
ARCTOSTAPHYLOS (ericaceæ)	₱	oz
bicolor		45
glauca: Great-berried Manzanita		15
manzanita		35
ARECA (palmæ)	₱ hundred	seeds:
alba		2 —
Baueri		75
Catechu—Betel nut		2 50
lutescens		2 —
monostachya		2 —
rubra		1 50
sapida		1 50
ARGEMONE (Papaveraceæ)		oz.
grandiflora		50
hispida		1 —
Mexicana		75
ARISTOLOCHIA	100:	oz.
elegans	$12 —	$8 —
ornithocephala	14 —	—
sipho	—	—
ASIMINA (anonaceæ)	₱	oz
triloba: Custard Apple		15
ASPIDIUM (Filices)	₱	100
munitum		15 —
ASPLENIUM (Filices)	₱	100
trichomanes var. incisum		10 —
ATTALEA (palmæ)	₱ 100	seeds:
compta		2 —
excelsa		2 50
AUDIBERTIA (Labiatæ)	₱	oz
polystachya: white sage		1 50
AZALEA (Ericaceæ)	100:	oz.
mixed vars.	—	$ 25
arborescens	—	75
calendula	—	45
mollis	—	$ 40
Vaseyi	—	1 —
viscosa	—	50
BLOOMERIA (liliaceæ)	₱	100
aurea: golden yellow		1 50
Clevelandi: smaller, light yellow		3 —
BRAHEA (palmæ)	₱ 100	seeds:
dulcis		1 50
edulis—see Erythea edulis.		
filamentosa—see Washingtonia filifera.		
glauca—see Erythea armata.		
BREVOORTIA (liliaceæ)	100.	1000:
coccinea: floral fire-cracker	2 25	15 —
BUXUS (Euphorbiaceæ)	₱	oz.
sempervirens: Evergreen box		25
BRODIÆA (liliaceæ)	₱	100
capitata: California hyacinth		1 —
" alba: fine, white variety		2 40
coccinea: see Brevoortia coccinea.		
congesta: violet-purple, large heads		1 50
filifolia: lavender color, large flowers		7 —
grandiflora: dark, waxy purple		1 —
Hendersoni: yellow, purple stripes		9 —
Howellii: fine yellow; Oregon		9 —
ixioides: yellow fls, banded with brown		1 —
lactea: fls. white, banded with green		1 —
laxa: blue mills; Ethuriel's spear		1 —
minor: royal purple flowers		2 25
multiflora: an early violet color'd. fl'r.		1 50
Orcuttii		4 —
peduncularis: waxy, porcelain white		2 25
stellaris: rich purple, center white		1 50
terrestris: reddish purple flowers		2 25
volubilis: per 1000, $30		4 50
MIXED, $6 per 1000		90
CALICARPA		per oz.
americana		25
CALLA—see Richardia and Arum.		
CALLIOPSIS (compositæ)	oz.	℔
lanceolata	35	$3 50
CALOCHORTUS (liliaceæ)	100:	1000:
albus	1 80	12 —
Benthamii	2 25	15 —
Gunnisoni: true; Colorado	6 —	—
Howellii: white; 2 ft. high	8 —	—
Kennedyi	10 —	—
Leichtlinii	2 25	15 —
lilacinus	1 50	10 —
longibarbatus: a ft high; purple	6 —	—
luteus	1 50	10 —
macrocarpus: large purple fls	4 50	—
maweanus	1 50	10 —
nitidus: a form of C. Benthamii.	6 —	—
Nuttallii	3 —	20 —
Palmeri: white, tinted yellow	7 50	—
pulchellus	1 50	10 —
splendens	3 —	20 —
" atroviolacea	3 —	20 —
Tolmiei: white, tinged purple	6 —	—
venustus (var. roseus considered the type):		
" citrinus	1 50	10 —
" oculatus	1 50	10 —
" purpurascens	2 25	15 —
" roseus	2 40	18 —
weedii: one of the finest	4 50	30 —
Mixed varieties; fine strain	1 20	8 —

CALYCANTHUS (calycanthaceæ)		per lb:
floridus: spice bush		15
occidentalis: western allspice		50
CAMASSIA (liliaceæ)		
cusickii	10 —	—
esculenta: Quamas	90	6 —
CANNA (Scitaminæ)	100:	oz.
Indica: mixed hybrids	$ —	50
§Ansœpa: yellow, red spots	25 —	40
§Camulos: splendid scarlet	35 —	50
§Mme. Crozy	—	1 —
§George Hancock	—	50
§Hippolyte: dwarf	—	50
§Emile Le Clair	2 —	20
§Admiral Cotrbet	—	65
flaccida: Florida	3 25	—
CARPINUS (cupuliferæ)		per lb
americanus		2 —
CARYOTA (palmæ)	100	seeds:
sobolifera		1 50
urens		1 —
CASTANEA (cupuliferæ)	₱	oz.
japonica, giant Japan chestnut		10
vesca americana (per lb, 35c.).		
CATALPA (bignoniaceæ)	₱	oz.
bignonioides		25
speciosa: very hardy tree		50
CEANOTHUS (rhamnaceæ)		per oz.
integerrimus: white flowering		50
thyrsiflorus: blue flowering		50
CEDRUS		per lb:
atlantica: Mt. Atlas cedar		5 —
deodar		5 —
Libani: Cedar of Lebanon		5 —
CELTIS (urticaceæ)		per oz.
occidentalis: sugarberry		15
CERCIS (leguminosæ)		per oz.
canadensis; American Judas tree		50
CEREUS (cactæ)		100
Berlandieri		8 —
cæspitosus		8 —
cochal: new		40 —
Emoryi: velvet cactus		25 —
Engelmanni		25 —
enneacanthus		10 —
giganteus: giant cactus, 60 feet high		100 —
Greggii		75 —
gummosus: "Pitallia Agria," new		100 —
maritimus: new		75 —
Pacificus: new		100 —
Pringlei		—
procumbens		7 —
rigidissimus: Rainbow Cactus		20 —
stramineus		15 —
triangularis: cuttings, $5 to		8 —
tuberosus		10 —
variabilis		20 —
viridiflorum		20 —
CHAMÆCYPARIS		per oz.
obtusa		60
pisifera: Japan cypress		75
CHAMÆDOREA (palmæ)	100	seeds:
elatior		1 —
elegans		1 —
Ernesti-Augusti		1 50
gracilis		1 50
Schiedeana		2 —
CHAMÆROPS (palmæ)	100	seeds:
excelsa		1 —
Fortunei		
humilis		1 —
CHIONANTHUS (oleaceæ)		per oz.
virginica		40
CHLOROGALUM (liliaceæ)	100:	1000:
angustifolium	4 50	30 —
pomeridianum	4 50	30 —
CLADRASTIS (leguminosæ)		per oz.
tinctoria		75
CNEORIDIUM (rutaceæ)		per oz.
dumosum: California spice-bush		1 —
COBÆA	oz.	℔.
scandens	30	$3 —
" alba		
COCOS (palmæ)	100	seeds:
Australis		2 —
plumosa		2 —
Weddelliana		2 —
COOPERIA (amaryllidaceæ)		
pedunculata		
CORDYLINE	100	seeds:
Australis		40
indivisa		20
CORNUS (cornaceæ)		per oz.
Florida		10
Nuttallii		25
stolonifera		15
CORYLUS (cupuliferæ)		per oz.
americana: hazelnut		10
CORYPHA	100	seeds:
Australis		40
COSMOS (compositæ)		oz.
bipinnatus: mixed		75
" "The Pearl," white		1 25

COTONEASTER	₱	oz.
buxifolia		45
COTYLEDON (crassulaceæ)	₱	100:
Desmettiana		12 —
edulis		10 —
lanceolata		12 —
pulvurulenta		75 —
other sorts $2 to		10 —
CRATÆGUS (rosaceæ)		oz.
coccinea		45
CRYPTOMERIA		oz.
elegans		50
japonica		50
CUPRESSUS (coniferæ): cypress.		℔
funebris		3 50
Goveniana		3 —
Guadalupensis—blue cypress		3 —
horizontalis		3 50
Lawsoniana—Lawson's cypress		1 —
MacNabiana		2 —
macrocarpa—Monterey cypress		2 —
sempervirens		3 —
thyroides: "white cedar"	cones,	3 —
CYCAS (cycadæ)	100	seeds:
revoluta		2 —
DATURA (solanaceæ)		oz.
arborea (Brugmansia arborea)		50
meteloides: Jamestown weed		50
DICENTRA (fumariaceæ)	oz.	100:
chrysantha: fine foliage	2 —	25 —
DIONÆA		100:
muscipula: Venus fly trap		5 —
DIOSPYROS (ebenaceæ)		oz.
virginiana: persimmon		10
DIPLACUS (scrophulariaceæ)	pkt.	100:
longifolia: fine buff flowers	1 —	30 —
puniceus: deep crimson fls	1 —	35 —
DIRCA (thymeleæ)		oz.
palustris: leatherwood		30
DODECATHEON (primulaceæ)	oz.	100:
Clevelandi: giant cyclamen	2 —	12 —
DORYANTHES (liliaceæ)		doz.
excelsa: Australian torch lily		9 —
DRACÆNA	10	seeds: oz.
Australis		
draco		
indivisa		
nutans		2 —
stricta		2 —
ECHEVERIA (included under Cotyledon)		
ECHINOCACTUS (cactæ)	₱	100
Eyriesii $10, $15, and		25 —
Mulleri $5, $10 and		15 —
oxygona, $10, $15 and		25 —
EMMENANTHE (hydrophyllaceæ)		oz.
penduliflora: California yellow-bells		3 —
(Orders solicited for 1894 crop).		
ERYTHEA (palmæ)		℔
armata		2 —
edulis		2 —
ERYTHRÆA (gentianaceæ)		pkt.
venusta: canchalagua		1 —
ERYTHRINA		oz.
crista-galli: coral tree; brilliant red		50
ERYTHRONIUM	plants,	per 100:
grandiflorum		1 50
" very large bulbs		3 —
Hartwegii		2 25
Smithii		3 —
montanum: pure white		4 50
Howellii: white, turning pink		9 —
Hendersoni: purple		7 —
grandiflorum minor		9 —
ESCHSCHOLTZIA (papaveraceæ)		oz.
Californica		20
EUCALYPTUS (myrtaceæ)		oz.
globulus: blue gum tree		50
rostratus: red gum tree		50
EUTERPE (palmæ)	100	seeds:
edulis		2 —
FICUS	seed per	pkt.
australis		1 —
columnalis		1 —
macrophylla		1 —
FRAXINUS (oleaceæ)		℔:
alba: white ash		2 —
dipetala: flowering ash		6 —

FREESIA (Irideæ) 100: oz.
refracta alba: fragrant, white.. 60 75
Leichtlinii: delicate yellow.... 3 — —

FREMONTIA (sterculiaceæ) oz
Californica..... 1 —

FRITILLARIA (liliaceæ) 100: 1000:
stropurpurea..... 4 50 —
biflora: chocolate lily..... 3 — 20 —
coccinea: scarlet..... 6 — —
lanceolata: mottled colors..... 3 — 20 —
" gracilis: nearly black, 4 50 —
liliacea: white flowers..... 3 60 20 —
parviflora..... 4 50 —
pudica; yellow; 1-flowered..... 4 50 —
recurva: scarlet, bell-shap'd fls. 3 — 20 —
" very large bulbs..... 4 50 —

GASTERIA 100:
Unnamed sorts, $10, $15 and..... 25 —

GENISTA oz.
juncea: Spanish brown..... 50
scoparia: Scotch brown..... 50
tinctoria: green brown..... 50

GEONOMA (palmæ) 100 seeds:
gracilis..... 1 50

GERANIUM (Geraniaceæ) oz.
zonale..... 75

GLADIOLUS 100: 1000:
gandavensis: fine mixed..... 2 — 15 —
Burbank's Cal. strain, 6 var. $3. — —
Lemoinei: mixed..... 5 — 40 —

GREVILLEA (proteaceæ) pkt, oz.
Banksii..... 50 —
Hilli..... 1 — —
longifolia..... 1 — —
robusta: per lb $10..... 50 1 —

GYMNOGRAMME (filices) 100:
triangularis: gold fern.....
" viscosa: silver fern,

HAMMAMELIS oz.
virginiana: witch hazel..... 50

HEMEROCALLIS (liliaceæ) 100:
dumortieri: yellow..... 12 —
flava, fulva and fulva fl. pl, each..... 5 —
kwanso and fl. pl, each..... 8 —

HESPEROCALLIS (liliaceæ) 100:
undulata: lily of the desert; white.... 20 —

HETEROMELES (rosaceæ) oz.
arbutifolia: Christmas berry; toyon... 50

HOUTTUYNIA (piperaceæ) 100:
Californica: fine greenhouse plant.... 18 —

ILEX (aquifoliaceæ) oz.
opaca: American holly..... 25

IPOMŒA (convolvulaceæ) oz.
Learii: splendid perennial..... 75
Heavenly Blue..... 3 50
lobata: see Mina lobata.

IRIS (Iridaceæ) 100:
anglica..... —
germanica..... 3 —
florentina..... 3 25
hedera: new..... 12 —
hispanica..... 1 —
kæmpferi—Japanese Iris..... 12 —
tectorum..... 18 —
sibirica orientalis..... 18 —
stylosa lilacina..... 30 —
pavonia..... 4 —
Robinsoniana..... 25 —

IXIA (iridaceæ) oz. 100:
Mixed varieties..... 2 — 75

JUGLANS (juglandeæ) lb:
Californica..... 75
cinerea: butternut..... 50
nigra: black walnut..... 40
regia: Madeira nut; English walnut.. 40

JUNIPERUS (coniferæ) lb:
Californicus..... 3 —
communis..... 1 50
Virginianus..... 3 —

KALMIA oz.
latifolia..... 1 —

KENTIA (palmæ) lb 100 seeds:
Australis..... 2 —
Belmoreana..... 1 —
Canterburyana..... 3 50
Forsteriana..... 1 —
Moorei..... 3 50

LARIX oz.
Europea: Tryolean larch..... 30

LATHYRUS (leguminosæ) oz.
Californicus..... 2 —
latifolia..... —
odorata: sweet pea..... —
splendens: pride of California; rare... 2 —

LATANIA (palmæ) per 100 seeds:
borbonica..... 50
commersonii..... 3 —

LEUCOCRINUM (liliaceæ) 100:
montanum: delicate white flowers.... 6 —

LIBOCEDRUS (coniferæ) lb:
decurrens: white California cedar..... 5 —

LILIUM (liliaceæ) 100:
Bolanderi: supply uncertain..... 60 —
Columbianum: a dwarf species..... 7 50
Humboldtii: orange, with black spots, 12 50
maritimum: blood red..... 15
pardalinum: red and orange..... 4 50
Parryi: delicate lemon yellow..... 20 —
parvum: canary yellow..... 7 50
rubescens: fls. turn to a wine color.... 20 —
Washingtonianum: white; very frag't. 10 —
" large bulbs..... 12 50

LIRIODENDRON (magnoliaceæ) lb:
tulipifera: tulip tree..... 2 —

LIVISTONA (palmæ) 100 seeds:
Australis..... 40
chinensis..... 50
macrophylla..... 1 50

MAGNOLIA (magnoliaceæ) lb:
acuminata..... 3 50
grandiflora..... 3 —
tripetala: umbrella magnolia..... 2 50

MAMILLARIA (cacteæ) lb 100:
Arizonica..... 80 —
applanata..... 8 —
Childsii..... 10 —
deciplens..... 8 —
deserti..... 50 —
echinus..... 10 —
Goodrichii..... 15 —
Grahamii..... 5 —
macromeris..... 15 —
meiacantha..... 8 —
minima..... 15 —
phellosperma..... 50 —
pusilla..... 6 —
pusilla Texana..... 8 —
Wrightii..... 8 —

MANDEVILLEA oz.
suaveolens..... 1 50

MELIA oz.
azedarach: umbrella tree..... 25

MINA oz. lb:
lobata: yellow and scarlet..... 1 — 10 —

MONTBRETTIA (Iridaceæ) 100: oz.
crocosmæflora..... 2 — 2 —

MUILLA (liliaceæ) 100:
maritima: small, whitish flowers.. 2 50

MUSA (musaceæ) 100 seeds:
ensete: Abyssinian banana..... 1 25

NARCISSUS 100:
orientalis: Chinese sacred lily..... 6 —

NEGUNDO lb:
Californica..... 5 —

NEMASTYLIS (Iridaceæ) 100:
coelestina..... 12 —

NERINE (amaryllidaceæ) 100:
coruscans..... 20 —
japonica: red Guernsey lily..... 5 —
sarniense..... 6 —

NOLINA (liliaceæ) oz.
Bigelovii..... 2 —
Palmeri..... 2 —

NOTHOLÆNA (filices) 100:
cretacea: N. candida..... 10 —
Newberryi: cotton fern..... 6 00
Parryi: very rare; Colorado desert.... 20 —

NYSSA lb:
multiflora: sour-gum..... 2 —

OPUNTIA (cacteæ) lb 100
basilaris..... 25 —
Bigelovii..... 10 —
clavata..... 10 —
Engelmanni..... 6 —
Ficus-Indica..... 10 —
frutescens..... 6 —
frutescens major..... 6 —
fulvispina..... 6 —
prolifera..... 6 —
serpentina..... 6 —
tuna: cuttings..... 10 —
tuna-manse: cuttings..... 10 —

OREODAPHNE: see Umbellularia.

OREODOXA (palmæ) 100 seeds:
regia—Royal palm..... 90

ORTHOCARPUS (scrophulariaceæ) pkt.
purpurascens: showy new annual..... 1 —

PANDANUS (palmæ) 100 seeds:
recurva..... lb oz. $1 50 .....
utilis..... 1 50

PAPAVER (papaveraceæ) oz.
Californica..... 5 00

PARDANTHUS lb 100:
sinensis..... 18 —

PENTSTEMON (scrophulariaceæ) oz.
Clevelandi: rich solferina..... 4 —
centranthifolius: lovely shade of red.. 2 —
spectabilis: delicate blue..... 1 —

PHACELIA (hydrophyllaceæ) oz.
Parryi: lovely royal purple flowers.... 2 —
Orcuttiana: white fls., yellow center.. 5 —

PHŒNIX (palmæ) 100 seeds:
Canariensis..... 50
dactylifera—Date palm..... 40

PHŒNIX (palmæ)—Continued. 100 seeds:
leonensis—see P. spinosa.
spinosa..... 2 —
pumilla..... 2 —
reclinata..... 1 —
rupicola..... 1 50
sylvestris..... 1 50
tenuis..... 1 —

PHOTINIA
arbutifolia: see Heteromeles arbutifolia.

PICEA (coniferæ) lb:
amabilis..... 3 —
ajanensis..... 15 —
alcoquina: Japanese..... 10 —
concolor: silver fir..... 5 —
Engelmanni..... 7 50
grandis..... 5 —
Menziesii..... 5 —
nigra: black spruce..... 5 —
nobilis: see Abies nobilis.
polita: tiger-tail fir..... 10 —
pungens: blue foliage..... 5 —
Sitchensis..... 5 —
taxifolia..... 5 —
Yessoensis: Japanese..... 10 —

PILOCEREUS (cacteæ) each:
sargentianus: new..... 50 —
senilis: old man cactus, 50c. to..... 5 —

PINUS (coniferæ) lb:
austriaca: black pine..... 3 —
cembra: stone pine..... 3 —
Coulteri..... 5 —
densiflora: hardy..... 5 —
flexilis..... 5 —
Fremontiana—see P. monophylla.
insignis: Monterey pine..... 3 —
Jeffreyi..... 5 —
maritima..... 1 —
Massoniana: Chinese pine..... 5 —
monophylla: Pinyone..... 2 50
monticola..... 5 —
muricata..... 5 —
Parryana: Pinyone or nut pine..... 3 —
parviflora..... 5 —
pinea: Italian stone pine..... 5 —
rubra: red pine..... 10 —
Sabiniana: digger pine..... 2 50
strobus: Weimouth pine..... 2 50
sylvestris: Scotch pine..... 1 50
Torreyana: Soledad pine..... 4 —
tuberculata.....

PITTOSPORUM oz.
eugenoides..... 50
nigrescens..... 50
undulatum: Australian daphne..... 50

PRUNUS (rosaceæ) oz.
ilicifolia: oak-leaf cherry..... 50
serotina: black cherry..... 25

PSEUDOTSUGA (coniferæ) lb:
Douglasii: "Oregon pine"; Douglas fir, 3 —
macrocarpa: great cone spruce..... 6 —

PSIDIUM (myrtaceæ) lb: 100:
cattleyanum: strawb'y guava.. 3 — 15 —

PTYCHOSPERMA (palmæ) 100 seeds:
Alexandræ..... 60
Cunninghamiana..... 2 —

QUERCUS (cupuliferæ) lb:
agrifolia..... 5 —
chrysolepis: golden live oak..... 5 —
dumosa: chapparal oak..... 5 —
Douglasii..... 5 —
Kelloggii..... 5 —
Palmeri: holly-leaved oak..... 5 —

RHAMNUS (rhamnaceæ) oz.
Californicus..... 1 —
Carolinianus..... 20

RHODODENDRON (ericaceæ) oz.
Californicum..... 1 —
maximum: great laurel..... 50

RHUS (anacardiaceæ) oz.
integrifolia..... 1 —
ovata..... 1 —

RICHARDIA (araceæ) seed per lb: 100:
Africana: calla; lily of the Nile, 2 — 3 50
albo-maculata: spotted calla... 2 — 15 —
(Write for special quotations).

ROMNEYA (papaveraceæ) oz. lb. 100:
Coulteri..... 1 — 12 — 150 —

ROSA (rosaceæ) pips per oz.
Californica..... 50
minutifolia: roots $5 each..... 2 50

SABAL (palmæ) 100 seeds:
Palmetto..... 50
serrulata—see Serenoa serrulata.

SAMBUCUS oz.
glauca: elder..... 30

SASSAFRAS (laurineæ) oz.
officinalis: sassafras..... 15

SCHINUS (anacardiaceæ) oz. lb:
molle: Peruvian pepper tree... 10 75

SEAFORTHIA (palmæ) 100 seeds:
elegans..... 60

SELAGINELLA (selaginelleæ) 100:
lepidophylla: resurrection plant..... 4 —
pilifera..... 3 —

SEQUOIA (coniferæ) lb:
gigantea: giant redwood..... 12 —
sempervirens: redwood..... 10 —

SERENOA (palmæ) 100 seeds:
serrulata..... 50

STAPELIA (asclepiadaceæ) 100:
grandiflora: stock exhausted..... 10 —
variegata: toad cactus..... 5 —

STEVENSONIA (palmæ) 100 seeds:
grandifolia..... 4 —

STYRAX (styraceæ) oz.
Californica..... 25

SWAINSONIA oz.
alba: white, pea-shaped flowers..... 3 —

SWEET PEAS: Write for prices.

TACSONIA oz.
Buchani: large, pink flowers..... 1 50
Von Volexmi: large, crimson flowers.. 3 —

TAXUS lb:
baccata: European yew..... 5 —

TECOMA oz.
radicans: trumpet flower..... 25
stans: flowers golden yellow; shrub... 3 —

THRINAX (palmæ) 100 seeds:
argentea..... 1 —
radiata..... 4 —

THUYA (coniferæ) lb:
aurea: golden arborvitæ..... 3 —
gigantea: Oregon arborvitæ..... 6 —
occidentalis: American arborvitæ..... 3 —
orientalis: Chinese arborvitæ..... 2 50

TRICYRTIS 100:
hirta: toad lily..... 6 —
nigra..... 6 —

TRILLIUM (liliaceæ) 100:
sessile var. Californicum: pure white, 3 —

TRITELEIA (liliaceæ) 100:
uniflora..... 1 50
violacea..... 1 —

TSUGA (coniferæ) lb:
Mertensiana..... 6 —
Pattoniana..... 6 —

UMBELLULARIA (laurineæ) lb:
Californica: California bay tree..... 4 —

VIOLA (violaceæ) oz.
pedunculata: peach-scented violet.... 6 —

VIBURNUM oz.
prunifolium..... 15

WASHINGTONIA (palmæ) lb:
filifera..... 1 50
" robusta..... 2 —

WISTARIA oz.
frutescens..... 50
sinensis..... 50

YUCCA (liliaceæ) 100: oz.
aloefolia..... — 1 50
baccata: wild banana..... 25 — 50
brevifolia: tree yucca..... 100 — —
elata albo-marginata..... — 1 50
filamentosa..... — 1 50
gloriosa: mound lily; pkt. $1. — —
truncata: packet $1. — —
whipplei: mountain yucca..... 20 — 50
" Blooming size..... 100 —

ZAUSCHNERIA (onagraceæ) 100: pkt.
Californica: California fuchsia, 15 — 1 —

ZEPHYRANTHES (amaryllidaceæ) 100: 1000:
atamasco: fairy lily..... 4 —
candida: flowers pure white... 1 — 6 —
carinata: fine Mexican sort.... 6 —
rosea: atamasco lily..... 3 — 25 —
sulphurea: golden lily..... 6 — 55 —
treatea..... 1 — 7 —

ZIZYPHUS (rhamnaceæ) lb:
Parryi: Parry's wild jujube..... 3 —

ZYGADENUS (liliaceæ) 100:
Fremontii: creamy-white flowers..... 4 50
paniculatus: stouter and taller..... 4 50

ESTABLISHED APRIL, 1889.

THE GREAT SOUTHWEST.

C. R. ORCUTT, Editor.

An illustrated monthly exponent of the resources of Southern California and of the adjacent regions.

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EVERY READER of this journal is invited to aid in the erection of a great home for newspaper workers by sending one dime to "Press Club Building and Charity Fund," Temple court, New York. You will aid a great work and receive by return mail a wonderful puzzle-game, which amuses the young and old, baffles the mathematicians and interests everybody. Public spirited merchants have contributed twenty-five thousand dollars worth of premiums for such as can solve the mystery. Everything from a "Knox" hat to a "Steinway" piano.

SAN DIEGO AT THE WORLD'S FAIR.

Things are taking shape in the California building, but it will probably be some time before all is arranged. When that time comes we will indeed have reason to feel proud of our showing. No other state will have such a truly splendid exhibit.

San Diego lemons are keeping well—ten times better than they did at the orange carnival two years ago. And they are good lemons. At least so says the Italian, a grower of citrus fruits, judge in the department. But we have something to learn yet about preparing our fruit for market. The citrus exhibit from Palermo arrived in better condition than that from California. But where are their few boxes beside our carloads? I tell you our profusion of fruits—oranges and lemons piled up in pyramids, towers, liberty bells, etc.—astonishes the natives from every part of the world. It does us good to hear the numerous exclamations denoting surprise and admiration.

Professor Henry, of Madison, Wis., has lately been a most interested visitor. He was well pleased with the exhibit of lemons we made from his Eureka orchard at Chula Vista, and gratified with the showing made from our county. After a careful examination and comparison with Messinas, he said: "There is no mistake about it, San Diego can grow lemons, but she has much to learn yet about marketing them."

The citrus orchard in the horticultural court will soon be ready for visitors. In one end are lemon trees, mostly from San Diego county; in the other, orange trees. There has been some very ugly weather, and the foliage of several of our lemon trees is rather scant as a result. However, the fruit still stays on, and in a short time, with warm weather, the leaves will come out and the orchard will be a thing of beauty. Our citrus trees are a great attraction. Everyone has seen oranges and lemons, but few the trees bearing fruit and blossoms.

San Diego has an admirable little cacti exhibit in Chief Thorpe's department. Mexico has a larger, but ours contains more varieties. The plants for the exhibit were furnished by Miss Cooke; C. R. Orcutt, Mrs. Eunice E. Young and the Woman's World's Fair society, while Los Angeles county added also a few varieties.

Our citrus exhibit, in one end of one of the large curtains, has so far attracted more attention than anything else. We had a well selected variety of good fruit, a good location, and made a tasty arrangement. Besides the general display, plate entries were made for all of these varieties. San Diego county fruit compares well with that from other counties. —R. H. YOUNG, in San Diego Union.

This Issue, 5,000 Copies Guaranteed.

THE GREAT SOUTHWEST.

Vol. V. SAN DIEGO, CALIFORNIA, JULY, 1893. Whole No. 43.

Editorial.

THE question of the hour does not seem to be how to raise potatoes, but how to raise the dollar. The GREAT SOUTHWEST has always truly claimed to be for the farmer first, and will so continue to be; but the present national crisis calls for the careful consideration by the farmer of the financial situation.

MONOMETALLISM.

Gold is the monetary standard of England and Germany and various other countries of the world. A large element in America are pronounced in their preference for gold as the sole standard for our currency, and to this element the Democratic party, in the main, belongs, though the party lines have not been drawn very stringently of late on questions relating to our currency.

The advocates of gold lay the present panic in business circles to the silver legislation, particularly to that of 1890, whereby the United States became monthly purchasers of silver bullion for coinage into money, thus making a double (gold and silver) standard for our currency. The claim is put forward that by this legislation the country became heavy losers of the true standard of monetary values (gold), and that public distrust in our silver currency has brought about in the main the present wreckage.

BIMETALLISM.

The advocates of the white metal, on the other hand, lay the full measure of blame to the account of the "gold bugs," claiming that the efforts of the gold advocates toward destroying the relative values of the two metals have brought about the present panic. Silver is the monetary standard of Russia, Mexico, Central American states and Peru, and, until recently, of the Indian Empire; while the bimetallic standard obtains in the Argentine Republic, Chili, France, Japan and other countries.

It is claimed that the United States, by legislation, can maintain the relative values of the two metals for money, and by so doing advance the interests of the country, which is a large producer of silver. If the doctrine is sound, it is certainly to our material advantage to retain silver as a standard equal with gold; and furthermore such action would greatly increase our trade with foreign countries that depend principally upon silver for their currency, an advantage which England (as a nation upholding gold) is quick to recognize and anxious to prevent.

VOLUME OF CURRENCY.

In other words, the gold advocate claims that we have a sufficiency of currency without the recognization of silver as money. It is claimed that scarcity of money is not the cause of panics, but distrust in the currency in circulation.

The silverists, on the other hand, claim that the volume of currency in circulation has been too greatly contracted for the transaction of business. The distrust is laid at the doors of the gold men for trying to discard the use of silver as money.

But the bankers themselves have shown to the satisfaction of the American people that the volume of currency is too small for the safe transaction of the business of the country, and the owners of gold find it difficult to further hoodwink the people to the truth of the situation. England is the creditor nation of the world and demands that gold alone shall be recognized as money—a policy greatly to her advantage, it will be seen, when she holds control of the world's gold.

WILD-CAT MONEY.

Cheap money is the demand of another class, who claim that money is the creation of a government and need have no abiding standard of value. This theory has been so often tried with ruinous results that it need not be argued against. The fate of the Argentine Republic, resulting in the failure of the Baring Bros., of England, is the most recent instance of the effect of cheap money in history.

THE SYSTEM OF NATIONAL BANKS.

To the errors existing in our national banking laws lies the chief blame of the present panic. The banks have been permitted to do a larger business than the circulating currency rendered safe, and now the bankers feel the result, and the people feel it yet more keenly.

The national banks have been permitted to receive deposits from the people and to use that money to their own advantage. They have used the money entrusted to them, and now cannot pay it back as quickly as the depositors fancy they want it. It is not distrust of our currency, for either one of gold, silver or paper currency would be readily taken, but it is not to be had. The depositors for the first time realize that the banks cannot pay them all on demand.

The farmer on selling his home would deposit the money in the bank where he had previously done business, simply for safety, not realizing that the bank could loan 85 per cent. of that money. When he wants the money to buy a new farm he is told that it is loaned out, and that the bank has suspended business.

WHAT THE NATION NEEDS.

We need a safe banking system.

We need a sufficient volume of currency to provide for the transaction of increasing business.

We need to have confidence in our currency, and to know that it represents a recognized standard of value, be that gold alone, or gold and silver of an acknowledged relative value.

Since 95 per cent. of the world's commercial transactions are consummated through the medium of bank checks, we need an universal (or at the least a national) system of exchange that shall be cheap, safe and expeditious. The system in vogue today is shattered, and a draft on any bank in America or Europe is considered worthless until paid in coin. In other words, exchange is distrusted from its having no assured value—a draft on a broken bank being of about equal value to a state bank note in 1857.

THE REMEDY.

Let the nation be its own banker; let it guarantee the farmer that the money deposited for safe keeping shall be safe; let it provide a means of exchange as safe as a treasury note; and let loans be made direct to the people that need financial assistance rather than to speculators.

MENTAL PHILOSOPHY.

BY J. W. READING, M. D.

Continued from page 162.

There are centripetal and centrifugal forces, positive and negative electricity, attraction and repulsion, that maintain in the planetary system those vast bodies raised each in its orbit, in the vast immensity of space, to which we might look in vain in an endeavor to approach the outer shores. These vast worlds are held, as by an enchantment, by that mysterious and subtle substance—positive and negative electricity.

This mysterious power flashes to and fro, as it were, by mutual attractions and repulsions, towering and swaying according to its capacities for the distribution of the electrical agency; and by these nervous, silent threads preserves an equilibrium, with an awe-inspiring authority, among all the vast multitudes, balancing with a most exquisite precision and exactness, and so maintaining with the utmost perfection Nature's operations and lordly prominence over such bodies.

This power is so nicely adjusted, distributed, and traced with such regularity that they are not likely to be found at fault, save here and there perchance a solitary one. These celestial castles, whose portals are guarded with a sleepless vigil, march onward without evaporation, explosion, melting, freezing or being dissipated in mid air, though their course lies through the cold, crystal ether, or hard by the fiery path of the sun. They obey and encompass their bidding; hence the succession of the evening and the morning.

To man, we find suggested the notion or idea of self-existence, which lays the foundation for the additional conception of permanency, duration or continuance, originating out of the principle of suggestion or association.

Continued on page 172.

FRUITS ALL THE YEAR ROUND

A POPULAR AND PRACTICAL SYNOPSIS OF TEMPERATE AND EXTRA-TROPICAL FRUITS.

Continued from page 164.

ARAUCARIA (Coniferæ).

A noble genus of evergreen trees. The majority of species are not hardy.

A. BIDWILLII. The bunya-bunya pine; seeds large and edible. A. Braziliensis and A. imbricata also produce large edible seeds.

ARCTOSTAPHYLOS (Ericaceæ).

The Manzanitas are beautiful evergreen shrubs, mainly peculiar to California and Mexico. The name manzanita is the diminutive of manzana (Spanish for apple) and commonly applied to all the species, but belongs more especially to A. MANZANITA. The name is also applied to ARBUTUS MENZIESII at times—a member of the same family, and all first cousins to the trailing arbutus, or mayflower of New England. More than a dozen species occur in California.

A. MANZANITA Parry. A shrub (or rarely, a small tree) common from Oregon to Mexico. The small berries are edible, of a pleasant acid, and eaten by Indians and wild animals. The unripe fruit is said to make an excellent jelly, while an excellent quality of vinegar can be made from the ripe fruit. This is one of the earliest of our flowering shrubs, the white bell-like flowers appearing in clusters even before snow ceases to fall in our mountains. The shrub is of irregular growth, with exfoliating, reddish bark. The roots attain immense size, with dark, rich colored wood.

A. UVA-URSI Spreng. The bearberry; a low, prostrate shrub, producing red berries which are credited with medicinal virtues. More northern in habitat.

ARISTOTELIA (Tiliaceæ).

A. MACQUI L'Heritier. A shrub bearing small berries, largely consumed in Chili, having a pleasant taste of bilberries.

ARTOCARPUS (Urticaceæ).

A. INCISA. One of the most beautiful trees; about forty feet high; indigenous to Africa, but naturalized in the West Indies. The dark green, deeply-incised leaves ten by twelve inches in size. The fruit round, six to ten inches in diameter, is picked before fully ripe, then baked as a sweet potato, the rind removed and eaten with a knife and fork. The bread-fruit has a flavor much like dough mixed with eggs and lightly sweetened, and is seedless. A variety with seeds is also grown, but only the seeds are edible, when roasted having the flavor of chestnuts.

ATALANTIA (Rutaceæ).

A. GLAUCA J. Hooker. The desert lemon of New South Wales and Queensland; recommended for trial on arid lands, and as likely to improve under cultivation.

AVERRHOA (Geraniaceæ).

A. BILIMBI L. Fruit available for tarts, etc. A native of India.

A. CARAMBOLA L. A small tree found in India; two varieties, one with sweet and the other with acrid fruit. The sweet variety is available for the table raw, the other useful for preserves.

AVOCADO—see Persea gratissima.

BANANA—see Musa sapientum.

BANANA, CHINESE—see Musa Cavendishii.

BANANA, DWARF—see Musa Cavendishii.

BARBERRY—see Berberis.

BEAR-BERRY—see Arctostaphylos.

BERBERRY—see Berberis.

BERGAMOT—see Citrus aurantium.

BENINCASA.

B. CERIFERA Savi. An annual, bearing a large edible gourd. Native of India, China, Polynesia and the Philippines.

BERBERIS (Berberidaceæ).

The barberries are handsome evergreen shrubs, bearing an edible, acidulous fruit, useful for preserves, and in some varieties credited with medicinal virtues. The bark dyes a fine yellow. Many species worthy of cultivation, among them the following native to California (except B. vulgaris):

B. AQUILIFOLIUM. False Oregon grape. West American. Round, acid fruit, fine for tarts and pies.

B. NERVOSA. A larger fruit, roundish, sour, indigenous to California, and fine for cooking.

B. PINNATA. The Mexican LENYA AMARILLA; a fruit a third of an inch in diameter and pleasant to the taste. San Francisco, Cal., southward.

B. VULGARIS. The most commonly cultivated barberry.

BIVA—see Eriobotrya japonica.

BLACKBERRY—see Rubus fruticosus.

BORASSUS (Palmaceæ).

B. ÆTHIOPICUS Martius. A gigantic African palm, sometimes even 37 feet in circumference, with leaves 12 feet across. The sap forms a kind of palm wine. The edible part of the fruit is yellow, stringy, and of [illegible] flavor.

B. FLABELLIFORMIS Linne. Enormous quantities of sugar are prod[illegible] in India from the sap of this noble palm, which attains a hight of 100[illegible] and an age of more than 200 years. The pulp of the fruit serves for food[illegible]

BRABEJUM.

B. STELLATIFOLIUM Linne. A South African shrub, bearing nuts, edible after roasting.

BREADFRUIT—see Artocarpus.

CAROB—see Ceratonia siliqua.

CARYA (Juglandaceæ).

Trees with hard and tough wood, including the hickory, shagbark walnut, pecan, etc. C. ALBA is a tall and handsome tree, producing the delicious shell-bark hickory nuts. C. AMARA is a graceful tree bearing an intensely bitter nut with a thin shell.

C. ALBA Nuttall. Shell-bark or shagbark hickory; a tall and handsome tree, yielding the main supply of hickory nuts. Canada, southward.

C. AMARA Nuttall. Bitternut or swamp hickory; kernel intensely bitter.

C. GLABRA Torrey. Pig-nut or brown hickory; bearing a sweetish or bitter, small nut.

C. MICROCARPUS Nuttall. Balsam hickory; a fine, lofty North American tree, 80 feet high, bearing small but pleasant-tasting nuts.

C. OLIVÆFORMIS. The pecan; a slender tree, bearing deliciously flavored nuts; occurs wild from Illinois, southward. A lofty, handsome tree, growing 70 feet in hight, with a straight trunk; of very rapid growth.

C. SULCATA Nuttall. Nut of sweet, pleasant taste. Pennsylvania to Kentucky. Thick shell-bark hickory.

C. TOMENTOSA Nuttall. Mockernut or white-heart hickory. Canada, southward. Nut small, sweet, oily. "A variety produces nuts as large as a small apple, called king nuts."

CASHAW-TREE—see Prosopis juliflora.

CASIMIROA EDULIS L. & L. Mexico, up to the cool hights of 7,000 feet. Tree thrives well at Santa Barbara, Cal.; comes into bearing at ten years, producing an orange-like fruit, about an inch in diameter, pale yellow, of a rich subacid flavor, most palatable when near decay. The ZAPOTE of the Mexicans. The pulp of a delicious, melting peach-like flavor, according to Garner, while Hernandez states that the kernel is deleterious. The fruit is said to induce sleep. Efforts to propagate by cuttings have proved unsuccessful, and the seeds do not seem to reach perfection in California.

CASSAVA—see Manihot utilissima.

CASTANEA. (Cupuliferæ).

The chestnut is a native of the south of Europe and temperate Asia, as far as Japan, and a variety to North America. The varieties cultivated are all of the same species. The following are worthy of special note:

1. American Sweet. Succeeds well in the foothills of California. The wood lighter in color than that of the red oak, of greater durability and beauty; the nuts small but sweet.
2. Italian—see Spanish.
3. Japan Mammoth. Tree bears when quite young, producing a monster fruit—the largest chestnut known; of equal flavor with the American Sweet.
4. Maron Combale. Large; kernel rich and sweet; excellent.
5. Maron de Lyon. The largest French variety; roundish, sweet and well flavored; a prolific variety.
6. Numbo. Originated with Samuel C. Moon, of Pennsylvania, who says: "Numbo is a seedling of the European chestnut; the original tree is now 40 feet high, is enormously productive, and bears every year. The quality of the nut is equal to that of any of the large chestnuts, and when boiled or roasted they can scarcely be distinguished from the American sweet chestnuts. The trees are perfectly hardy, never having been injured in the least by any of the severe winters during the past thirty years. Grafted trees usually commence to bear three or four years after grafting."
7. Spanish. A large, sweet nut, but variable in size and quality, as the trees are raised from the seed. A highly ornamental tree of free growth.

C. VESCA Gaertner—see C. sativa.

C. VULGARIS Lamarck—see C. sativa.

CASTANOPSIS. (Cupuliferæ).

Several species of this genus produce edible nuts like chestnuts.

C. ARGENTEA. A lofty tree of India, bearing edible nuts.

C. CHRYSOPHYLLA. The western chinquapin, or oak-chestnut; attains a hight of 150 feet, and a diameter of eight feet; wood durable, ornamental.

C. INDICA. Oak-chestnut of India; nuts with the taste of filberts; found in mountains at an elevation of 4,000 feet.

CERATONIA (Leguminosæ).

C. SILIQUA Linne. The carob tree, also known as algaroba or St. John's bread, is a tree of wide utility in the Mediterranean region, and equally well adapted for portions of California. A handsome evergreen, dioecious tree, that may be grown from seed or propagated by grafting, and bearing at ten or twelve years. The fruit is largely fed to stock, containing about

66 per cent. of sugar and gum. The meat of sheep and pigs is said to be greatly improved by feeding these pods, and the fattening properties are twice those of oil cake.

CEREUS (Cactaceæ).

A large variety of Cerei produce edible fruit, especially C. Engelmanni, C. giganteus (the giant cactus), C. Quixo, C. gummosus, C. Thurberi, and many others. C. Engelmanni bears a fruit with the flavor of a strawberry.

CHERIMOYER—see Anona cherimolia.

TO BE CONTINUED.

SAN DIEGO SUNSHINE.

SAN DIEGO is universally recognized as having the most equable climate known in the world. While all Southern California is delightful in summer and winter, the vicinity of San Diego bay is especially pleasing to all who try a season on its shores.

The population of the city is between sixteen and seventeen thousand. There are 15 hotels, 23 churches, 5 banks, 8 public schools, an opera house that cost $100,000.00, 5 miles of paved streets, 7 miles of electric roads, 41 miles of sewer mains, 65 miles of water mains, and many substantial business blocks and palatial residences in the city. The assessed valuation of city property is $15,507,056.00, and the tax rate is 85 cents.

The bay of San Diego has been pronounced the best harbor, not excepting San Francisco bay. The value of foreign exports in 1892 exceeded half a million dollars. Three steamship lines enter the port, and 37,000,000 feet of lumber were brought by sailing vessels in 1892. During the same year a total of 437 vessels arrived in this port.

The largest frostless area in the United States surrounds the city, and the soil is not surpassed for the growing of oranges, lemons, olives, grapes and similar fruits. Over 2,000,000 fruit trees are now growing in the county, and over 2,500 acres more have been planted the past season.

The county, previous to the formation of Riverside county, contained over 3,000,000 acres of arable land, of which 24,000 acres were under irrigation. Land with water is held at from $75 to $250 per acre, while land without water is valued at $10 to $60 per acre.

The finest apples and other temperate fruits are produced in the mountain districts of the county.

The San Diego Union is a long established morning newspaper, and publishes a weekly edition. The San Diegan-Sun is a consolidation of two evening dailies and full of enterprise, and also publishes a weekly edition.

The county is noted for sunshine and flowers and the growing of seeds and bulbs for the eastern florists, and even for European dealers, is becoming a promising industry. Honey is also a noted product of the mountain valleys.

Continued from page 169.

The diurnal revolution of the sun proves the chemic dissolution, with a placid stillness, and with a trembling sweep of golden sheen lifts like the mists the flitting shadows that are wont to cling with such fondness to the night, that delight to gather betimes over a sleeping world. The revolution of the moon defines the considerable period—the month; while the annual revolution of the sun, the extended period of the year, the solemn procession of the seasons, and the march of the eternal ages.

Thus we may observe our mental phenomena is much the same in nature as our knowledge of the material phenomena, for the mountains of the one and the summits of the other have their origin enveloped in profound mystery. The primary laws of association are often very greatly influenced by temperament and constitutional tendencies, as may be observed every day, within certain classes of individuals.

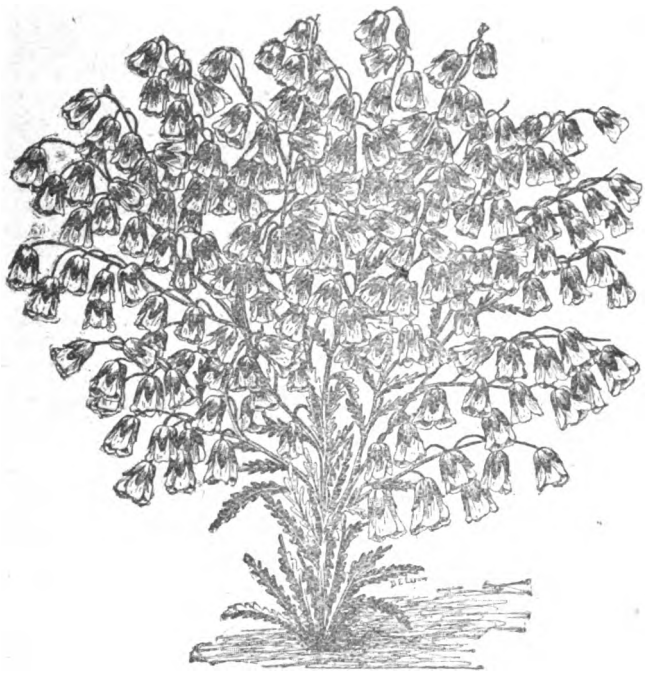
Whatever view we take, our intellectual powers show the mind as well as matter to be a proper object of science, and in uniformity with the laws of nature.

CALIFORNIA YELLOW BELLS.

It seems strange that one of the loveliest of California annuals should have escaped attention among lovers of flowers for so long. And yet the Yellow Bells of California, as it is called, is hardly yet introduced. The plant forms a broad bush, from a span to occasionally two feet high. Each of its numerous branches is fairly loaded with broadly bell-shaped pendulous flowers, a half inch long, and of a delicate cream color. The flowers are almost everlasting, the persistent corolla drying and retaining its shape until the seed has ripened. "The general effect of a branch is suggestive of a long spike of the lily of the valley," says one writer regarding it.

The pinnatifid foliage has caused the plant occasionally to be taken for a fern, before it blossoms. It occurs in Utah, and from Lake County to San Diego, and southward in Lower California. It belongs to the same family as the phacelia, nemophila and whitlavia of our gardens—all natives of the Golden State.

C. R. ORCUTT.



EMMENANTHE PENDULIFLORA.

CANAIGRE

THE CANAIGRE PLANT.

RUMEX HYMENOSEPALUS, Torrey, is a plant rapidly becoming of commercial importance in the southwest, and occurs in a wild state from California to Texas, southward into Mexico.

It was first described by Dr. John Torrey, in the botany of the Mexican Boundary, p. 177; Dr. H. H. Rusby gave an interesting account of its history and uses in the Druggists' Bulletin, Vol. IV, p. 365; Dr. Parry wrote of it in American Naturalist (IX 350) and said that in Utah the young shoots are used as a substitute for the garden rhubarb; while Dr. Trelease treats it in his Revision of Rumex (3d annual report Monthly Botanical Garden, p. 80).

In our May issue an interesting article was contributed on its cultivation in New Mexico, by G. O. Shields, to whom we are indebted for our accompanying illustration, the cut being received too late to accompany his article.

Probably there is no more promising tannin plant than this, while the therapeutic properties are treated by Dr. Rusby as above cited.

PRIZES ON PATENTS.

HOW TO GET TWENTY-FIVE HUNDRED DOLLARS FOR NOTHING.

The Winner has a Clear Gift of a Small Fortune, and the Losers Have Patents that may Bring them in Still More.

Would you like to make twenty-five hundred dollars? If you would, read carefully what follows and you may see a way to do it.

The Press Claims Company devotes much attention to patents. It has handled thousands of applications for inventions, but it would like to handle thousands more. There is plenty of inventive talent at large in this country, needing nothing but encouragement to produce practical results. That encouragement the Press Claims Company proposes to give.

NOT SO HARD AS IT SEEMS.

A patent strikes most people as an appallingly formidable thing. The idea is that an inventor must be a natural genius, like Edison or Bell; that he must devote years to delving in complicated mechanical problems and that he must spend a fortune on delicate experiments before he can get a new device to a patentable degree of perfection. This delusion the company desires to dispel. It desires to get into the head of the public a clear comprehension of the fact that it is not the great, complex, and expensive inventions that bring the best returns to their authors, but the little, simple, and cheap ones—the things that seem so absurdly trivial that the average citizen would feel somewhat ashamed of bringing them to the attention of the Patent Office.

Edison says that the profits he has received from the patents on all his marvelous inventions have not been sufficient to pay the cost of his experiments. But the man who conceived the idea of fastening a bit of rubber cord to a child's ball, so that it would come back to the hand when thrown, made a fortune out of his scheme. The modern sewing-machine is a miracle of ingenuity—the product of the toil of hundreds of busy brains through a hundred and fifty years, but the whole brilliant result rests upon the simple device of putting the eye of the needle at the point instead of at the other end.

THE LITTLE THINGS THE MOST VALUABLE.

Comparatively few people regard themselves as inventors, but almost everybody has been struck, at one time or another, with ideas that seemed calculated to reduce some of the little frictions of life. Usually such ideas are dismissed without further thought.

"Why don't the railroad company make its car windows so that they can be slid up and down without breaking the passengers' backs?" exclaims the traveler. "If I were running the road I would make them in such a way."

"What was the man that made this saucepan thinking of?" grumbles the cook. "He never had to work over a stove, or he would have known how it ought to have been fixed."

"Hang such a collar button!" growls the man who is late for breakfast. "If I were in the business I'd make buttons that would'nt slip out, or break off, or gouge out the back of my neck."

And then the various sufferers forget about their grievances and begin to think of something else. If they would sit down at the next convenient opportunity, put their ideas about car windows, saucepans, and collar buttons into practical shape, and then apply for patents, they might find themselves as independently wealthy as the man who invented the iron umbrella ring, or the one who patented the fifteen puzzle.

A TEMPTING OFFER.

To induce people to keep track of their bright ideas and see what there is in them, the Press Claims Company has resolved to offer a prize.

To the person who submits to it the simplest and most promising invention, from a commercial point of view, the company will give twenty-five hundred dollars in cash, in addition to refunding the fees for securing the patent.

It will also advertise the invention free of charge.

This offer is subject to the following conditions:

Every competitor must obtain a patent for his invention through the company. He must first apply for a preliminary search, the cost of which will be five dollars Should this search show his invention to be unpatentable, he can withdraw without further expense. Otherwise he will be expected to complete his application and take out a patent in the regular way. The total expense, including Government and Bureau fees, will be seventy dollars. For this, whether he secures the prize or not, the inventor will have a patent that ought to be a valuable property to him. The prize will be awarded by a jury consisting of three reputable patent attorneys of Washington. Intending competitors should fill out the following blank, and forward it with their application:

"————, ——, 1893.

"I submit the within described invention in competition for the Twenty-five hundred Dollar Prize offered by the Press Claims Company.

"————."

NO BLANKS IN THIS COMPETITION.

This is a competition of rather an unusual nature. It is common to offer prizes for the best story, or picture, or architectural plan, all the competitors risking the loss of their labor and the successful one merely selling his for the amount of the prize. But the Press Claims Company's offer is something entirely different. Each person is asked merely to help himself, and the one who helps himself to the best advantage is to be rewarded for doing it. The prize is only a stimulus to do something that would be well worth doing without it. The architect whose competitive plan for a club house on a certain corner is not accepted has spent his labor on something of very little use to him. But the person who patents a simple and useful device in the Press Claims Company's competition, need not worry if he fail to secure the prize. He has a substantial result to show for his work—one that will command its value in the market at any time.

The plain man who uses any article in his daily work ought to know better how to improve it than the mechanical expert who studies it only from the theoretical point of view. Get rid of the idea that an improvement can be too simple to be worth patenting. The simpler the better. The person who best succeeds in combining simplicity and popularity, will get the Press Claims Company's twenty-five hundred dollars.

The responsibility of this company may be judged from the fact that its stock is held by about three hundred of the leading newspapers of the United States.

Address the Press Claims Company, John Wedderburn, managing attorney, 618 F street, N. W., Washington, D. C.

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No. 2.
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San Diego, California.
JULY, 1893.

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For convenient reference we have arranged the following list in alphabetical order, and trust it will prove useful to our many friends. Prices are quoted on seeds by the hundred, ounce or pound, as indicated, and on bulbs and plants by the hundred when not otherwise stated.

We are wholesale dealers, importing to order from all portions of the world, and through our staff of collectors are enabled to secure almost any West American or Mexican seeds and plants.

We are also extensive growers of certain seeds and bulbs, and invite contracts for growing for wholesale dealers.

§ Known hybrids are indicated by a section mark, to distinguish from true species.

ABIES (Coniferæ)	Seed, ℔ lb
alba: white spruce	$ 6 —
amabilis: Lovely silver fir	5 —
balsamea: balsam fir	2 50
bracteata	10 —
brachyphylla: short leaved fir	6 —
ARIES (Coniferæ)—Continued.	Seed, ℔ lb:
Canadensis: hemlock	4 —
concolor: California white fir	5 —
Douglasii—see Pseudotsuga Douglasii.	
excelsa: Norway spruce	2 —
firma: Japan silver fir	5 —
grandis: great silver fir	4 —
homolepis: Japan fir	10 —
Hookeriana: see Tsuga Pattoniana.	
magnifica: stately in habit	6 —
macrocarpa—see Pseudotsuga m.	
Mariesii: Japan	8 —
Menziesii—see Picea Sitchensis.	
Mertensiana—see Tsuga Mertensiana.	
Nordmanniana: Nordmann's fir	5 —
nobilis: red fir; 200 ft. high	5 —
pectinata: European silver fir	5 —
pinsapo: Spanish fir	5 —
Sachalinensis: Japan fir	10 —
sub alpina	5 —
Veitchii: Japan	10 —
Williamsonii—see Tsuga Pattoniana.	
ACACIA (Leguminoseæ)	
dealbata	5 —
decurrens: black wattle	3 50
floribunda	6 —
latifolia	5 —
melanoxylon	5 —
molissima	5 —
pycnantha	5 —
ACER (acerineæ)	℔ oz
macrophyllum	35
saccharinum: sugar maple	25
ACROCOMIA (palmæ)	℔ 100 seeds:
sclerocarpa	2 —
ADIANTUM (Filices)	Roots, ℔ 100
emarginatum	6 —
ÆSCULUS (sapindaceæ)	℔ oz
flava	20
glabra: Ohio Buckeye	15
AGAPANTHUS (Amaryllidaceæ)	℔ 100
umbellatus: African lily	10 —
" alba	20 —
AGAVE (Amaryllidaceæ)	℔ 100
Americana	12 —
deserti: from the Colorado desert	50 —
Pringlei: new	150 —
Shawii: compact growth; dark green	45 —
stricta	25 —
Texana	15 —
AILANTHUS (rutaceæ)	℔ oz
glandulosus: Tree of Heaven	15
ALOCASIA,	℔ 100
ILLUSTRIS	8 —
ALOE (liliaceæ)	100:
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unnamed sorts	$10, $15 and 25 —
AMARYLLIS (Amaryllidaceæ)	℔ 100
Johnsoni: large	5 —
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Canadensis	20
ANEMOPSIS—see Houttuynia.	
ANHALONIUM (Cacteæ)	℔ 100
Engelmanni: Living rock	——
Lewinii	12 —
prismaticum	——
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papyrifera	1 50
Sieboldi. ℔ 100 seed $1.	
ARBUTUS (ericaceæ)	℔ oz
Menziesii: Madrona Tree	80
unedo: Strawberry-bush	25
ARCTOSTAPHYLOS (ericaceæ)	℔ oz
bicolor	45
glauca: Great-berried Manzanita	15
manzanita	35
ARECA (palmæ)	℔ hundred seeds:
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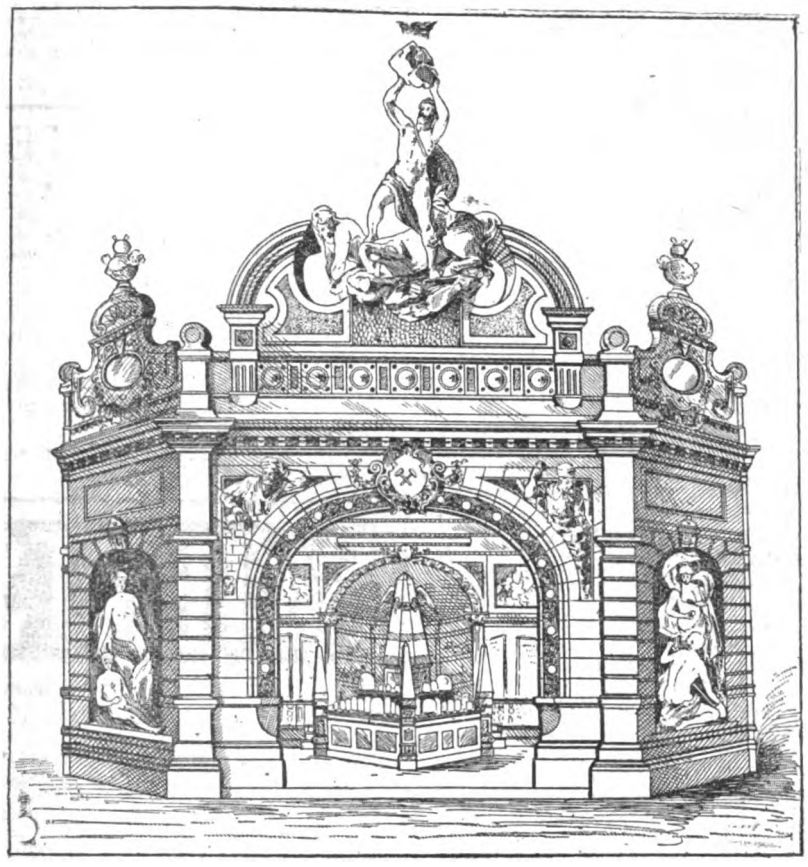
EXHIBIT OF THE GERMAN KALI WORKS.

Among the agricultural exhibits at the World's Fair one of the most interesting is that of the German Kali Works, in which the products of the great potash mines are displayed. These mines are located at Stassfurt, Germany, and furnish, as is well known, nearly the entire supply of potash —a valuable plant food and ingredient of every complete fertilizer. The potash coming from this source is found in large quantities in the form of solid masses of potash salt, most of which are subjected to a manufacturing process by which they are concentrated and made ready for use. The exhibit comprises a full collection of these minerals, which are highly interesting to the geologist and agricultural student.

There are many varieties of crude potash salts, differing in their chemical composition, among these Carnallite and Kainit are the most important. From these are manufactured the concentrated salts, such as muriate of potash, sulphate of potash and many other chemicals.

All these products are fully displayed at the exhibit, as well as photographs of the mines and maps showing and illustrating their location. Especially interesting to the agriculturist are various illustrations of experiments and graphic tables revealing in a striking manner the beneficial effect of potash upon crops and the important part which this element plays in plant nutrition.

The pavilion in which the exhibit of the German Kali Works is contained is of great architectural beauty. It is the tallest structure of all agricultural exhibits and built in Renaissance style, richly decorated with allegorical figures, designed by Mr. Wm. Westphal, a well-known sculptor of Berlin.



G. A. R. NOTICE.

We take this opportunity of informing our subscribers that the new Commissioner of Pensions has been appointed. He is an old soldier, and we believe that soldiers and their heirs will receive justice at his hands. We do not anticipate that there will be any radical changes in the administration of pension affairs under the new regime.

We would advise, however, that U. S. soldiers, sailors, and their heirs, take steps to make application at once, if they have not already done so, in order to secure the benefit of the early filing of their claims in case there should be any future pension legislation. Such legislation is seldom retroactive. Therefore it is of great importance that applications be filed in the Department at the earliest possible date.

If U. S. Soldiers, Sailors, or their Widows, Children, or Parents desire information in regard to pension matters, they should write to The Press Claims Company, at Washington, D. C., and they will prepare and send the necessary application, if they find them entitled under the numerous laws enacted for their benefit.

ADDRESS

ESTABLISHED APRIL, 1889.

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AMONG THE MAGAZINES.

GARDENING, Monon Bldg., Chicago, is a journal of much merit, edited by Wm. Falconer; issued twice a month; $1 a yr.

LE JARDIN, 5 rue d'Edimbourg, Paris, the best of the French horticultural journals is enjoyable to all who read the language.

GARDEN AND FOREST, a weekly journal of horticulture, landscape art and forestry, is now the best journal of its class in the world.

THE GARDEN, 37 Southampton st., London, appears weekly and is the best of the foreign journals that we know; a colored plate appears with each issue.

MEEHAN'S MONTHLY deserves the attention of all lovers of American wild flowers, not only for the beautiful colored plates but the charming text as well. Issued from Germantown, Phila.

THE AMERICAN HORTICULTURIST, Lawrence, Kansas, gives a full account of the India coffee berry, which it claims will revolutionize the coffee trade as it can be produced in all the corn growing states for a cent a lb.

READERS of past numbers of Blue and Gray, the new American patriotic magazine, (Patriotic Publishing Company, Philadelphia), as well as those who have not yet perused its pages, will find the July number valuable and entertaining. In new type, and with an unusually large number of articles and illustrations—in fact, a double number—the latest issue of Blue and Gray is now a worthy compeer of the best magazines in this country.

THE fifteen new forest reservations recently created by the government are described in the July number of the Review of Reviews, and maps are presented showing the exact location of each. These reservations are scattered throughout the great western half of the country, and aggregate in extent probably not less than fifteen million acres. The writer makes plain the importance of preserving the great forests which guard the headquarters of many of our large rivers, and urges that the undertaking so splendidly begun may be further extended.

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THE GREAT SOUTHWEST

A MONTHLY JOURNAL OF HORTICULTURE

JANUARY 1894

THE GREAT SOUTHWEST PUBLISHING COMPANY

NO. 365 TWENTY-FIRST STREET

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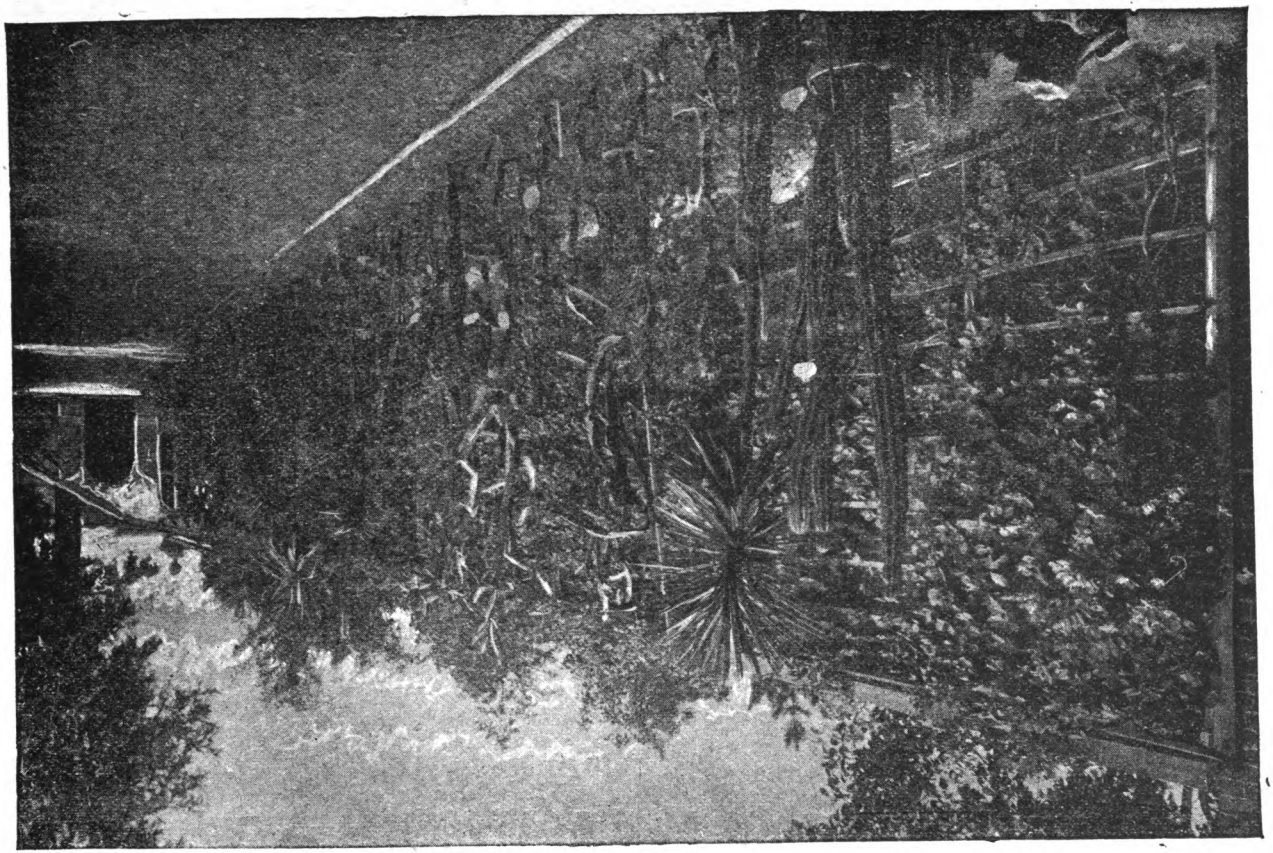
TO OUR SUBSCRIBERS.

The SPECIAL ANNOUNCEMENT which appeared in our columns some time since, announcing a special arrangement with Dr. B. J. Kendall Co., of Enosburgh Falls, Vt., publishers of "A Treatise on the Horse and his Diseases," whereby our subscribers were enabled to obtain a copy of that valuable work FREE by sending their address (and inclosing a two-cent stamp for mailing same) to Dr. B. J. Kendall Co., is renewed for a limited period. We trust all will avail themselves of the opportunity of obtaining this valuable work. To every lover of the horse it is indispensable, as it treats in a simple manner all the diseases which afflict this noble animal. Its phenomenal sale throughout the United States and Canada makes it standard authority. MENTION THIS PAPER WHEN SENDING FOR THE TREATISE.



A CACTUS CORNER IN THE MISSOURI BOTANICAL GARDEN.

The garden maintained for many years in the private grounds of the late Henry Shaw, at St. Louis, is known to most people who have passed through that city, and few people traveling for pleasure have stopped there for a day without a visit to Shaw's Garden. At the death of Henry Shaw, in 1889, this garden was left in the care of a board of trustees, to be maintained as a botanical garden, and is endowed with practically the whole of his large fortune.

The accompanying view is from the first report on the garden under the management of the trustees, and represents one of the several groups of large cacti which are set out during the summer. Many of the specimens of Opuntia and Cereus are large and old plants, and possess historical interest for students of this group of succulents, since they came originally from Prince Salm Dyck, one of the greatest authorities on the cacti, and were closely observed by Dr. Engelmann, whose studies laid the foundation for the knowledge of our own species. The collection in this group is believed to be one of the largest and most complete in existence, and the library and herbarium of the garden are also very rich in material referring to the cacti. The managers desire that every species of cactus growing in the United States, as well as Mexican species, shall be represented in the near future. For botanical study, as well as popular observation, St. Louis is likely for some time to come to be the cactus center of the country.

In Southern California, however, the cactus is more at home, and the Arizona garden at Monterey famous among travelers. A large private collection is at Pasadena, comprising about two or three hundred species, and is in thriving condition. The proprietors of the Hotel del Coronado planted about five hundred varieties, furnished by the writer, who has personally collected, or received from correspondents, more than half the varieties as yet known to botanists. Nearly twelve hundred species have been described, of which many will doubtless have to be, ultimately, referred to synonymy.

The writer has recently added nearly two hundred species to his collections, including some new and many rare ones from Mexico and other localities, and hopes ultimately to have the most complete private collection in the world. *C. R. Orcutt.*

APRIL FLOWERS IN NORTHERN CALIFORNIA.

(From *Garden and Forest*, iv. 214.)

The middle of April, in California, north of San Francisco bay, finds the wild flowers, in hundreds of species, and often in vast quantities, covering acres on acres of ground. As yet the height of

the season is not reached., The San Joaquin valley and Monterey are fully three weeks earlier, and Southern California earlier still. A month ago our common Buttercups, Ranunculus macranthus, were few in numbers; now the roadsides are yellow with them, and pastures are covered with them by the acre. In wet places R. Bloomeri takes its place with equal profusion. Yellow seems a favorite color here, and it is always seen in masses. In places a low-growing Œnothera, in profuse flower, shows the richest of yellows for a long period. Then the Eschscholtzia fairly monopolizes some vacant lots in this town where there is a deep gravelly soil. These beautiful Poppies appear, not in dozens or thousands, but turn whole acres into billowy masses of splendid orange; other acres glow with the darker orange of Amsinckia or the purple-blue of Lupines. The Eschscholtzia foliage is especially rich this season in scarlets and bronzes, which, if they could be relied upon as permanent, would make it an interesting foliage plant.

Nemophilas are largely used by nature as bedding plants here. N. insignis, Blue Eyes we call it, is everywhere in single plants or in beds, a few yards in extent, and occasionally by the solid acre. Gilia tricolor is another plant which now covers entire hillsides. Platystemon Californicus, another member of the poppy family, is also a favorite with nature. The flowers are a creamy yellow, borne separately on long stalks. In dry fields it covers large areas. White is the rarest color in these natural parks. Several species of Eritrichium are here, with delicate, white flowers. Limnanthes Douglasii, long in cultivation, forms large white masses in moist places. Scarlet does not yet appear in abundance, although Calandrinia Menziesii, another cultivated species, is everywhere.

Mendocino county and the region around the base of Mount Shasta have the richest flora in California. The Sierra Nevada range is largely volcanic. In the coast range clays prevail, with here and there volcanic projections. At Shasta these two ranges meet, giving in a small space great variations in soil, altitude, exposure and moisture. The rainiest spot in California is closely adjacent to a lava desert, so at Mount Shasta the conifers have a wonderful development in species, and the flora as a whole is very rich. In Mendocino county the redwood forest furnishes shade and moisture. The dry Chemisal region is close at hand, giving the prevalent flora of the coast range. Elevations of 5,000 to 6,000 feet give alpine conditions, while isolated volcanic points add variety to soil. Add to this narrow valleys and deep canyons, and the variety of vegetation is not to be wondered at.

Among shrubs the various Ceanothus are common, going far to

make up the unbroken growth, from six to fifteen feet high, which, in an almost impenetrable thicket, clothes many of the mountain sides of the coast range, and gives them a smooth, Heath-like appearance. The local name for this low growth is chemisal when the shrub Adenostoma fasciculatum predominates; chapparal, if the growth is largely mixed. In the aggregate vast areas are so covered. One continuous belt is sixty miles long by eight or ten wide, with very small breaks in timber or grazing land. Ceanothus divaricatus is one of the commonest elements of chapparal, and is now in bloom. In the open Redwood C. thyrsiflorus, a fine shrub, often fifteen feet high, with flowers much like a lilac, and fully as beautiful, covers large areas in an almost impenetrable thicket.

In my garden Erythronium grandiflorum is beginning to fade. It gave fine satisfaction this season, planted in chip mold, and rather shallow. E. giganteum, from Oregon, bloomed for the first time this year. The bulbs were strong and produced large blossoms, four to six to each, and several three inches across. Close observation shows some difference between this and E. grandiflorum, but the distinction is not well enough defined to be satisfactory. The yellow of the flowers of E. giganteum has a slight greenish shade, while those of E. grandiflorum shade from light straw at tips to rich yellow near the centre, and occasionally with markings from light brown to very dark. E. Smithii lacks the elegance of form of the two former, and is one-flowered. Its color, at first, is white, with a pink tinge, and becomes pink-purple. E. Howellii has a straw-colored flower with a peculiar pinkish orange centre. With me it was quite small, but the bulbs may not have been strong.

Brodiæa multiflora and B. congesta blossomed together, and very beautiful they were. They were planted in shallow boxes, the top soil mold and clay with a light dressing of sand. The first Calochortus to flower was the dainty little C. cœruleus. It was closely followed by C. lilacinus. The first is doing well in a common clay loam. Fritillaria lanceolata seems to runs to many forms, which, to the gardener, would be good varieties. The prettiest I had this year was a light yellow one. They were in shallow boxes about three inches deep, in clay loam, and shaded in the afternoon. Considering the quality of the bulb the flowers were as good as I have seen in the very best natural wild growth. There is a variety of F. recurva which is unusually fine. Some racemes were sent to me with five to nine blossoms, and I have heard of one with eighteen.

Carl Purdy.

THE GOLONDRINA PLANT.

(From the San Diego *Union*, revised by the author.)

The rattlesnake is the most abundant and the most dreaded of the venomous reptiles of the United States. The Pacific coast is free from any other variety of known poisonous serpents, but several varieties of the rattlesnake abound in sufficient numbers to make up for the lack of variety otherwise.

Our most venomous and ugly species is the black rattlesnake, (Crotalus lucifer) found near the coast, from Oregon to Lower California, smaller in size than the more common yellow rattler. It is usually found in grassy valleys or canyons, and though smaller in size is much livelier than the other form and not inclined to bear insults without showing fight.

The yellow rattler, or diamond-back, as it is sometimes called, (Crotalus enyo) is much larger, often five, more rarely six feet in length, sluggish, and not inclined to fight if it can avoid conflict, except at certain seasons when it also, is very pugnacious.

In April it is sometimes inclined to attack one, and will not readily run from you, but by June it shows a desire to escape—probably because it is blind and knows itself to be at a disadvantage. Some say it is then more dangerous, as it will strike without warning, which is probably true if it is disturbed. But the current belief that the rattlesnake will always give warning is a dangerous popular fallacy, as such is not the case. It will rattle and strike simultaneously, and often will await your near approach before giving warning. I will give a case to illustrate this point. In May, 1886, near San Quintin bay, I started to climb a steep bank to reach a certain plant growing above me. Just beside it was a large yellow rattler, coiled ready to strike and waiting for its probably expected prey. As I approached it made no motion, but the strong magnetic influence of its eye, as it wickedly watched my approach, caused me to look up just in season, when my head was nearly on a level with its own, and to step back out of danger. Still it did not rattle until a pistol shot gave it its quietus.

In June, 1889, while shaking the seed from the bush into a pan, held near the ground and under the bush, I had the pleasure of seeing a large yellow rattler quietly move from under the bush out of my way, without giving any indication of its presence beforehand. Probably my movement of the bush above it had slightly disturbed the good-natured fellow without arousing his resentment.

Another slim and exceedingly lively rattler, with alternate rings of black and white, is found in our mountains, bordering the desert.

After observing the rapid locomotion of a particularly long individual one day, I considered discretion the better part of valor when it turned upon me and showed fight, especially as I chanced to have no weapon at hand.

On the Colorado desert the rattlesnake closely imitates the color of the sand that surrounds it. The larger one resembles the diamond-back in its markings and is the species known as Crotalus pyrrhus.

The desert region possesses a smaller species (Crotalus cerastes) scarcely a foot in length, white as the sands beneath it, as pugnacious as a terrier among rats, by no means sluggish in the hot sun, but inclined to honorable warfare by giving warning to its approaching enemy. One evening the operator at a station on the Southern Pacific railway stepped into his office with slippers on his feet and quickly stepped out again as he felt and heard one of these reptiles under his foot. The sand-viper, or side-winder, as these diminutive snakes are called by their acquaintances, kept his tail employed in a lively manner until the young man put on his boots, struck a light and dispatched him. On the Mojave desert this snake is exceedingly abundant in some localities. Their nocturnal habits render them especially dangerous where they abound. All the other rattlers, I believe, travel only in the daytime as a rule, when, if one is on the lookout, he can generally avoid unpleasant experiences with them.

Dr. S. Wier Mitchell, of Philadelphia, who has made a special study of venemous serpents, and has studied our rattlesnakes especially, claims there is no sure cure known for the virus of a rattlesnake. There is a popular article in the *Century Magazine* (Vol. 38, pp. 513-514) by this author. I will copy a few sentences.

'When a man or an animal is bitten by a rattlesnake death may take place in a few minutes. It has followed in man within a minute, but unless the dose given is enormous, or by chance enters a vein, this is very unlikely. The bite is, however, popularly believed to be mortal, and therefore every case of recovery gives credit to some remedy, for it is a maxim with physicians that the incurable and easily relievable maladies are those which have the most remedies assigned to them. * * * The deadly apothecary does not succumb to his own drugs. * * * We have never been able to poison plants with snake venom. * * * It is possible to feed a pigeon on crotalus (rattlesnake) venom day after day and see it live unhurt. * * * A bite in the extremities rarely causes death.'

From the above it will be seen that the bite of the rattlesnake is

extremely dangerous but not always fatal. The poison itself has no effect on the rattlesnake, though deadly to other snakes, yet by biting itself in a vital part the snake has power to commit suicide. This has frequently been witnessed and abundantly testified to and given rise to the popular fallacy that it dies from its own poison.

Under normal conditions of health the venom is undoubtedly harmless to the human system if taken internally. Yet such experiments might prove fatal to some individuals or under unfavorable conditions of health.

We will again quote Dr. Mitchell that a clearer view of the subject may be obtained:

'If we mix any venom with a strong enough solution of potassa or soda we destroy its power to kill. A solution of iodine or perchloride has a like but a lesser capacity and so also has bromohydric acid; but by far the best of all is permanganate of potash. If this agent be injected at once or soon through a hollow needle into the fang wound wherever it touches venom it destroys it. It also acts in like destructive fashion on the tissues, but, relatively speaking, this is a small matter. If at once we can cut off the circulation by a ligature and thus delay absorption we certainly lessen the chances of death; yet, as the bites occur usually when men are far from help, it is but too often a futile aid, although it has certainly saved many lives. The first effect of venom is to lessen suddenly the pressure under which the blood is kept while in the vessels. Death from this cause must be rare, as it is active for so short a time. Any alcoholic stimulants at this period would be useful; but, despite the popular creed, it is now pretty sure that many men have been killed by the alcoholism to relieve them from the snake bite, and it is a matter of record that men dead drunk with whisky and then bitten had died of the bite. For the consequences to the blood and to the nerve centers which follow an injection of venom there is, so far as I am aware, no antidote; but as to this I do not at all despair and see clearly that our way to find relief is by competently learning what we have to do. * * * We may hope to find remedies which will stimulate and excite the vital organs which venom enfeebles. In this direction lie our hopes of future help. Anything which delays the fatal effect of the poison is also a vast advantage in treatment.'

GOLONDRINA.

Several cases of rattlesnake bites have been recently described to the writer, where five drops of ammonia taken in a glass of whisky every five minutes several times in succession resulted in relief and a cure. Ammonia and whisky, with sweet oil or any oily substance,

butter or even lard, are the most general popular remedies credited with curing the bites of venomous reptiles or insects. Other remedies, like black ash bark, caustic and bluestone, gunpowder ignited on the wound (in cases of horses or cattle bitten), and many others are often reported as efficacious in the cases where they were applied.

The Euphorbiaceæ or spurge family contains plants and shrubs, usually with a milky, acrid (poisonous) juice. In Euphorbia, the principal genus in America, the flowers are monoecious, included in a cup-shaped, four and five-lobed involucre resembling a calyx or corolla, usually bearing large and thick glands at its sinuses.

In the species to which the name golondrina is usually applied the leaves are small, all opposite and similar, furnished with awl-shaped or scaly stipules; stems and branches usually forming a broad, spreading mat on the ground; annual, usually in blossom throughout the year.

Messrs. Parke, Davis & Co., Detroit (WEST AMERICAN SCIENTIST, vol. vi., p. 84), say of these plants:

"We find that several species of Euphorbia, mostly the E. albomarginata and the E. prostrata, have acquired a reputation as antidotes for snake poisoning under the names of 'golondrina' and 'gollindrinera.'

In Southern California Euphorbia polycarpa is the common golondrina of the Mexicans and Indians, and has the reputation of being a sure cure for all cases of venom poisoning, in common with other similar, nearly related species of this genus. It is abundant from the seashore to the Colorado desert, where a larger variety than ours is very abundant.

The *Herald*, of Banning, Cal., Louis Munson, editor, under date of October 12, 1889, contained the following article on the varieties of this plant, which I consider worthy of reproduction:

An article of Dr. S. Wier Mitchell, of Philadelphia, lately widely copied, announced that no sure cure was known for the virus of a rattlesnake. The doctor evidently had not consulted the lore of the Indians of Southern California. Nobody hears of an Indian dying from the bite of a rattlesnake, nor of his losing any stock from that cause. On the authority of Mr. I. K. Fisher, of Santa Barbara, we state that when a snake has bitten itself it resorts to the remedy which the Indians use, from which we infer that their discovery of the cure arose from observing the snake's employment of the same remedy.

Mr. Frank Smith, of Whitewater, speaks the Indian language, and through that has come into possession of many secrets which

their reticence hides from most white men. From him we learned this remedy, and announce it with the assurance of Mr. Smith's entire responsibility and veracity. Indeed, so confident is he of the power of the remedy that he is willing, in true California eloquence, to wager Dr. Mitchell in any sum from $500 to $1000 that he can cure any case of rattlesnake bite, Dr. Mitchell himself furnishing the snake if he wants to be sure of its venomous character. The remedy is this: There is a weed which grows wherever the rattlesnake lives; it is green during snake season. When a creature is bitten the green weed is bruised in a little urine, the skin about the bite is scarified with a knife, and the bruised weed is rubbed over the scarified place for ten or fifteen minutes. A bunch of the bruised weed is then bound on the scarified surface and left. Within forty-eight hours without fail all symptoms of the poison disappear.

'The weed is a species of Euphorbia common in this country. It is a little, vinelike plant, radiating from a center, usually clinging close to the ground, with a light green round leaf shaped like a clover leaf, but only a half or a third as large. When a stem is broken, milk will drop out profusely. A few pieces of the weed grow just south of where the road leads from San Gorgonio avenue, in Banning, across the vineyard to the company's barn north of town. There just at the edge of the road along the ditch it can be found and recognized.

'Mr. Smith gave us three accounts of this cure:

'1. In 1878 a snake charmer in Prescott, Arizona, was bitten by a rattlesnake on the back of the hand. Ten hours thereafter he was unconscious, his arm and whole side swollen, and the physicians gave him up to die. Mr. Smith then applied his remedy, and the next morning the man was walking the streets well.

'2. In 1862 a Mexican boy was herding sheep in this pass for the Trujillos. He was bitten by a rattlesnake on the fiorefinger. When seen by Mr. Smith the next day he was swollen enormously all over, 'as big as three boys,' says Mr. Smith, and in great agony. This remedy cured him.

'3. A horse was bitten on the nose. When found its head was swollen, and knots as big as nuts showed down its neck and on its body. It had been bitten several hours, the fang marks showing on its nose. He cured it and rode it fifty miles the third day without injury.

'The Mexicans call this weed golondrino.

'If any one seeing this article knows Dr. S. Wier Mitchell's address, we would be obliged by having him see this article.'

In the first paragraph of the above article reference is made to

the snake using the plant itself in case of its repenting of suicidal intentions. But this is open to doubt and it may be presumed that the snake resorted to the use of the plant for some reason unknown to us. That it is an infallible cure may also be doubted, notwithstanding the numerous cases which have been described to me by different and reliable observers where it proved efficacious in preserving life. In Texas the plant is steeped in fresh milk and the tea given internally in cases where children are bitten by the rattlesnake. In Lower California the plant is first masticated and a portion of the weed then applied to the scarified wound and a part swallowed. In Mexico I am informed that among certain Indian tribes the men carry a little of this herb—dried—on their person constantly and say that where it is promptly applied a snake bite never proves fatal.

All this cumulative evidence is not to be hastily discredited in a matter of so great importance, for, while the mortality from this cause in the United States is not great, yet in India and some portions of tropical America, many thousands annually lose their lives from venomous serpents. If this plant really possesses the qualities ascribed to it its introduction in those countries afflicted in this way would be of lasting benefit to the human race.

It should be borne in mind that the milky juice of the golondrina is in itself poisonous, whether taken internally, or with many individuals, applied externally to the skin. A case of poisoning by this plant was lately brought to my attention. Several ladies and children thoughtlessly ornamented their hats with the pretty clusters of leaves and white flowers, getting the juice on to their hands and faces. In two or three of these individuals the effect was similar to a case of poisoning from the poison oak, while the others were not affected in the least. I have frequently had the milky juice on my hands, when collecting specimens for my herbarium, without any inconvenient results. *C. R. Orcutt.*

YUCCA WHIPPLEI.

(From *Vick's Magazine*, xiv, 211.)

The persistent reader of florists' catalogues will sometimes find the name that heads this article at the tail end of the short list of yuccas. It received its name from the zealous and talented Lieutenant A. W. Whipple, who, in 1853-4, crossed the plains at the head of an exploring expedition of the United States government.

In the early summer one may see the Indians of our San Bernardino valley with bundles of some green vegetable substance

which has been formed into balls of two to four inches in diameter. This substance they eat green, by chewing and extracting the sweet juice and ejecting the white fibrous 'cud' left after the operation, or, to heighten the relish, they roast it over the coals, sometimes merely warming it through. They will tell you this is mesqual (mez-kal). A botanist would tell you that it is Yucca Whipplei. What's in a name after all? Mesqual will taste just as sweet to the uninterested savage. Still earlier in the season you may see little bands of Indians on foot, and mounted on their wretched mustangs, bound for the hills; they are going after mesqual too. They will bring back with them many fibrous, spherical, sticky and dirty looking masses about as large as a cocoanut, fiber and all. If you have courage enough to taste it you will find it quite sweet, and the Indian will tell you it is mesqual, and muy dulce.

When the mesqual is suitable for cooking they gather great quantities of it, at some convenient spot near their camp. They then make a slight depression in the soil, in which a fire is built and maintained for some time, until the ground, and a quantity of stones also, which have been thrown in, become quite hot. When this primitive oven is at the right temperature the mesqual, stripped of its leaves, is thrown in, the embers having been first raked to one side. When a thick laver of mesqual has been placed in the oven, the hot stones, embers, ashes, soil and green grass are thrown over the whole pile and a fire kept burning on top of it; this is kept going till the chief cook deems the mesqual to be thoroughly cooked, when the pile is pulled to pieces and the contents allowed to cool. In taste it has a faint resemblance to a baked sweet apple, and is about of the same consistency. The whole mass is a mixture of this sweet, soft pulp and coarse, white fibers, much like a manilla rope yarn. Care must be taken not to eat much of it, for it has a medicinal effect similar to castor oil, though the Indians do not seem to mind this at all. I am told that the Indians on the desert north of us knead up the fresh-baked mesqual into cakes, and these are dried in the sun for future use. The Agave deserti is also called mesqual, and is cooked the same way, and I have good season to believe several other sorts of agave. In fact I believe that Yucca Whipplei is the only yucca that is used in this manner. Mesqual seems to be the general name for all plants that are prepared as I have stated, hence Whipple's yucca also becomes mesqual, because eatable in this manner.

Should you wander along the sand washes and slopes of the higher parts of our valley you cannot help noticing a curious looking plant growing there in considerable numbers. From an upright

spike, solid and hard, growing directly out of the ground, radiate in every direction long green leaves with sharp spikes at the ends—a hemisphere of rigid, bristling leaves. As the plant approaches maturity, and prepares to bloom, the base broadens and thickens till it has quite a bulbous appearance; when in this condition it is considered eatable by the Indians. Presently the central spike of close-clustering leaves grows taller and thicker, and from the center emerges the flower stalk, very tender and white, with the close-clustered buds so minute as to be scarcely recognizable; at this period of its growth it looks very much like a huge stalk of asparagus. The growth of this flower stalk is exceedingly rapid. The faster it grows the faster the flower buds develop, but it is not till the stalk is some five or six feet high that it begins to branch out from the central stem in every direction, and subdivides again into many smaller stems, each terminating in a perfect flower. When the plant is in full bloom there is a spike of creamy white flowers two feet across and tapering upward three or four feet to the top, where the delicate green buds are not yet open. The flowers are some two inches across, generally of a delicate cream color, or pure white, not infrequently with a line of green or purple down the center of each petal; instances are not rare where the whole flower is of a rich purple color. In texture the flower is thick and waxen looking. This yucca has the peculiarity of dying as soon as it has flowered, like the agaves. *W. F. Parish.*

[Yucca whipplei, common in Southern and Lower California, is better known among the native Californians as the ciote plant (pronounced ke-o-ty), and is also known as the mountain yucca.—EDITOR.]

NEW BOMBYLIDÆ FROM CALIFORNIA.

In 'Entomologica Americana' Volume I, pages 115 and 116, I gave a synoptical table of the species of Lordotus known to inhabit North America, and characterized three new species. Since the publication of that paper no new species from this region have, to my knowledge, been described. I give below descriptions of two new species which I collected in Southern California, and present a new table of all the known species of Lordotus from North America:

1. Scutellum not grooved, rounded behind..... 2
   Scutellum with a deep, longitudinal groove.....Canalis Coq.
2. Wings hyaline, destitute of brown clouds or spots..... 3
   Wings with apical half of first basal cell (usually), and basal half of marginal and of first submarginal cells brown, a brown cloud on the small crossvein and another on the crossvein at base of fourth posterior cell.....Gibbus Lw.

Wings hyaline except the brown clouds situated mostly on the crossveins.....Planus O. S.

3. Pile of breast and of legs largely white or yellowish..... 4
   Pile of face, antennæ, breast, legs and venter largely black.....
   .....Apicula Coq.
4. Abdomen destitute of crossbands of white tomentum..... 5
   Abdomen with distinct crossbands of white tomentum.....
   .....Miscellus Coq.
5. Abdomen destitute of a crossband of black pile..... 6
   Abdomen with a crossband of black pile, costa of wings in the male provided with teeth-like projections.....Zona Coq.
6. Second antennal joint scarcely longer than wide, costa of wings in the male destitute of teeth-like projections, pile of body yellowish-white in both sexes.....Junceus n. sp.
   Second antennal joint nearly twice as long as wide, costa of wings in the male provided with teeth-like projections, pile of body yellowish-white in the male, golden yellow in the female.....Diversus n. sp.

LORDOTUS JUNCEUS n. sp. Black, opaque. Front in the female densely gray pollinose, yellowish and white pilose, covered with minute black points; face in both sexes densely white pilose. First joint of antennæ scarcely two-thirds as long as the third, second joint as wide as long; pile of upper side of first two joints brownish, that on the lower side more dense and white. Pile and tomentum of upper part of occiput in the male wholly yellowish-white, in the female mixed white and yellowish-white, that on remaining part of occiput white. Thorax in the female grayish pollinose and covered with minute black points, in the male the pollen and points are almost wanting; pile and tomentum of thorax mixed white and yellowish-white, mostly of the latter color in the male. Scutellum rounded behind, its covering like that of the thorax. Pile and tomentum of pleura white, of the abdomen yellowish-white, that on the venter white; hind margins of abdominal segments two to five, sometimes yellowish in the female. Pile and tomentum of legs white, bristles of tibiæ and of tarsi black. Wings wholly hyaline, costa in the male destitute of teeth-like projections. Stalk of halteres brown and yellow, the knob sulphur-yellow. Length, 5 to 9 mm. Los Angeles and San Diego counties, California. 6 male and 3 female specimens, in May and June.

LORDOTUS DIVERSUS n. sp. Male black, opaque. Second antennal joint twice as long as wide, but a trifle shorter than the first, the two together about equaling the third in length; base of the third joint yellowish; pile of upper side of first two joints short, sparse, mixed yellow and black, of the lower side yellow, long and dense. Pile of face yellow. Pile and sparse tomentum of occiput, thorax, scutellum and abdomen wholly dirty-white, that on the pleura and

venter purer white. Scutellum rounded behind. Apex of femora, whole of tibiæ and base of tarsi, yellow; pile and tomentum of femora white, tomentum of tibiæ and tarsi yellow, their bristles black. Wings wholly hyaline, the costa beset with large, black teeth-like projections. Stalk of halteres yellowish, the knob white. Female differs from the male as follows: First two antennal joints yellow, their pile wholly golden yellow. Pile and tomentum of front, face, occiput, thorax, scutellum, abdomen, pleura and venter golden yellow. Femora wholly yellow, its pile and tomentum yellowish. Length, 6.5 to 10.5 mm., the males, on an average, the largest. San Diego county, California. 4 male and 9 female specimens, in May.

These two forms, although differing so much in coloration, are evidently the opposite sexes of the same species. I collected specimens of both forms at the same time and place, and did not take at the same time a single specimen of any other species of Lordotus having the same form of second antennal joint as both of these forms possess.

In the same volume of the periodical above referred to, on pages 221 and 222, I gave a table of the known species of Toxophora occurring in North America, and described two new species; I give below a description of another new species, which makes it necessary to somewhat modify and extend the previously published table of species, as follows:

1. Wings with three submarginal cells..... 2
   Wings with only two submarginal cells; crossvein at apex of discal cell not angular, destitute of a stump of a vein..... .....Leucopyga Wied.
2. Crossvein at apex of discal cell angular, and bearing a stump of a vein..... 3
   Crossvein at apex of discal cell not angular, destitute of a stump of a vein..... 4
3. Wings hyaline, the costal half only slightly yellowish..... .....Pellucida Coq.
   Wings smoky-brown, the costal half darker brown..... .....Amphitea Walk.
4. Abdomen with a row of black tomentose spots each side of the middle..... 5
   Abdomen with a black tomentose stripe each side of the middle.....Virgata O. S.
5. With seven spots in each of these rows.....Maxima Coq.
   With only three spots in each of these rows.....Vasta n. sp.

TOXOPHORA VASTA n. sp. Black. Tomentum of front and of face white, cheeks whitish pollinose. Tomentum of first two antennal joints white and black, the second joint densely silvery-white pollinose on the inner side in the male; third joint one and

three-fourths times as long as the second, tapering gradually to the tip, the apical portion not bristle-like. Proboscis reaches apex of second antennal joint. Pile and tomentum of occiput, thorax and scutellum yellowish-white, bristles of the two latter black. Tomentum of abdomen white, that at the base yellowish, a transverse spot of black tomentum each side of the middle on bases of the second, third and fourth segments; tomentum of venter, femora and tibiæ white, that on front side of anterior and middle femora partly black; spines of tibiæ black; hind femora in the male each with three stout black bristles on the under side near the base; tomentum of tarsi black. Wings wholly hyaline, vein at apex of discal cell evenly curved and destitute of a stump of a vein; small crossvein at last third of the discal cell. Stalk of halteres yellowish-brown, the knob sulphur-yellow. Length, 5 to 11 mm. San Diego county, California. 6 male and 11 female specimens, in May.

D. W. Coquillett.

THE THISTLE POPPIES.

(From the *American Garden*, xii. 54.)

The Papaveraceæ or Poppy family furnishes many beautiful flowers for us to cultivate and admire. The order includes near twenty genera, of which nine or ten are represented in California. Among these genera is Argemone, a genus of some six or eight species of free-flowering border plants, with large, showy, white or yellow short-pedicelled flowers. They are stout, glaucescent hardy annuals, with sinuately pinnatified, prickly-toothed leaves, from which they have become known as thistle-poppies.

Argemone grandiflora is described as 'growing two feet in height, and producing numerous large white flowers.'

Argemone Mexicana, a native of Texas and Mexico, grows to about the same height, and produces conspicuous yellow flowers in profusion. As a weed, this plant 'has spread to almost all warm countries,' but I believe it has not as yet been recorded from California. The leaves are blotched with white and less hispid than in the following species.

Argemone hispida, the chicalote or thistle poppy of Southern California, in the beauty of its flowers almost rivals the magnificent Romneya Coulteri. It forms an erect branching bush, one to three feet or more in height, producing a profusion of its large, pure white flowers, closely set among pale green, bristly-armed leaves.

The large white flowers render it very conspicuous on a lawn, by day or night, but the delicate texture of its petals, and unpleas-

antly hispid character of its stems and foliage, will not render it a favorite with florists.

When seen growing luxuriantly on its native, dry and otherwise almost barren hillsides in California, or in equally dry valleys, its beauty is not likely to be easily overlooked. It extends eastward through Colorado and New Mexico, and has gained a permanent place in the catalogues of American seedsmen.

PTELEA APTERA.

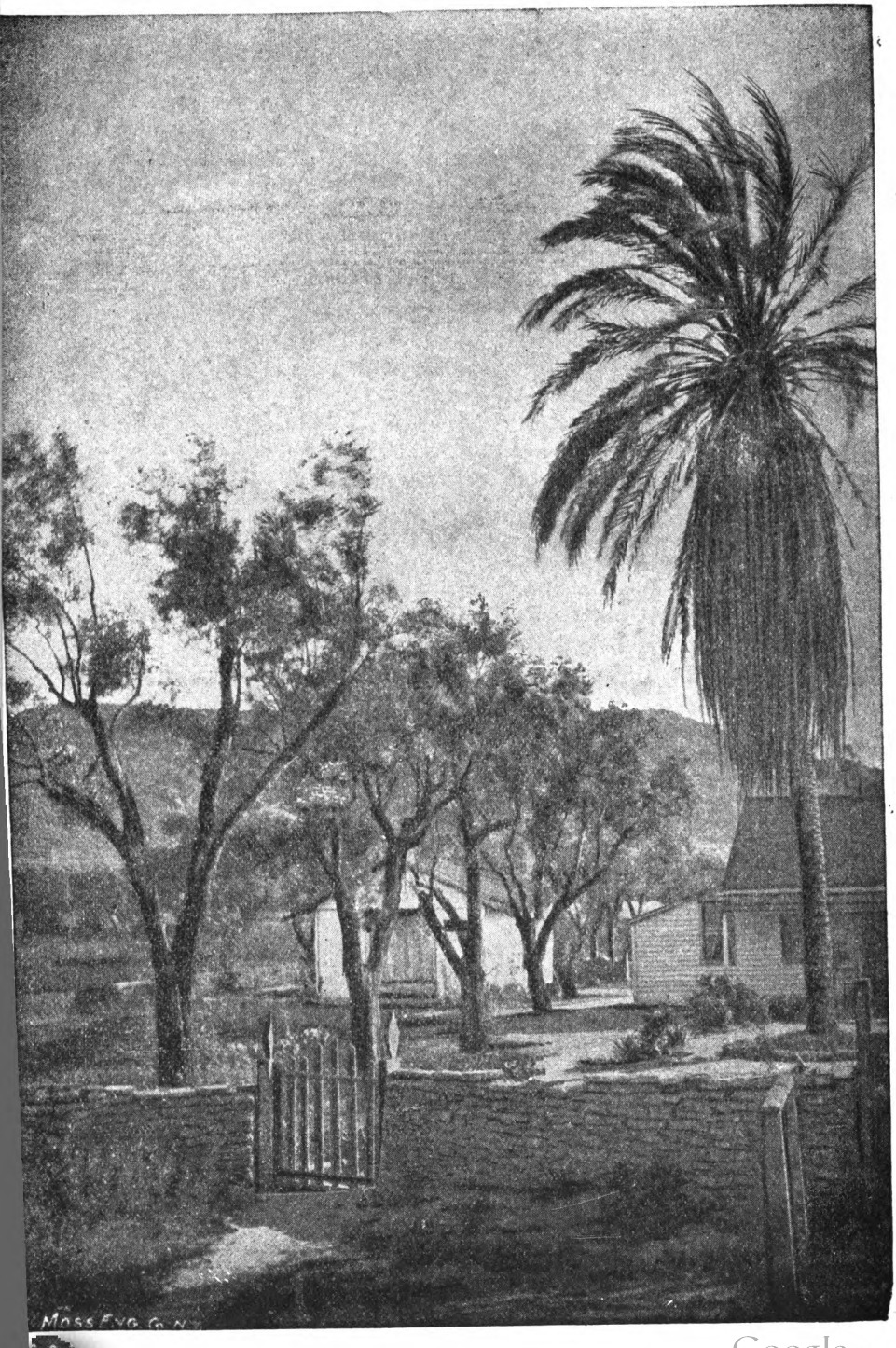
(From *Garden and Forest*, iii. 332.)

This plant, a native of Lower California, is interesting from the structure of the fruit, which differs from that of the other species of this small North American genus. In other Pteleas the indehiscent fruit is surrounded by a broad reticulate-veined wing, while in Ptelea aptera it is turgid, nut-like and glandular, and quite wingless, or with a narrow rudimentary wing only.

Ptelea aptera is a densely branched, pungently aromatic shrub, with slender stems growing to a height of five to fifteen feet and forming dense clusters. It is quite similar in habit and in general appearance to the common Ptelea angustifolia of the southern and southwestern States, and, except for the fruit, might be almost mistaken for that species.

The fruit is broadly ovate, lenticular, and slightly keeled; it is wingless or nearly so, a quarter to half an inch long, and a quarter of an inch broad; slightly emarginate at the base, tipped with the remnants of the persistent stigmas, and conspicuously glandular. It is two or rarely three-celled [more rarely four-celled]. The seeds are oblong and corrugated, with a shining black testa.

Ptelea aptera was discovered in January, 1883, on dry gravelly slopes near the shore at Punta Banda, at the southern end of Todos Santos Bay, by a party of botanists under the leadership of the late Dr. C. C. Parry. Flowers and remnants of the fruit of the preceding year were found at this time. Dr. Parry read an excellent account of the plant with diagnostic characters before the Davenport Academy of Sciences in December, 1883. This was afterward published in the proceedings of the society (iv., 39), the ripe fruit, in the meantime, having been collected by Mr. C. R. Orcutt, of San Diego. *Charles S. Sargent.*



THE OLIVE.

The Olive tree (Olea Europea) forms the basis of one of the oldest industries in West America. The oldest olive trees planted in the United States are those at the mission of San Diego, California. These are credited with an age exceeding one hundred years and are still in good bearing condition, notwithstanding the ill-usage to which they have been subjected.

The accompanying view of these trees is of historic interest, and is taken from a report of the secretary of the California state board of horticulture. The variety planted at the old Californian missions is the one which has until late years been planted almost exclusively, and is still favorably known as the Mission olive. Other varieties have of late years been tried in Southern California with variable success. Horticultural varieties are as numerous in the olive as in the peach or apple, over a hundred named forms having been described under a perplexing nomenclature.

In the Alpes Maritimes, a province in France, we learn from a special consular report that the olive covers 70,000 acres in that province, yielding an annual income of $2,000,000—the only revenue of many families.

The olive prospers in calcareous or gravelly or dry soils where no vegetable or cereal crop could be obtained.

In Lower California the olive comes into bearing at seven years. In more northern or cooler climates, ten to twelve years is the usual time for the tree to arrive at maturity. It remains fruitful for centuries, and a tree in Europe, near Nice, was famous for its old age in 1515, and measures forty-two feet in circumference. The average yield of this tree at present is nearly 320 pounds of oil per year. A well cultivated olive tree will easily yield fifteen gallons of oil, or about 1500 gallons per acre, if planted 100 trees to the acre; but in Europe a less number is usually planted, more seldom even as many as 75 trees to the acre.

For oil the fruit is picked about a month before ripe, but for pickling for table use they are gathered when fully ripe usually.

The northern limit of the olive for fruiting is believed to be near 42° north latitude, on the Pacific coast, but it may be grown farther northward as an ornamental tree, blossoming but not maturing fruit. It is a handsome forest tree, well adapted for hillsides too sterile for scarcely anything else of value to thrive. Lands once abandoned for sterility in Africa and portions of Southern Europe are now a source of wealth, and thousands of acres of arid lands

in the west, may likewise be made to yield a revenue at no distant period sufficient for the needs of large communities.

The best varieties, culture, pickling, and manufacture of olive oil, will be the subjects of future papers. *C. R. Orcutt.*

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

SAN FRANCISCO MICROSCOPICAL SOCIETY, June 4, 1891.

The society celebrated its twenty-first anniversary at its new rooms, 432 Montgomery street, June 17, 1891. The cabinet was enriched by a quantity of diatomaceous earth, very rich in fossil diatoms, found near Lompoc, Santa Barbara county, presented by Henry G. Hanks. Henry C. Hyde presented a caterpillar from New Zealand, with a curious fungus grown from the head. The caterpillar is known by the common name of the 'bulrush caterpillar,' and to science as Sphœria Robertsia. The natives, however, call it 'aweto.' The plant, or fungus, in every case fills the body of the caterpillar, which in well-grown specimens reaches a length of three and a half inches. The fungus rises from the head and attains a length of six to ten inches. When found the body of the caterpillar is buried beneath the surface of the soil or leaf-mold, and the greater portion of the stalk as well. The apex of the plant, when in fructification, resembles the club-headed bulrush. There is every probability that the seeds or spores of the plant find a lodgment in the folds of the caterpillar's skin, where the temperature and moisture soon cause them to germinate, and the growth soon causes the death of the animal, its tissues supplying food for the plant.

William Norris presented to the society two photographs of diatoms, made by B. W. Thomas of Chicago, one a species of Eunotia from Ellensburgh, Washington, and the other a species of Asterolampra from Fisherman's Cove, California. This latter, Mr. Thomas writes, seems to be a new species, as it does not conform to the known species of that genus.

The paper of the evening was read by Harold Sidebotham, M. R. C. S., L. R. C. P., late of London, on the subject of 'Cell Division.' He alluded to the various theories held at different times by biologists on this subject, illustrating the same by drawings on the blackboard. The later and more general accepted theories were also fully exemplified. A series of carefully stained preparations showed the various stages of the animal cell, and it was remarked that his staining of the extremely delicate tissues of the infusorian, Paramecium, were worthy of more than passing notice.

Dr. Gray read a paper on the anatomy of the insect trachea, largely made up of references to the early literature of the subject.

July 1, 1891, C. W. Woodworth, of the Agricultural Experiment Station at Berkeley, was present and exhibited some slides, showing the scale insect infesting the leaves of the olive. He called attention to the fact that certain closely allied species of scale insect were invested with an outer covering produced by exuvia, or by hardening of the skin, while in the species under consideration this outer covering seemed almost entirely composed of the stellate hairs accumulated from the under side of the leaf of the olive on which it feeds. As the larva grows it insinuates itself beneath these stellate hairs, which become broken from the leaf and attached to the skin of the developing insect. Mr. Woodworth exhibited two slides last evening, one the young larval skin, of about one-fourth the adult size, and the other the complete adult form.

Henry G. Hanks was present and exhibited some curious so-called lava, recently obtained from Butte county. In November last Mr. Hanks read a paper before this society on 'Certain Magnetic Rocks,' in which he assumed that the rocks at Tucson were nearly identical with the Table Mountain capping, which overlies the deep good placers of this State, protecting them from denudation and dispersion. During a recent visit to Butte county for the study of this formation he made two important discoveries bearing on this subject, which at least afford strong evidence in favor of the opinion stated in the paper referred to, that the rocks were not of igneous, but of aqueous origin.

The first discovery was at the mouth of Chico canyon, where William Proud showed him some cylindrical natural tubes in the so-called lava, which Mr. Hanks believes to be solfataric steam pipes. These varied from the size of a quill to three inches or more, and some of them are at least four feet deep. They are not rare, but common, and it is believed may be found elsewhere. The inference drawn from this discovery is that these rocks, supposed to be igneous, are really overflows of solfataric mud; otherwise it would be impossible to account for the steam pipes, for the rock must have been at one time soft and permeable.

The second discovery was a fragment of the same rock obtained from Mrs. Caroline H. Church of the Aurora drift mine, near Magalia, in which there is a cast of a pine cone, so perfect that when liquid plaster of paris is poured in a model of a cone is obtained showing every detail of structure. Mr Hanks has examined the cast closely with the microscope, and could find no trace of charcoal. Nor can it be possible that the rock was hot, for had the cone

been burned the fine striations could not have been so perfectly preserved It is Mr. Hank's intention to study these rocks microscopically and report to the society the results of his further researches.

In view of the prominence given to the question of the discovery of the microscope, and the celebration of the three hundreth anniversary soon to take place in Antwerp, Mr. Riedy exhibited an old book by Petro Barrello, published at The Hague in 1655, entitled 'A History of the Telescope and Microscope.' This old book is remarkable as being the first published work treating of the discovery.

William E. Loy, Recording Secretary.

QUESTIONS OF NOMENCLATURE.

(From *Science*, xvii. 67.)

Professor C. S. Sargent, author of the 'Silva of North America,' says, in the first volume of that work, 'I have adopted the method which imposes upon a plant the oldest generic name applied to it by Linnæus in the first edition of the 'Genera Plantarum,' published in 1737, or by any subsequent author, and the oldest specific name used by Linnæus in the first edition of 'Species Plantarum,' published in 1753, or by any subsequent author, without regard to the fact that such a specific name may have been associated at first with a generic name improperly employed.'

To secure stability in nomenclature, it is obvious that the method adopted by Professor Sargent is the one which should universally be adopted by botanists. Other questions relating to botanical nomenclature are not so well settled as might be desired, and a few of these may be briefly stated, with the writer's present views concerning them.

The first in importance, perhaps, is the use of the names of forms at first described as varieties of other species, and later raised to specific rank, or vice versa. It would seem that the varietal name as first used should be adopted for the specific name when raised to specific rank, though many botanists have felt at liberty to rechristen them at pleasure. A varietal or subspecific name would, if this rule were followed, receive precedence over later names. Professor E. L. Greene, in 'West American Oaks,' has adopted the name Quercus Palmeri Engelm. in preference to Q. Dunnii Kell., although first published as a species under the latter name, Q. Palmeri having first been published as a subspecies by Dr. Engelmann, and later as a species. One is led to infer by Professor Greene's remarks, that, had Q. Palmeri been published as a variety instead of as a subspecies, he

would have adopted Kellogg's name for the species, though why such a distinction is made is not very evident.

Bentham, in fact, held that the earliest published name, whether applied as a specific or varietal, belonged inalienably to that individual form, whether subsequently redescribed and raised to specific, or degraded to varietal rank.

'Once a synonyme always a synonyme,' is a rule which I believe obtains among zoologists in general, and should, if tenable with them, be adopted by botanists as well. This would necessitate some important changes if adopted; and as an instance may be noted the name Washingtonia, now in use for our Californian fan palms, a synonym of Sequoia, having been unfortunately applied to our Californian giant before its application by Wendland to our palm.

If the facts permitted, some enterprising botanist might see fit to reinstate the coniferous genus, in which case the genus of palms would of necessity have to be renamed. Still, it seems like creating needless synonymy in this case to rechristen Wendland's genus, though strict adherence to the rule would render it imperative.

Uniformity in the method of citing the authors of species is another desideratum in botanical nomenclature. The most explicit custom is that adopted in general by zoologists,—the enclosing in parentheses the name of the author of the species or variety, where originally given wrong rank, or referred to a genus incorrectly. While this is often cumbersome, yet it greatly facilitates subsequent work beyond question, and is preferable to the citing of the name of the author who has referred the plant in question to a different genus, or considered it as of different rank. The existing confusion in the manner of citations renders it impossible for a writer to do strict justice to the founders of species, unless he is favored with access to large botanical libraries, and blessed with abundant leisure for consulting original descriptions. The author of the species (or variety), it seems to the writer, is the one to be cited (if the system of double citation is discarded as inconvenient) in preference to the authority for its transference from one genus to another.

Another point upon which botanists are not fully agreed is the citation of names adopted in manuscripts or herbaria, and receiving earliest publication by others than their authors. It is the custom in America (and a sensible custom it is) to cite the real author's name, even when first described and published by another author (unless published by that author as of his own authorship). Thus, Nuttall is credited with the authorship of many genera and species.

first described by Torrey & Gray in the 'Synoptical Flora,' or by DeCandolle or others elsewhere.

It is now generally conceded that an author, after publishing a name, has no longer any right to substitute another name therefor in subsequent publications, even though the first name he finds to be a misnomer. This right, claimed by many of the older botanists of a past generation, is no longer contended for. It is also an open question as to how far published names may be changed or corrected by their own or subsequent authors.

A common Californian cactus is published by Prince Salm in "Cacteæ Horto Dyckensi,' p. 91, as Mamillara Goodrichii Scheer, named in honor of Mr. Goodrich. Professor Sereno Watson informs me that Seeman says in the Botany of the '*Herald*' that it was a 'Mr. J. Goodridge, surgeon,' whom the plant was intended to commemorate in its name as its discoverer. The name, therefore, has been written M. Goodridgii by many subsequent authors. Gray (*Botanical Gazette*, ix. 53) inadvertently publishes Antirrhinum Nivenianum, and repeats this spelling on the following passage. This was collected by Rev. J. C. Nevin, and it is obviously proper to write A. Nevinianum, as the former spelling was mere inadvertence or a typographical error. But in the instance of Mamillaria Goodrichii, as originally written there is less cause for change, since the man may not have been clear in his own mind as to the correct spelling of his name,—like Shakspeare, spelling it differently at different times. *C. R. Orcutt.*

ŒNOTHERA OVATA.

(From *Garden and Forest*, iv. 285.)

There is a glowing California field flower that possesses many charms, and well deserves introduction to the garden. In its season this lovely California Œnothera, with its dwarf growth and compact clusters of golden bloom, appears as distinct and as striking a feature of the landscape as the great flame-red Eschscholtzias.

The other day—it was May 10th—I walked up the long seaward slopes of Berkeley. Every vacant lot and the very streets were golden with little plats of shining blossoms. I began to remember that for three or four months this brilliant display continues. I counted the flowers and yet unopened buds on the nearest plant. The circle of its outer leaves was about a foot in diameter; they rested upon the turf, hardly rising four inches above it at any point. Fifteen open flowers rose well above the foliage, and no less than thirty-six buds could be counted without pulling the crown

apart and descending to the microscopic sizes. Each of the four-petaled flowers was fully as large as a fifty-cent piece; one almost covered a silver dollar. The rich, clear yellow hue, and the regularity of the petals and stamens, with the golden ball of the erect pistils, formed a charming whole. *Charles Howard Shinn.*

SOME USEFUL PLANTS OF SOUTHERN CALIFORNIA.

(From *Garden and Forest*, i, 414.)

ROMNEYA COULTERI.—Few will ask why this magnificent flower was made, after once seeing it in full bloom—for the delight of their eyes will satisfy them. The Romneya poppy is one of the most regal of our native flowers, and no flower yet introduced in our gardens excels it. Growing along the water courses on our southern border, southward to near San Quintin bay, in Lower California, it wastes its sweetness and pure white loveliness unseen and unknown, except by a few. The wax-like flowers often exceed six inches across, the white petals set off to advantage by a center of golden stamens. The stems grow from four to fifteen feet in height, rising above the surrounding brush, and when seen covering large areas and in full bloom the plant is not readily forgotten. Not content to occupy the fertile valleys, it seeks the more secluded canyons as well, and often dots the hillsides, climbing far up the mountain-sides away from the reach of any but the most enthusiastic botanists. It seems to delight in these high, sterile locations, where it is thoroughly protected from the winds and is not likely to be disturbed. In cultivation the flowers become much larger and more wax-like, and it has been in demand in Europe, where it was very early introduced. In addition to its horticultural attractions it possesses strong qualities of great medicinal value, which may secure for it a place in the materia medica when they are more fully investigated. It has long occupied a place among the medicinal herbs of the Indians of Lower California.

SIMMONDSIA CALIFORNICA.—This is a very common shrub in the southern part of the State, extending southward in the peninsula of Lower California. It was found by Dr. Veatch, on Cerros island, and was figured from that locality in one of the bulletins of the California Academy of Sciences. It forms low, oval bushes along the sea coast, often less than a foot in height when exposed to the ocean winds, and with its stiff leaves and branches and dense foliage forms impenetrable thickets in less exposed situations. The foliage is of a glaucous hue, blending harmoniously with the reddish

soil on our hills and mesas, and in sharp contrast with the dark, olive-green foliage of the common Rhus, with which it is often associated. It rarely attains a height of fifteen feet, with a trunk diameter of four or five inches. Sometimes one standing alone forms a very symmetrically shaped tree, but it usually forms an oval mass with its dense foliage. The Simmondsia, as an ornamental shrub, is likely to meet with popular favor. Growing in fertile valleys and on barren hills, along exposed sea-cliffs and on the brink of the great Colorado desert, and equally tenacious of life whether in a situation of perpetual summer or where exposed to the snows of winter, it may be presumed that it will prove both hardy and easy of cultivation. The Simmondsia is a prolific bearer of an edible nut resembling an acorn both in size and shape. The resemblance is still further increased by the persistent calyx which forms a cup for the fruit. When ripe the outer envelope splits open and liberates the nut or nuts enclosed. They have a pleasant nutty flavor, and I have frequently enjoyed eating them without any injurious effects. I am not aware that they were eaten by the Indians, but probably they formed an important article of food with them.

PRUNUS ILICIFOLIA.—The Oak-leaf cherry is one of the characteristic shrubs of San Diego county, and might, with nearly equal appropriateness, be termed the Holly-leaved cherry, as the foliage is somewhat between that of our shrub oaks and the holly. It is not rare both near the sea coast and on the higher mountains bordering the sterile Colorado basin, and some seasons it proves to be a very prolific bearer. Near the coast, I think it is oftener barren than in the interior, but it grows rather more luxuriantly in some of the sheltered and fertile canyons near the ocean. As an ornamental shrub it is highly appreciated, especially for hedges, and is extensively planted for that purpose near Los Angeles, I am informed. The glossy, dark evergreen foliage is always pleasing, and its dense, prickly character is an excellent feature. The fruit is of a dull crimson when mature, oval in shape, often rather blunt at the ends, and an inch in length. A bush loaded with the fruit is a tempting sight, but it is rather aggravating to find the pulp scarce an eighth of an inch thick. The stone forms the larger part of the fruit; but it is still worthy of notice, and finds its champions among our country people, who calmly state that they prefer it to the grape! A basketful may be quickly gathered at the proper time (September and early October) if the season has been favorable, and possibly were not other fruits so abundant it might become of use for the table. I think I have seen it stated that the experiment of grafting cultivated cherries on to this species has proved a success. If true, it

certainly is of great value for cultivation where it would be difficult to make other trees or shrubs grow successfully. Had we an agricultural experiment station in this section of the state it would be a proper subject to investigate. *C. R. Orcutt.*

NUTS OF COMMERCE.

(From the *American Agriculturist*, l. 337.)

The Liche nut is an interesting Chinese production, probably first introduced into this country by immigrants from China, but now to be found on sale at many of our fruit stores. The nuts have a delicate russet-colored shell, more easily broken than the soft-shell almond, inclosing a rich-flavored, date-like pulp, surrounding a smooth seed with irregular depressions and about the size of a date stone; hence the name of 'Chinese dates' sometimes given these nuts. No information in regard to their cultivation is obtainable, but they could, no doubt, be raised in certain localities in this country, and probably yield profitable crops.

Some American plants seem to thrive better away from home than in their native land, and so what we have been accustomed to call the English or European walnut (Juglans regia) is now grown in the greatest perfection and over a very wide range of territory in this country. This nut flourishes and bears annual crops as far north as Narragansett Bay on the Atlantic Coast, but, like most fruits which require a long season, it reaches its greatest perfection in an equable and medium temperature, that allows of a steady, uniform growth, such as it secures on the Pacific Coast and in some of our Southern States. Under such conditions the shells are thinner, the nuts larger, smoother, and better filled than elsewhere.

As an illustration of the influence of popular taste, we may say that a variety of the English filbert, which is much larger than our native hazelnut, sells better when offered in the husks. There seems to be no good reason for it except that it is supposed to be an English custom to serve them in this form. Other varieties of the filbert and nuts in general are usually most carefully divested of their outer coverings, assorted to uniform sizes, and even polished and oiled to give them an attractive appearance.

Cashew nuts are brought from the West Indies, and may, perhaps, thrive in some of the warmer parts of the Pacific Coast. The cashew tree bears an edible fruit, from which hangs the smooth and curiously-shaped nut. The kernel or meat is very palatable, while the surrounding skin is bitter and astringent.

There is a steady but not a large demand for pistachia nuts, best

known to Americans from the beautiful green color which they impart to ices and confectionery. They are much used by oriental nations. Most of the pistachia nuts used in Europe and America are grown on the shores of the Mediterranean, and although slightly larger it is said that they are not equal in flavor to the smaller native variety brought from Persia. The nuts are covered with a delicate husk, which rubs off, and is blotched with brilliant red and purple, while the kernel is bright green. These nuts grow in clusters on small trees.

No description of the common peanut is necessary, but there are occasionally new varieties introduced worthy of some attention as, for instance, the so-called Spanish peanut, although raised in Virginia. The kernels are rounder and more delicate than those of the common variety, consequently more highly esteemed by confectioners; but the habitual 'peanut eaters' like the others best. Cuba peanuts are occasionally seen in our markets, and they are three or four times as large as the home-grown, and of a reddish color, supposed to be due to the reddish soil in which they are grown.

The so-called Chinese chestnut (Trapa) is not a chestnut at all, but the seed of an aquatic plant found in swamps and ponds. The nuts have a curious resemblance to the horns of cattle, and are of a dark brown or black color, but filled with a white, sweet meat or kernel. They are imported and sold in this country as curiosities, and not for eating. When fresh, or not too dry, they may be sprouted by placing them in a jar of water, but they have rarely been cultivated here, although it is said that they are grown in France. Street venders often have these nuts for sale, with a sprig of watercress—which somewhat resembles the true leaves—stuck into them for the purpose of deceiving purchasers.

The following named nuts are also worthy of consideration, and some of them if not all may prove to be of considerable value. The Japan chestnut is said to be as large as the Spanish, and some persons claim that it is as sweet as the American. It has not as yet appeared in our markets, although many nurserymen offer the trees for sale. They come into bearing when quite young, and the trees are said to be quite as hardy as the American chestnut.

The extensive use of nuts by cooks and caterers has given rise to a new branch of trade; that is shelled nuts, and now nearly all kinds can be bought shelled and ready for use. The shelled kernels, if kept in tight glass jars, do not deteriorate in flavor, and in some cases, as in that of the black walnut (Juglans nigra), it is claimed that they keep much longer and better than in the shells. The

white walnut or butternut is a greater favorite than the black walnut, the latter having a strong flavor not generally relished.

Salted and well-roasted almonds are now considered almost indispensable among the accessories of a well served dinner in our larger cities. Hazelnuts, walnuts, and often other kinds, are served in the same way, but the almond is the general favorite. The Texas pecan-nut is exceedingly popular, and the trade in this nut is now immense, although it was scarcely known commercially twenty years ago. The trees which produce these nuts were in years past cut down for firewood, or even to get a bag of nuts, but they are now carefully preserved, and not only the old trees cherished, but new ones planted in large numbers, and yet the demand for pecans is far ahead of the supply. The kernels or meat of the pecan is highly valued by confectioners, and in no form are they better liked than in 'plarines,' a Mexican confection made by dropping the shelled kernels into melted sugar, clean brown and unrefined, as it is found at its best on Southern plantations. An enterprising confectioner has taken out a patent for their manufacture, and is said to be doing a flourishing business.

THE STRAWBERRY GUAVA.

(From the *American Agriculturist*, 1. 341.)

The Cattley Guava (Psidium Cattleyanum), better known as the strawberry guava, is rapidly gaining in popular favor throughout Florida and Southern California, and has been highly recommended for cultivation in Arizona and New Mexico. It is unquestionably the most desirable and useful of the many varieties of fruits known under the name of guava. It is a shrub or small tree that adapts itself to a dwarfish habit when grown in the house in cold climates, but in a congenial clime attains a maximum growth of fifteen to twenty feet in height, of compact form, and with dense, glossy evergreen foliage, which makes it a very ornamental tree, especially when loaded with its rich colored fruit.

It produces early, bearing fruit when less than a year old, and producing in abundance at two and three years. Every branch will be heavily loaded with the luscious ripe fruit, green fruit in various stages of growth, together with ever present clusters of fragrant flowers. The thick, dark green leaves protect the fruit partially from the sun, but at a temperature of 140° F. there is a tendency to burn. It is called hardy in England, but requires protection in the northern United States, where it is gaining in favor as an ornamental greenhouse plant. The fruit is of a dark red or purplish

ruby red color in the common variety, but a highly valued form as yet rare in cultivation has fruit of a delicate shade of yellow. The red variety will probably always be first choice with growers, however. It varies from one to two inches in diameter, is of firm texture, capable of bearing transportation well, and always meets with a ready sale, either for table use in its fresh state, or for the manufacture of delicately flavored jelly.

It can be made to produce its fruit the year round. It is a naturally heavy bearer, and the fruit may be found in the market for fully six months out of the twelve. When loaded with its tempting fruit thickly set among its glossy dark green leaves it forms a striking and beautiful object, especially if pot grown and dwarfed in habit; but to be fully appreciated it should be seen as planted out in orchards and groves in sub-tropical regions where soil and other conditions are favorable. *C. R. Orcutt.*

CAMASSIA ESCULENTA.

Quamash or Camass of the Indians is common throughout the northern Rocky Mountains and on the Pacific Coast. In the early spring the handsome violet blue flowers may be found dotted thickly over hundreds of acres of mountain meadows, resplendent in all their native beauty.

The flowers are borne on a straight stem, one or two feet high, and each of the numerous flowers is an inch or more in diameter. The narrow leaves, sent out from the large onion-like bulb in early spring, are about a foot long. The bulb is edible, and once formed an important article of food among the Indians, who would gather the bulbs just after flowering and dry them for winter use. After the bulbs are dried, by sun or fire, they are beaten into a flour or paste and more thoroughly dried for longer preservation. The plant is quite hardy, and extensively cultivated in Europe on account of its showy hyacinth-like spikes of flowers, which should be more familiar in American gardens.

PÆONIAS.

The genus Pæonia contains several oriental species or varieties in common cultivation for their ornamental flowers. The Pæony is a coarse perennial plant, and has two representatives on the Pacific coast.

PÆONIA BROWNII.—This species inhabits the subalpine regions of the snowy mountains, from middle California northward through Oregon and Washington, flowering in June and July, often near

banks of melting snow, according to Prof. Greene (*Garden and Forest*, iii, 356). Herbage glabrous and glaucous. The dull, dark red petals scarcely larger than the green sepals, thick and leathery in both species.

PÆONIA CALIFORNICA.—Restricted in its distribution (Greene, l. c.), to Southern and Lower California. 'Glabrous but not glaucous; leaves twice or thrice as large, of rounded and pedate general outline.' The northern plant I have not seen. The southern form (both are considered as belonging to one species by many botanists) is without floral beauty, though the luxuriant foliage makes it useful in some situations. Grows in dry, rocky soil, from a few hundred, to two or three thousand feet altitude, where it is subjected to a light fall of snow in winter. *C. R. Orcutt.*

NOTES AND NEWS.

A colored portrait of Lathyrus splendens appears in *Vick's Magazine* for July, 1891.

One who has had experience in the care of caged birds and gold fish writes: Never give anything greasy or salt to birds or fish. I give seeds and bread, apple and baked potato to my birds, and to the gold fish, angle worms, raw beef, baked potato and a kind of bread made of eggs and flour, without salt, the same that is best for birds.

The poisoning of plants having proved ineffectual has been entirely abandoned at the Gray herbarium. The tightness of cases and the handling of sheets are relied upon to preserve the specimens. Any which become infested may be treated to a stay in CS_2 vapor, or some other insecticide.—*Botanical Gazette.*

Meehan's Monthly, conducted by the veteran horticulturist, Thomas Meehan, contains in its first issue a handsome colored sketch of Rhododendron maximum.

LIBRARY CATALOGUE.

(Scientific books and periodicals may be ordered through our Book and Subscription Department.)

Recent accessions to the library of the West American Museum of Nature and Art will be catalogued monthly.

4096. Taxidermy and Zoological Collecting. A complete handbook for the amateur taxidermist, collector, osteologist, museum builder, sportsman, and traveller. By Wm. T. Hornaday. With chapters on collecting and preserving insects, by W. J. Holland.

Illustrated by C. B. Hudson and other artists. New York: Charles Scribner's sons. 1891. 362 octavo pages. Price, $2.50 net

A book that will be especially useful to an amateur, and one worthy of a place in every working naturalists' library.

4097. Report upon United States Geographical Surveys west of the one hundredth meridian, in charge of Capt. Geo. M. Wheeler,. Vol. I. Geographical report. 1889. From the Chief of Engineers' U. S. A.

4098. The Natural history of folk-lore. By Otis T. Mason. From the Jour of Am. Folk-Lore, iv. 97-105. From the author.

4099. A provisional host-index of the fungi, of the United States. By W. G. Farlow, and A. B. Seymour. Part III. June, 1891. From the authors.

4100. New California fishes. By Mrs. R. S. Eigenmann. Extract *Amer. Naturalist*, February, 1891. From the author.

A new genus (Perkinsia), and several species are described.

4101. Subalpine mollusca of the Sierra Nevada. By W. J. Raymond. Additional notes and descriptions of new species. By J. G. Cooper. Extract Proc. Cal. Acad. II. iii. 61-91. From Dr. Cooper.

4102. Fresh water mollusca of San Francisco county. By. J. G. Cooper. Reprint from Zoe, i, 196-97. From the author.

4103. Agricultural experiment Station, Auburn, Alabama. Bulletin No. 25 (new series): Effects on butter by feeding cotton seed and cotton seed meal.

4104. Same. No. 26. Commercial fertilizers.

4105. Same. No. 27. Black rust of cotton.

4106. Agricultural experiment station, Cornell University, Ithaca, N. Y. Bulletin No. 1. Experimental dairy house.

4107. Same, No. 3: The insectary; on preventing the ravages of wire worms; on the destruction of the plum curculio by poisons.

4108. Same, No. 6: On the determination of hygroscopic water in air-dried fodders; the determination of nitrogen by the azotometic treatment of the solution resulting from the Kjeldahl digestion; fodders and feeding stuffs.

4109. Same, No. 12: A new apparatus for drying substances in hydrogen and for the extraction of fat.

4110. Same, No. 13: On the deterioration of farmyard manure by leaching and fermentation; on the effect of a grain ration for cows at pasture.

4111. Same, No. 27; The production and care of farmyard manures.

PATENTS

NOTICE TO INVENTORS—There was never a time in the history of our country when the demand for inventions and improvements in the arts and sciences generally was so great as now. The conveniences of mankind in the factory and work shop, the household, on the farm, and in official life, require continual accessions to the appurtenances and implements of each in order to save labor, time and expense. The political change in the administration of government does not affect the progress of the American inventor, who, being on the alert and ready to perceive the existing deficiencies, does not permit the affairs of government to deter him from quickly conceiving the remedy to overcome existing discrepancies. Too great care can not be exercised in choosing a competent and skillful attorney to prepare and prosecute an application for patent. Valuable interests have been lost and destroyed in innumerable instances by the employment of incompetent counsel, and especially is this advice applicable to those who adopt the "No patent, no pay" system. Inventors who entrust their business to this class of attorneys do so at imminent risk, as the breadth and strenght of the patent is never considered in view of a quick endeavor to get an allowance and obtain the fee then due. THE PRESS CLAIMS COMPANY, John Wedderburn, General Manager, 618 F street, N. W., Washington, D. C., representing a large number of important daily and weekly papers, as well as general periodicals of the country, was instituted to protect its patrons from the unsafe methods heretofore employed in this line of business. The said company is prepared to take charge of all patent business, entrusted to it for reasonable fees, and prepares and prosecutes applications generally, including mechanical inventions, design patents, trademarks, labels, copyrights, interferences, infringements, validity reports, and gives especial attention to rejected cases. It is also prepared to enter into competition with any firm in securing foreign patents.

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We take this opportunity of informing our subscribers that the new Commissioner of Pensions has been appointed. He is an old soldier, and we believe that soldiers and their heirs will receive justice at his hands. We do not anticipate that there will be any radical changes in the administration of pension affairs under the new regime..

We would advise, however, that U. S. soldiers, sailors, and their heirs, take steps to make application at once, if they have not already done so, in order to secure the benefit of the early filing of their claims in case there should be any future pension legislation. Such legislation is seldom retroactive. Therefore it is of great importance that applications be filed in the Department at the earliest possible date.

If U. S. Soldiers, Sailors, or their Widows, Children, or Parents desire information in regard to pension matters, they should write to the Press Claims Company, at Washington, D. C., and they will prepare and send the necessary application, if they find them entitled under the numerous laws enacted for their benefit.

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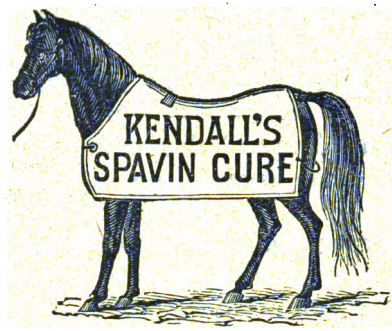

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MAY 1894

THE GREAT SOUTHWEST

A MONTHLY JOURNAL OF HORTICULTURE

CONTENTS

THE GREAT SOUTHWEST PUBLISHING COMPANY

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THE GREAT SOUTHWEST.

VOL. VI MAY, 1894. No. 50

MYTILASPIS CITRICOLA, OR FLORIDA PURPLE SCALE.

This scale belongs to the genus Mytilaspis, in which the scale is long, narrow and more or less curved and with the exuvia at the anterior extremity. The following description is taken from the Report of the State Board of Horticulture for the year 1889.

"The scale of the female is long, more or less curved and widened posteriorly. It is brown, with the exuvia the same color, and with a delicate margin. The ventral scale is well developed: it is white and consists of a single piece which is slightly attached at its sides to the lower edge of the scale, and is more or less incomplete posteriorly. Length of scale .12 of an inch. The female insect is yellowish white. The eggs are white and arranged irregularly under the scale. The young scale is white in color.

"The scale of the male is usually straight or nearly so; the same color as that of the female, or in some specimens varying to a very dark brown, almost black. At about one quarter of the length of the scale from the posterior extremity the scale is thin forming a hinge which allows the posterior part of it to be lifted by the male as he emerges."

How soon the first brood hatches in the spring we cannot say, but the last brood was observed by the writer about the middle of November.

This scale, which is without doubt the worst enemy with which the citrus growers of our county have to contend, was first introduced in this section about six years ago on trees brought from Florida. When first imported but little attention was paid to it by the growers on account of not fully realizing its destructive character; in fact many were led to believe by the importers of Florida stock that the scale would not thrive here, a fallacy which has long since been exploded. At first the only danger lay in buying imported stock, but as a large quantity of nursery stock has been grown between the rows of, or in close proximity to infested trees, the fact that stock is home grown is no guarantee at the present time of its freedom from this pest, and any one purchasing trees should insist that the same bear the certificate of an inspector that they are clean.

To show how general this scale has become distributed I would state that out of one hundred and twenty-three orchards and yards inspected by the writer during the past three months forty-nine were found to be infested with it.

*Read before the County Horticultural Commission.

Since it exudes no honey dew it does not produce the smut fungus, and as it seems to prefer a sheltered position, seeking the inside of the tree to a great extent, it may infest a young tree not yet bearing for a considerable length of time without being observed, and even old trees become quite badly infested before being discovered by the orchardist. Owing to the rapidity with which the scale spreads and the distance over which it will travel, especially in the direction in which the prevailing winds blow, it can only be eradicated by an aggressive movement on the part of every one having an infested tree, as one tree is sufficient to infest an entire neighborhood in a short time; and it is useless for one grower to attempt to combat the pest while his neighbor pursues a policy of indifference. The sooner a combined effort is directed towards its extermination the easier will the result be accomplished, as by another year it will have spread into other orchards not now infested and in orchards already infested its spread will become more general. While the scale of other geni, such as the Lecaniums and Aspidiotus, are injurious, they are already distributed throughout nearly every orchard, have their natural enemies which hold them in check, and are easily exterminated. Consequently the Citricola should have our first attention. If vigorous efforts are not made and this scale stamped out now its foothold will become so strong that years of effort will be required to exterminate it and our citrus industry, badly damaged; as it infests not only the branches and foliage, but also the peel of the fruit, rendering it unsightly in appearance and unfit for any market.

No natural enemies seem to hold this scale in check as they do many others, notably the black scale parasite (Dilophogaster Californica) which in some localities I have observed has almost entirely cleaned the trees of the black scale, trees having previously been badly infested. A parasite in the shape of a small white grub has, however, recently been discovered by Horticultural Commissioner W. R. Gunnis, preying upon this pest, but as yet no fully matured specimen has been secured. It is to be hoped that a further investigation will lead to the discovery of the character and the classification of this parasite and by its propogation and distribution lend a valuable aid to the horticulturist in dealing with this pest.

NOTES.

Along the coast mesas grow in great profusion shrubs with remarkably handsome sweet scented, violet or blue, clusters of flowers. Solanum umbelliferum is worthy of cultivation.

At Fresno a company has been organized for the propagation of a seedless muscat grape, which can be introduced in the place of the present raisin grape.

Speaking of grapes, the Isabella and the Golden Chasselas are said to make an excellent combination as arbor vines.

An interesting shrub is Eriodictyon tomentosum Benth., the "Yerba Santa" of our Spanish neighbors. The grayish woolly leaves and the violet hued blossoms looking as if they were dusty with ashes, make it present a singular appearance in the midst of the chaparral.

THE PRODUCTION OF ARTIFICIAL RAIN.

By B. S. Pague, Forecast Official.

In arid or semi-arid regions the subject of rainfall in connection with crop production is a most important one. The question of what is the least amount of rain that is necessary to produce crops has been frequently argued, but this one fact can be relied upon: good crops on other than adobe soil can be raised with ten inches of rainfall, if the rainfall is properly distributed and the temperature conditions favorable. With unfavorable temperature conditions at the time the stem of the product is full of sap, forty inches of annual rainfall will not assure good crops. In California the autumn rains begin in October and by December 1st the soil in all parts of the State is in condition to plow and seed. The rains of December, January and February are usually sufficient, even in the phenomenal dry years, to cause the seed to sprout and the grain to grow. Statistics bear out the assertion that it is upon the rainfall of March, April and May that the crops of California depend. The largest crop ever produced in the State was in 1880 when in April the rainfall was the heaviest on record. The years of great drouth in California and consequent short crops were in 1851, 1864 and 1877. The present season to the south of Stockton and especially south of the Tehachapi mountains, is similar to the year 1877. As the State is developed the necessity for irrigation is more apparent and more irrigation is practiced year by year, so that the same percentage of deficiency in the total product will not prevail that did prevail in former years of deficient rainfall. The following statement shows how the rainfall this season compares with the average:

Places.	Total for season to date.	Average seasonal to date	Average seasonal July 1 to June 30.	Percentage of deficiency for season to date.
San Francisco	16.10	20.88	23.93	23
Red Bluff	19.15	22.23	26.55	13
Sacramento	13.85	16.91	19.53	18
Fresno	6.17	8.33	9.27	26
Los Angeles	6.40	16.15	18.22	60
San Diego	4.76	9.88	11.16	52

In the season of 1876–77 the total rainfall at Los Angeles amounted to 5.28 inches, at San Francisco to 10.00 inches, and at Sacramento 8 96 inches.

In 1863–64 the total at San Francisco amounted to 10.08 inches, at Sacramento 7.87 inches, while for the least seasonal rainfall on record in 1850–51, at San Francisco 7.40 inches, and at Sacramento 4.71 inches fell. In a period of 45 years there have been three seasons of drouth in California, and in addition several years of markedly deficient rainfall when vegetation suffered and crops were short for lack of rainfall. These facts are mentioned to show that artificial means are necessary to always insure sufficient moisture for good crops, though, in favorable years—favorable in-as-much that the rain has been well distributed—artificial means need not be resorted to to produce good crops.

A popular fallacy exists that after all great battles heavy rain fell and that the rainfall was due to cannonading. This fallacy took such a strong hold of some, that Congress was induced to make an appropriation to determine whether rain could be produced by the use of explosives. The experiments were conducted in 1891 in Texas, under the charge of the Forestry Division of the Agricultural Department. The official report on the subject made by the meteorologist who accompanied the expedition contained the following: "These experiments have not afforded any scientific standing to the theory that rain storms can be produced by concussion."

When the expedition reached Midland, Texas, some experiments were made to test the material composing the rackarock. No results were expected from the tests, but the following afternoon considerable rain fell. An employee of the expedition took upon himself the sending of the following message: "Fired some explosives yesterday afternoon. Raining hard today." This first telegraphic report was followed by others. As the natural operation and result have become known the attitude of the newspapers became changed from unsuspecting and ready acceptance to satire and ridicule. Where millions saw the dispatches only hundreds have read a detailed account of the facts, and a vast number of people still believe that the experiments were in some degree successful, and concussion, when made for the purpose, will produce rain. So errors, which will require years of teaching to eradicate, have been sown broadcast in a single summer, and the rainmaking myth is added to the numerous errors about the weather which already prevail.

Charlatans, sharpers and fakers have not been slow to seize the opportunity thus afforded. Artificial rain companies have sprung up and are yet engaged in defrauding the farmers of this and other States by contracting to produce rain and by selling "rights" to use their various methods.

Rainmakers are now at work in this State, especially in those sections where the deficient rainfall is most noticeable in its effects on crops. Mr. Edgar B. Davison, of Ballard, Santa Barbara county, writes this office under date of April 5, 1894: "Would you kindly inform me as to the possibilities of causing rain by artificial means. We all know that during the Harrison administration experiments were made on the production of rain, but the newspaper reports were so conflicting as to be entirely unsatisfactory.

Were these experiments as complete failures as some authorities would have us think? We have the prospects of a dry season staring us in the face, and there is some talk of 'rain experiments.' Will you kindly give me your opinion on the matter."

This is in answer to Mr. Davison's letter: For example, suppose you take a cubic mile of air upon which operations were made in Texas, on the night of Friday, November 25, 1892. The record shows the temperature of the air as 72 degrees, the dew-point 31 degrees. To cool down a cubic mile of that air to the dew-point would require the abstraction of as much heat as would raise 88,000 tons of water from the freezing to the boiling point. To cool it down another eleven degrees would require as much more heat to be abstracted. The amount of water set free would be 20,000 tons which, spread over a square mile would give about 1.4 pounds per square foot, or 0.7 of an inch of rainfall. The amount of latent heat set free by the condensation of that amount of water would raise 100,000 tons of water from the freezing to the boiling point, and it would be necessary to abstract this heat in order that the rainmaking might go on. The foregoing on the presumption that the cubic mile of air be kept constant; if the air operated on is constantly changing the task becomes one of infinitely greater difficulty.

Two causes of artificial rain have been suggested, explosion and fire. The belief that battles occasion rain is older than the invention of gunpowder, for Plutarch in a sentence often quoted, says: "It is a matter of current observation that extraordinary rains pretty generally fall after great battles." And he explains this by supposing that some divine power in this way cleanses the earth or that the vapor from the blood steams forth and makes moisture fall. If from a great heat a large body of air is made to ascend in a column a large cloud will be generated and that cloud will contain in itself a self-sustaining power, which may move from the place over which it has formed and cause the air over which it passes to rise up into it and thus form cloud and rain, until the rain may become more general. This is in theory, but the records of great fires do not show that rain has been caused by them. Relative to explosions or concussions, it appears probable that on the southeast quadrant of a storm (the region of greatest moisture), if no rain should fall, though it threatened, great concussions to cause a disturbance of the water particles held in suspension would produce rainfall. The Texas experiments were made without attempting to produce rain when the conditions were favorable for rain, but under any and all conditions the attempt was made, with the result a practical failure, though in a few instances a few drops of rain fell.

It may be stated in conclusion that, admitting that explosives and fires have in some few cases determined rainfall, they can only do so when moisture is present in sufficient quantity in the air, and when the other conditions, such as temperature and wind, are favorable. In other words, when the conditions are favorable for rain, explosives and fires may precipitate rain, but when the air is too dry, no artificial means can cause rain to fall.

Legitimate scientific investigation for the production of rain should be encouraged, but the experiments should first be carried on in the physical laboratory before attempting them upon natures great physical laboratory. Those people who do not desire to be duped will do well not to contract or subscribe for any rainmaking agents for the production of rain. Money invested in developing irrigating canals will prove to be of far greater value and yield ten thousand fold more returns.

Weather Bureau Office, San Francisco, Cal., April 11, 1894.

THE YUCCA PALM.

YUCCA BREBIFOLIA Engelmann, in Watson's Bot. King Surv. 496 [1871]. Type locality: "Sandy and gravelly plains west of the Colorado, California."

Dr. John Torrey, in 1857, first named this Yucca draconis var. arborescens in Pac. R. Rep. iv. 147.

Dr. Engelmann first gave the plant a specific name, as above, and under that name the tree yucca of the Mohave Desert has become widely famous.

F. V. Coville, in Cont. from U. S. Natl. Herb. iv. 201, gives this species the name Y. arborescens, but as a matter of fact, the name brevifolia has priority as a specific name, and is so well established that it seems needless to create a synonym. The law of priority in nomenclature should not demand such a change—the restoration of a varietal name over a well established specific name, and it is very doubtful if such a change tends toward stability. The writer prefers a conservative course, with only such changes as may be positively justified.

Dr. Wm. Trelease, in the third report of the Missouri Botanical Garden, page 136 [1892], gives the bibliography up to that date, with plates 5 and 49. In the report for 1893, pages 193–194, Dr. Trelease gives extensive notes on the species, especially regarding its pollination, accompanied by plates 6–9, which beautifully illustrate the habit of the species, while plate 21 shows the fruit and figures concerning the pollination.

In North American Fauna, No. 7, pages 353–358 [1893], Dr. C. Hart Merriam gives extended observations, especially on its distribution.

After the above citations little remains to be said concerning this curious tree.

THE MEXICAN DAGGER PLANT.

YUCCA BACCATA Torrey, Botany Mexican Boundary Survey, page 22, [1858]. Type locality: "High table lands between the Rio Grande and the Gila," New Mexico.

Dr. William Trelease, Director of the Missouri Botanical Garden, in his report for 1893, page 185, says: "With the possible exception of Y. glauca, this is the most widely distributed of our species, ranging in a variety of forms from southern Colorado into Mexico and to California, where it extends from about Monterey into the peninsula." Following this are interesting notes and observations on this species, especially concerning its pollination, together with a plate (pl. 20). In his previous report for 1892, the same author illustrates this species in plates numbered 2 and 48, the first herewith reproduced through the kindness of Dr. Trelease, the other representing the fruit.

Dr. George Engelmann, in Watson's Botany of the Fortieth Parallel, describes the species thus: "Stems none, or short, or several feet high; leaves very thick and rigid, lance-linear, narrowed above the broad base, concave, terminating in a stout spine, with very coarse marginal fibres; flowers panicled; petals rhombic-ovate—1¼–1½ inches long—or linear-lanceolate, sometimes over three inches long; ovary attenuate into a style; stigmas short; fruit ovate or cylindric, long-rostrate. From New Mexico and S. Colorado, through S. Utah, to Arizona, California, and Mexico. Northward a low plant, it becomes a tree farther south; leaves 1½–2 feet long; 1½–2 inches wide. The edible sweet fruit are often called "Dates;" seeds variable in size, usually the largest in the genus, 5–6 lines wide, 1¼–1½ lines thick." For other observations on this species, made by Dr. George Engelmann, see Engelmann Botany, pages 291–292.

F. V. Coville, in contributions from the U. S. National Herbarium, Vol. IV., pages 202–203, seeks to establish two species out of what has heretofore been referred to Yucca baccata, and restricts the name to the acaulescent form. But he has not made it at all plain to the writer that two species exist, or that the

* By a special arrangement this and the succeeding pages contributed to "Out of Doors for Women," appear simultaneously in that journal and THE GREAT SOUTHWEST.

form which he takes to be typical was the one collected by Dr. Bigelow. Having a wide field acquaintance with the plant the writer must consider that Mr. Coville has given the plant another synonym in his Y. macrocarpa. When the whole region over which this (usually) arborescent species is distributed is carefully explored, and the multitudinous forms carefully studied, I have no doubt the synonyms will be found truly burdensome already.

T. S. Brandegee, in Proc. Cal. Acad. Sci., 2nd ser. iii, 208, (pl. xi), has described under the name Y. valida, an arborescent form which occurs south of San Quintin, in Baja California. This was first collected by the writer in the spring of 1886, and Prof. Sereno Watson doubtfully referred the imperfect material then collected to Y. schottii. Mr. Brandegee is doubtless right in his later opinion that it will prove merely a form of Y. baccata.

The fruit is known to Mexicans as *datile*, and among Americans is often called "wild bananas," but it produces a crop too infrequently or with too great uncertainty to ever be of value in that way. The root has been used as a substitute for soap among primitive people, but it is not likely to ever enter into competition with that article. Nor is it likely ever to become in demand as a fiber plant, though its leaves yield a long and tough fiber that has been utilized in Texas and Mexico to some extent. In Mexico the plant is said to be made to yield an alcoholic liquor.

Then, wherefore—if not its beauty—is all the regal magnificence of its luxuriant tropical foliage and flowers—and is not that sufficient?

The Fritillarius of Southern California are very attractive, growing wild in lovely clusters with drooping graceful bearing, sometimes the very dark chocolate colored ones are known as the black lily. They are bulbous plants belonging to the lily family. A French author once called the lily the king of flowers, adding "the rose is the queen."

The herbarium of the late Dr. C. C. Parry, containing some 16,000 specimens in excellent condition, has been purchased by the trustees of Iowa Agricultural College, at Ames, Iowa.

POULTRY.

[Address inquiries on poultry subjects to S. L. ROBERTS, Lemon Grove, Calif.]

MATING PLYMOUTH ROCKS.

These lines refer to the Barred variety; the White Rock is not very extensively bred and is much easier to properly mate. As with all colored birds the first essential to success lies in the first process of generation—egg germs. Anybody can throw a male bird into a yard with females and gather eggs therefrom. The chicks will come, but not according to standard requirements. The "Standard of Perfection" is a descriptive book of all domestic fowls bred in the United States and Canada, whose publication is authorized by the American Poultry Association, subject to revision by said Association every five years. It has been such property for a great many years, and this April a new edition is put out. All fowls worthy of admittance are described in these sections: head, comb, wattles and ear-lobe, neck, back, breast, body and fluff wings, tail and feet; besides many of these sections are subdivided, as also there are symmetry and condition to be passed upon in judging. With these preliminary remarks let us proceed to a mating:

The male should show a symmetrical body for the breed. Legs, large of bone, medium in length of shank, standing wide apart. Breast, round and full. Back, flat at shoulder, rather short and having a nice concave sweep to saddle where it makes an abrupter sweep to tail, giving a lower appearance at saddle than at hackle of neck. Most cuts are incorrect in this respect. Comb, low, evenly serrated with five to six serrations. Eyes, bright red. Wattles rather large and silky of texture. Ear-lobes, bright red (any paleness is highly objectionable, and the least white, if enamel, disqualifies). Neck, well arched, full of hackle, fair length. Tail, carried well up but not as perpendicular as the sickles, medium in size with sickles extending beyond main tail feathers quite three inches. Toes, straight, long, well spread.

The color: Beak, short, stout, well curved, yellow with not a sign of dark so much as a thread's width. Head, bluish gray, marked across with very dark blue. Hackle, ground color almost white; if placed on white paper, barred with very dark blue and the more of these latter, you can count, the better. Back, bluish gray bound with deepest shade of blue known—almost black but with the ground color of gray bars being wider than the dark ones. Saddle, a shade or two lighter than back ending with silver-gray, tips being dark but free from smoke. Tail, still lighter than saddle, bars distinct. Breast and body, light steel-gray, under color barred with deeper shade of blue with under color of entire body being seen down to quill end of feather. This last item is very important, as what is called a "cotton back" is worthless as a breeder. If breast or back feathers show less than five bars (including fluff bars) don't use him, and not with the five, if the bars do not reach across the entire web.

The female: Head is a shade darker than male's but no more. Eye, bright red, with beak (if a hen) yellow; if a pullet, a hair line of dark is admissible though undesirable. Comb, small, upright, bright red, evenly serrated five or six times, without side sprigs. Ear-lobes, bright red, smooth with no indication of enamel. Neck, medium long, carried up well, tapering nicely to head, arched and in color same as body—grayish white,—

barred regularly with blue black. Back, broad, concaved; not quite so shapely as the male's and slightly cushioned. Legs, wide apart, yellow. Breast and body should exhibit not less than five bars, as any less will give a broken or mottled appearance instead of the concentric or zebra-like rings so desirable and to be found on those only that have five or more bars. Legs, yellow, although good breeders are found often that have smoke spots on shanks.

Male should weigh nine to nine and one-half pounds if a cock; cockerel, eight to nine pounds. Hens, seven to eight and pullets six to seven pounds.

Essentials: Constitution, shape, color, size—size means here, frame, not fat.

Hitherto, it was customary to use the very lightest colored males with the darkest females and the lightest females with the darkest males; but those who are acquainted with the origin of history of the breeds of fowls, learned a few years since that such matings were errors. The foregoing suggestions have reference to what is called among fanciers, "the one mating policy," and most excellent results follow the mating for standard purposes; but for exhibition, to win in good company, two pens—two matings—are necessary, as follows:

Males that are as light of color as you can find, or buy from eminent breeders, provided the barring reaches down deep into the lowest fluff, with barred sickles and wing flights, hazy eye and dark yellow beak, with breast as dark as general color of body. The breast, beak and eye are evidences of color, quality or a breeder. Females: the lightest of color to be obtained, the grayish-white-ground predominating, the blue bars being narrow; neck no darker than general body and breast as dark as neck. This will give you winning pullets.

Males that are medium light of color: that is, between the dark and the light specimens; females that are good and solid, in dark color but free from any smoky or bronze to dark barrier, and solid black feathers, now and then, in the neck and just forward of wing shoulder and back of breast. No white or faded flights and in size as large as possible; especially as to bone. Such will give the breeder exhibition males.

Now, in both matings, if followed closely, from ten to twenty per cent. should be fit to show. Formerly, ten per cent. was good, but better breeding of late gives better results.

[Space will not allow me to give matings for Brown Leghorns as intended, but will be given next month.]

S. L. ROBERTS,

Lemon Grove, Calif.

It is pleasant to find good words spoken of one's friends, and it is a pleasure to reproduce the following from "Printers' Ink" about our friends N. W. Ayer & Son:

The advertising agency of N. W. Ayer & Son, of Philadelphia, is unquestionably the largest and probably the best equipped of any in the United States. It has more and larger patrons than any other, and, taking one thing with another, it is questionable whether they are not entitled to the credit of securing for their patrons better service than can be counted on from any other. It should be, and doubtless is, a great source of pride and satisfaction to Mr. Ayer and Mr. McKinney that they have been able, while remaining in Philadelphia, to build up a larger advertising business than has ever been secured before by any advertising agency in New York or elsewhere.

Bear Valley water is being boomed as a scientific "elixir of life."

Ranchers, try Tip Top Cough Syrup.

SUNN HEMP.

CRATALARIA JUNCEA Linne. The U. S. Department of Agriculture furnishes the following concerning the Sunn hemp: "Throughout India it is sown as a Kharif crop, that is about the commencement of the rains, and cut at the end of September. In Bengal, sown in May and June, and harvested after blossoming, 15th September. In some localities it is harvested in October. A light but not necessarily a rich soil is required; never clay. Sown at the rate of sixty pounds to the acre. Sometimes not harvested till the seeds are almost ripe; then stacked in the field to allow the leaves to fall. The fiber can be extracted by immersing a bundle of stalks in water from three to seven days, according to temperature, when the fiber can be thrashed off by beating the water with handfuls of stalks. It is important to get out a little of the fiber, that the Department may judge of its quality."

Baron Ferd. Von Mueller, in his "Select Extra-Tropical Plants," says of the Sunn hemp: "Indigenous to South Asia, and also widely dispersed through tropical Australia. An annual herb, rising under favorable circumstances to a height of ten feet. In the colony of Victoria, Sunn can only be cultivated in the warmest and moistest localities. It comes to maturity in four or five months. The plant can also be grown as a fodder herb for cattle. It requires rich, friable soil. If a superior soft fiber is desired, the plant is pulled while in flower; if strength is the object, the plant is left standing until it has become almost ripened into seeds. The steeping process occupies about three days. For the purpose of obtaining branchless stems it is sown closely. Cultivated in the Circars, according to Roxburgh, to feed milch cows."

Seed of this plant is being distributed from the agricultural department of the University of California. Prof. E. W. Hilgard, Berkeley, Calif., desires recipients to report results. The interest in all fiber plants is increasing in this country, and every plant of promise is receiving attention.

INQUIRY DEPARTMENT.

[We hope to make this department a leading feature of THE GREAT SOUTHWEST. We have secured the co-operation of a number of specialists, who will answer all questions sent in. Send queries either to this office, or to the following contributors:

Scale—Commissioner W. R. Gunnis.
Flowers—Miss K. O. Sessions.
Poultry—S. L. Roberts, Lemon Grove.
Veterinary—J. R. Gillen, D.V.S.
Silk Culture—Mrs. W. W. Collier.
Bees—
Shells, etc.—Miss J. M. Cooke.

Other departments will be filled in as we progress. The editor will see that general inquiries not covered above are given carefully verified answers. We invite short notes of practical interest from any source.]

Can owner of land secure release of bond obligation under Wright law, if irrigation district cannot or does not sell bonds, or make any material progress toward placing water on land?

No. There is a provision that lands may be excluded from a district by consent of the directors, provided it is clearly shown that they already have water or are not susceptible of being watered, or other sufficient reason. In a number of cases, after trying to sell bonds for several years without success, districts have voted to disorganize.

When do you think or guess water will be placed on Linda Vista?

In about two years.

Can onions be grown on mesa land planted any time from November to April on natural rainfall?

Yes, but not very profitable.

What would be average number of pounds per acre (onions)?

Do not know.

What other vegetables can be grown with profit on natural rainfall during winter months, November to April, with careful cultivation?

Peas, cabbage, cauliflower, potatoes and turnips.

What would you consider an average profit per acre of winter vegetables grown in this way, say in ten or twenty acre lots?

Would not advise planting vegetables to any large extent on mesa lands without irrigation. The mesa rancher can grow vegetables profitably for his own use, but not for market.

Does the item of profit rest to any extent upon the acreage planted of one kind of vegetable in the section, or upon the market outside, or east of California, in your opinion? (Having in mind twenty acres of one or two kinds).

Really answered by the last above. Those wishing to plant vegetables largely should have either bottom lands or mesas that are irrigated; and even on the bottom land it is better to have plenty of water. Except in a small way the eastern demand governs prices. As a rule it is better to raise two kinds than one.

[As I wish to engage in the poultry business, which would be the most profitable, to raise chickens for broilers, and market, and eggs, or fancy fowls and eggs at fancy prices?

J. K. L., San Diego.]

For immediate proceeds, chickens for market, and eggs, and broilers, would please you best; but if you desire to raise birds to sell to amateurs and fanciers at from three to five dollars for pullets and five to twenty-five dollars for males, it will require a few years to make your-

self known and introduce your stock. It also requires experience to begin with; although you could grow into it by degrees. The better way, for other than a veteran fancier, would be to combine market with fancy poultry and gradually grow away from all but the fancy, and by the time the fancy trade reaches this portion of the state you shall "be in it," so to speak. S. L. R.

CROSS-POLLINATING PEARS.

It may be of interest to your readers to learn of the work which has recently been done in the matter of cross-pollinating pear and apple blossoms. It has been learned through the work of Mr. M. B. Waite, of the Division of Vegetable Pathology, United States Department of Agriculture, that two-thirds or more of our varieties of pears are nearly or quite self-sterile; that they require pollen from some other horticultural variety to produce fruit in a satisfactory manner. The details of this work upon the pear have just appeared from the department in the form of a bulletin for general distribution. It is Bulletin No. 5, of the above division of the department, and the facts given are of the greatest value to all of those horticulturists and nurserymen who handle or grow the pear. In the bulletin is given a list of the self-sterile and the self-fertile varieties, so that growers may know which varieties should be grown together with others, and which may be safely relied upon to produce fruit when grown by themselves. I feel sure that this bulletin will prove of great interest and value to the entire horticultural world, and no pear grower can do better than procure a copy while the work may still be had.

NEWTON B. PIERCE.

Santa Ana.

GROWING TOMATOES.

Thinking that your readers might be interested in the manner in which I grew a tomato-vine eight feet in height, I have had an illustration made which, with the description I give, will make it very easy to understand. First, procure two poles three or four inches in diameter at the large end, and ten feet in length. Place them on the ground side by side, so they will be about twenty inches apart at the large end, and ten inches apart at the small end. Next, make some slats one inch thick by two or three inches in width. Nail one across at the top, another thirty inches from the large ends, and three more between, so as to be an equal distance apart. Then set firmly in the ground, and with a hoe or spade make a basin-shaped hole at the base of this ladder large enough to hold a pail of water. Set the plant in the center and after it has got well rooted and stocky, say fifteen inches in height, it should be tied to the first slat and the hole filled with water several times each day. When it has grown pretty well up to the second slat you must push the vine toward the side on which the first slat was nailed. Then nail on a slat on the other side of the pole, and half way between the first and second slats. Fasten the vines to this slat, and as the vine keeps climbing upward, you must keep putting on slats, and fastening the vines to them. In this way you will soon have the woodwork completely covered with a dense growth of green vines and leaves, and such an abundance of fruit as will astonish you. I used the yellow plum-shaped tomato, but any vigorous sort with a large top may be used. The yellow fruit on my vines, growing in clusters, was very ornamental and admired by all who saw them. Although not as valuable for general purposes as some of the larger red varieties, they make really fine pickles, and are very acceptable in the winter time with the thermometer at ten below zero and snow to the top of the fence.—Frank Finch, Clyde, N. J., in Farm and Fireside.

TOMATO GROWN ON TRELLIS.

Co-operative fruit drying is being talked by the Sutter County Horticultural Society.

Raisins as an every-day fo d is a subject being pushed forward by the State Board of Trade.

Ore from the Cincinatti Belle mine at Julian is reported as showing up well.

THE FRUIT EXCHANGE.

The San Diego County Fruit Exchange shipped this season thirty-nine cars of oranges and lemons; of these thirty-four cars were graded fruit at guaranteed prices; the other five cars were soft fruit, sold at auction in San Francisco. It is well to explain just here that it is this soft fruit which has been the cause of the report that growers in some instances had received little or nothing for their fruit: the fruit was neglected, and unsalable, through the fault of the grower. Good fruit has been sold at good prices, and that which was below grade has brought better returns to the grower than heretofore.

THE GREAT SOUTHWEST has believed in the exchange movement from the start, and in the integrity of the men at the head of the San Diego Exchange—elsewhere we have not the honor of acquaintance with them. Co-operation is surely in the business future in increasing minuteness of detail, and the fruit exchange is co-operation. And we are glad, with the rest of those interested, that we can say and feel that the exchange is a success. Most encouraging reports are received here from all parts of the country. One eastern fruit broker speaks of the past season's progress as "the most marvelous success which history records;" and others while more guarded in expression, speak in clear and business-like terms their favorable opinions.

The largest growers are now giving their support to the exchange, even those who held out at first for some time being convinced. The Riverside exchange says in a circular that no broker can pay higher prices than the exchange, and no house has ever handled fruit at so small a cost to the grower: and this is a plain

guarantee of the maximum net price to the grower.

The sum of the matter is this: the grower, by combination, finds himself dictating terms all along the line—in packing, shipping and selling—instead of being dictated to by packer, carrier and broker.

It is now more than probable that the machinery of the exchange in Southern California, and its connections in a hundred or more distributing centers throughout the country, will be retained and used for the handling of deciduous fruit, green and dried. This is urged by eastern buyers, who are ready to take f.o.b. fruit from the exchanges. The extensive failure of the fruit crops east gives California a very large market for her deciduous fruit this year, and the growers are apparently determined to make the most of their opportunity.

It is a great pleasure to be able to speak and believe these things. San Diego people have been called slow and lazy, with oftentimes a show of reason: but the fact that good fruit is being grown in increasing quantities, and harvested at the right time, and sold at the right time too, is proof that we have a good working population of men who mind their own business and help their neighbors.

CALIFORNIA BERKSHIRES.

TO THE EDITOR OF THE GREAT SOUTHWEST:

The California breeders of Berkshire Swine are making preparations for the largest and best exhibit of Berkshire Swine at the 1894 State Fair that has ever been seen. The American Berkshire Association has agreed to aid our breeders in this matter by the offer of the following liberal premiums, valued at fifty dollars, for exhibits of Berkshires made at our State Fair next fall, viz.:

The first five or the second five volumes of the record of the American Berkshire Association, necessary to complete the set of the successful competitor, and valued at five dollars per volume.

(a) Best breeding pen of Berkshires registered in the American Berkshire Record, to consist of a boar and three sows over one year of age, owned by a resident of the state or province in which the fair is held, the first five or the second five volumes of the Berkshire Record, valued at twenty-five dollars.

(b) Best breeding pen of Berkshires registered in the American Berkshire Record, to consist of a boar and three sows under one year of age owned by a resident of the state or province in which the fair is held, the first five or the second five volumes of the Berkshire Record, valued at twenty-five dollars.

CONDITIONS.

First.—That the boars and sows competing for the prizes specified above be recorded in the American Berkshire Record prior to date of entry at the fair, and that a list of such entries be sent the Secretary of this Association.

Second.—That there shall be no less than two competitors for each of the prizes.

Third.—That no animals competing for the above prizes will be allowed to show for said premiums at more than one state or provincial fair in 1894.

All the breeders of Berkshires in California are earnestly requested to make an exhibit at the next fair for one or both of the premiums named above, which, with the regular cash premiums offered by the State Fair Association, should ensure a great show of Berkshires at the fair next fall.

Yours truly, THOMAS J. KERNS,
Vice President, California.

Downey, Cal., March 28, 1894.

OLIVE CULTURE AND ITS PROFITS.

The olive as a source of profit is not excelled by any other tree known to the human race. God gave man, as the three essentials for animal life, the olive, the vine, and grains. So completely do these meet all his needs that, where he uses little if any other food, he enjoys almost perfect health and remarkably long life. In the vicinity of San Diego are trees known to be over 100 years old, whose vigorous gr wth and healthfulness at the present time cannot be denied. Last year they yielded over 150 gallons of fruit per tree. But these trees are in their infancy compared with some of those growing in the old world. There are trees in the vicinity of Rome said to be over 3,000 years old; and although they have been entirely neglected for ages, they are still bearing fruit. The tree seems to flourish in almost any soil, will stand a great deal of drought, but shows signs of distress in wet land. It will endure cold down to 14 degrees above zero and heat up to 120 degrees. It is growing on the mountain sides as high as 3,000 feet above the sea. It is not known if it can be successfully grown in our country east of the Rockies, but even if it cannot California could produce enough to supply the markets of the world, and this she should do. The trees already producing in this state are marvels of productiveness and their annual increase of yield serves as a guarantee of greater financial returns as they mature. An incentive to the planting of olive trees lies in the staple character of the product, the pickeled olives and the oil both commanding high prices and a ready sale in the domestic market. Sixty-six samples of olive oil sold in an eastern city were recently analysed and it was found that not one of the sixty-six was pure: several of them did not con-

tain a single drop of olive oil, while others were adulterated with articles that were nauseous and harmful. To place a clean, wholesome article on the market requires the utmost care and much skill. Such labor commands from $1.50 to $2.50 per day in California, while in Spain and Italy such labor is paid from 40 to 70 cents per day. We demand such tariff as will in a measure meet the difference between the prices we pay our help and the prices paid the pauper labor of the old world. While planting olive trees we should insist upon the protection of this growing industry by the levying of duties on the foreign product such as will represent the difference in price due to the dignity of American labor. The present duty of 35 cents per gallon on olive oil represents only a small fraction of this difference, nor is any change contemplated by the Wilson bill now before the Senate. California's representatives should be urged to do all in their power to secure the amendment of the bill in this particular increasing the tariff to such an extent as will shut out foreign competition effectually.

Few persons can have failed to observe the difference in color, as well as in flavor, between the olives grown hereabouts and those imported from abroad. The pickled fruit imported is all picked green, and like any other fruit, it is unwholesome and undesirable as food. There is quite as much difference between the ripe and the green olive as there is between the ripe and the green peach. The foreigner pickles them green for several reasons. It is less work, and requires less skill to pickle a green olive than it does a ripe one, they are not as likely to show scum on top of bottle, and then "they look better." But there is still another reason why the foreigner picks and pickles his olives when green. Their fruit is badly affected with a worm that develops in the berry. This worm does not manifest its presence until the fruit is nearly ripe, but it is there all the same. Those who use olives should give the preference to domestic fruit on the ground of their greater healthfulness, if their taste is not a reliable guide to such a choice.—San Diego Union.

BILTMORE FOREST.

To the Editor of The Great Southwest.

Biltmore Forest is the first practical application of forest management in the United States. Biltmore Estate, of which the Forest is a part, lies near Asheville in the western part of North Carolina. Before its purchase by Mr. Vanderbilt the small farmers to whom the land belonged had pastured their cattle in the forest, had burned it over to improve the pasturage, and had cut a large proportion of the trees which could be used or sold for fencing, fuel or sawlogs. At the time when its management was undertaken, comparatively few large, sound trees of White, Black and Scarlet Oak and Shortleaf Pine, which are the more important species, were still standing in the Forest, and the condition of a large part of it was deplorable in the extreme.

The prime object of the management at Biltmore is to pay the owner while improving the Forest. To this end "improvement cuttings" were begun in some parts of the Forest to remove old trees which had reached a merchantable size and were standing over and injuring good young growth. In other places the only measures required were to exclude cattle and fire, and give the Forest absolute rest.

In the process of felling the timber, the trees to fall were first carefully marked, then sawed down and reduced at once to

cordwood or sawlogs, or both. Great care was used in selecting the place for each tree to fall, and in throwing it so that the top might not crush the young trees among which it fell. The result was a gain of probably 95 per cent. in the condition of the young growth over that which usually follows ordinary lumbering, while the increase in cost was not more than 2 or 3 per cent. The output of the Forest was sold at market prices in open competition, but most of it was consumed by the other departments of the Estate simply because the prices charged made it worth while for them to purchase of the Forest rather than elsewhere.

During the first year a great improvement was effected in the condition of the Forest at a very small cost. Out of a total expenditure of nearly ten thousand dollars the net cost of the improvement was some-what less than four hundred dollars. During the year 1893, however, with woodsmen more fully trained and the whole force in better working order, the management yielded a net profit of rather more than twelve hundred dollars.

MARCH, 1, 1894.

Mr. G. O. Shields, an irrigation expert, a well-known author, and one of the most successful emigration men in the United States, is giving a course of lectures in New York, Brooklyn and other Eastern cities, on "Irrigation in Southern California" His lectures are richly illustrated by stereopticon views of irrigation works, orchards, orange groves, vineyards, private grounds, parks and other subjects showing the magic effects of a proper combination of sunshine, soil and water. Mr. Shields' address is 146 Broadway, New York.

LA MESA.

I have just had a very pleasant trip through La Mesa. If I had traveled through it five years ago I should have seen nothing but sage brush with just one small clearing where the first pioneer of this now prosperous and progressive community had settled. This clearing was owned by Dr. Wilson, who is now the proverbial "oldest inhabitant," and never, in his memory, has the frost damaged anything at La Mesa. Tomato vines which have been left lying on the ground have occasionly been frosted, but those tied up have never been touched. Dr. Wilson has a contemporary who settled there about the same time as himself, a Mr. Rock, and these two have witnessed some rapid and beneficial changes characteristic of nineteenth century progress. The spring after their arrival the S. D. C. and E. Railway was finished and now the whole country side is cleared and covered with young trees. One noticeable feature is the way in which all the orchards are fenced in to protect the young trees from the depredations of rabbits. The fencing mostly used is either hard pine lath or wire netting. Among the more recent arrivals is Mr. A. S. Crowder who owns the "Lookout Ranch." Of course the trees are young yet but he has the foundation of a very fine ranch. The trees are in first class condition and produce fruit which in quality is second to none, as the writer can personally vouch, having investigated that matter for himself. The ranch is pleasantly situated on a hill-side and contains sixty acres, thirty of which are planted in citrus trees and twenty in deciduous. Mr. Crowder is from Washington but is a native of Illinois, and though he only came last November he has already made his mark as a public spirited

man by the practical interest he takes in the public affairs of La Mesa. If La Mesa was away from civilization five years ago it is by no means so now. In addition to the railroad there is a splendid wagon road to San Diego which was graded and improved last uatumn. There is a good school with about forty pupils. La Mesa contains between thirty and forty families, but there is no church there yet because the people belong to so many different denominations that none of them is yet strong enough to build a church. However, they do not go without service: the school house is called into requisition and the morning service is held by the Episcopalians, the afternoon by the Congregationalists and the evening by the Methodists. In the afternoon all denominations combine for Sunday School for the children. There is a good general store which is in a very flourishing condition under the able management of Mr. Williams, who also owns a fine ranch —"La Benita." Near the post office is the blacksmith who spends his time shoeing horses and repairing wagons. Since last summer the La Mesans have had the services of an able physician, F. H. Mead, M. D., M. R. C. S. (Eng)., so that a person living at La Mesa has all the advantages of living in town combined with the healthy life of the country, surrounded on all sides by acres of fruit. Before coming here I heard that San Diego had no back country that was any good; but if my informant had only seen what I have he would have spoken differently. I had an interesting conversation with Mr. G Putnam of Lyon's valley, Jamul. He gave me some valuable facts about bee keeping, of which he has had ten years experience. He began with thirty-five hives and now owns two hundred. To procure a hive costs about $1.50, and he finds that one hive will produce an all-round average of one hundred pounds of honey per year. Five cents a pound is a price that one can depend on getting, so each hive will bring in $5.00 a year. SHIRLEY RICHARDSON.

RELATING TO FIGS.

The State Board of Horticulture has published in pamphlet form the method for curing and packing figs, adopted by Mr. Geo. Raymond, of Kern county, who has an enviable reputation for success in this work. The following will be of great interest to fig growers generally:

I have learned two things of great importance by experience. The first is, that the trees must not be irrigated later than six weeks before the fruit ripens. The second is, that so soon as the nights grow cool and there is the least indication of dew, I at once stop curing. In either case, if these rules are not carried out the figs will ferment within a very few months after curing; these rules apply here. I keep my trees as close to the ground as possible, heading out at a foot to eighteen inches. My trees have a very dense foliage, so close that from the outside you can rarely look well into the tree. This, I find, prevents a great deal of sunburn on the fruit, to which the fig is liable. My best figs come from the inside. My trees have no so called first crop. (The White Adriatic has only one crop). A good thing as I am satisfied that crop will not cure and keep well. The fruit begins ripening about the middle of August; is all picked in about six weeks or less.

Sheep men in San Bernardino county are refusing to pay a new license tax.

The Great Southwest.

H. E. ANDREWS, - Manager.

CIRCUMSTANCES seem sometimes to happen all at once. Just when we are ready to do something else, something else happens and we have to do something else. And no matter how small the circumstance may be, it generally drops into the wrong place at the right time. Now, half an inch on the end of a man's finger is a small part of him; but the unexpected removal of half an inch from the editor's left hand finger (another circumstance which happened all at once) has brought suspense to hundreds of innocent readers by delaying the issue of THE GREAT SOUTHWEST. We are glad to milk, and feed the calf, with one hand; we can irrigate the experiment grounds in our back yard, and cultivate our spuds with a short-handed hoe; we are able, single-handed, to convince the merchant that it is best not to advertise, and induce the rancher to subscribe for the other fellow's paper; with one hand our grasp of an idea is as clear-cut as the clip of our office shears, and as broad as our exchange list; but we can't set type. So, our means of transporting ideas to our readers being crippled, we are forced to ask their kind indulgence. We hope it will not happen again.

THE editor paid a visit to the ranch of Mr. Hayes in the North Chollas Valley last month to look at the results of a tree wash invented by Mr. Spencer, who cares for the place. We examined carefully the work done, and did not find one single live scale. It was purple scale we examined for the most part, and the dead scale was plenty. Red spider also died immediately under the spray. Mr. Spencer has satisfied himself and others that his wash will destroy purple scale, black scale, red spider, San Jose scale and has in one or two cases seen good results on cottony cushion and the grape root louse. Commissioner Gunnis, with his usual readiness to advance the fruit interests under his care, has promised to experiment and report officially upon the value of the wash. It is hardly to be doubted that the caustic washes in general use are dangerous to the trees. Mr. Spencer's wash is largely vegetable, and no one thus far has seen any damage to the tree. We hope to report an official test in our next issue.

PACIFIC Tree and Vine reports a process of drying olives, in use by William Pheffer of Gubserville. He allows the fruit to become quite ripe, gathers it carefully, and spreads it on trays. The trays are placed inside a building,—some just under the roof of his porch—and are left two months or more, till pretty thoroughly cured. Then they are put into sacks, we judge in small quantities, with a handful of salt, and thoroughly "shuffled" and shaken together. "The bitterness of the fresh olive entirely disappears and the fruit becomes an excellent food".

HUSTLING when properly directed always produces good results. H. F. Norcross writes Secretary Young from the Midwinter Fair as folllows:

"We cannot afford to give up this exhibit. It is doing us worlds of good. I don't know how many people told me yesterday that they were going to San Diego, and the most of them decided to go because of what they saw and read here."

WE call attention to our Inquiry Department. We have made a start this issue and hope our readers will send us such questions as occur in their own affairs, if they come within the scope of a journal of this kind. All questions are answered by those who, we believe, are fully competent to do so. Where there are so many beginners and so many new things constantly coming up, no inquiry can be too insignificant. Let us co-operate in our knowledge.

THE National City Record says some true facts about the so-called "fiesta." The times are sufficiently degenerate, with boodlers and industrials and laziness and hard times, without imitating the barbarities and cruelties of nations still more degenerate. The spirit which fosters such affairs can surely be only vicious, by whomsoever it is manifested.

IT is the duty of every member of the Editorial Association of Southern California to report any advertiser who fails to pay his bills. This magazine aims to admit only advertisements of a legitimate character from responsible houses, but should any beat gain admittance to our pages he will be promptly spotted by the fraternity.

THE Rialto "Orange Grower" gives its readers some good advice about raising garden stuff. We have said our say on this line before, but it is as true now as ever. Some people think the majority of our farmers are inclined to take things easy. Are we lazy in San Diego county?

THE San Diegan-Sun has issued 10,000 copies of a commercial review of San Diego which will be of interest to inquirers concerning this region.

COUNTY HORTICULTURAL CONVENTION.

The regular quarterly convention of the San Diego County Horticultural Association met at the Chamber of Commerce at 10 a.m. on Tuesday, May 8. President Keene presided.

The secretary was detained for a few minutes at the Fruit Exchange, and while waiting for the minutes the question of thinning out fruit on peach and apricot, and other trees, was discussed. Mr. Baird said he had thinned out the bunches of his apricots so fruit would not touch; this he thought necessary to secure good sized fruit. Chairman Keene said Eureka lemons, which bear small lemons rapidly, gave larger fruit if thinned; but Lisbon and Villa Franca would grow too large; the orange bears best fruit on the outer branches, which get most sun, and seedlings, with thick foliage, do not give best fruit: while best lemons grow in the centre of the tree.

The disposal of the maturing peach and apricot crop was brought to attention next. The chair recommended drying the fruit at once, as it would not stand shipment; a large crop is in prospect, and if dried it need not be forced on the market disadvantageously. Sun drying was mentioned, but found little favor in the bay region; Mr. Baird had tried it twice with unsatisfactory results; at 30 to 40 miles in the mountains good results were obtained in the sun; Mr. Spawn stated that the Crawford peach is too juicy to dry well, but the Muir is excellent; Mr. Dondore said in Alpine the Foster, Susquehana, Muir and Solway had dried well in the sun, especially the last two, the Muir being very dry and sweet.

At this point Secretary R. H. Young appeared and read the minutes of the last meeting, which were approved.

MARKETING DECIDUOUS FRUIT.

Mr. Young then introduced the subject of marketing deciduous fruits. The killing frosts in the east were spoken of, the promises of good crops in California, and the high prices now paid in the east—for instance, $2.50 for ten pounds of cherries. Mr. Young spoke of the work of the Fruit Exchange, saying that through its efforts growers had received more money for their fruit than they would have done without its aid; the exchanges of Southern California intend to continue, in even more compact co-operation; but the Exchange did not recommend the shipping of carloads of green deciduous fruit, and will not attempt this unless strongly urged to do so by the growers.

A general discussion followed, in which the consignment system was scored heavily, and the Exchange further praised. It was stated that seventy-five per cent of the citrus fruit growers in the county were members of the Exchange. After fighting the exchange movement, Thacker Bros. had bought all the remaining fruit from the San Diego Exchange at a slight advance in price.

Inquiry was made as to the prices actually realized by the Exchange for oranges and lemons. Mr. Story, president of the Exchange, in reply stated in the beginning it was all uphill work. At first the fruit was shipped to an auction house in San Francisco, where the prices received varied from good to less than cost of packing and transporting. Then two carloads were sent to Denver, one fetching good money and the second not. One car was sent to Kansas City. The fruit sold on its merits, and depended on the market price. Then Thacker Bros. contracted for all the re-

maining crop at a uniform f.o.b. price. The prices were as heretofore published in THE GREAT SOUTHWEST as follows:

	Freight on board cars at San Diego.	Prices to growers for fruit delivered in San Diego.
NAVEL ORANGES.		
Fancy	$1.65 per box.	$1.10
Choice	1.40 " "	.95
Standard	1.15 " "	.65
SEEDLING ORANGES.		
Fancy	$1.30 " "	.75
Choice	1.15 " "	.60
Standard	1.00 " "	.45
LEMONS.		
Fancy	$2.00 " "	1.15
Choice	1.75 " "	.90
Standard	1.50 " "	.65

A discount of 10 cents per box is given purchasers from these prices.

Practical experience of shippers through the Exchange was called for; a member said he had shipped a considerable quantity of lemons through the Exchange, packing them in the National City packing house, and had received $2.00 per box for fancy and $1.75 for second grade; he paid 10 cents per box to the Exchange, 3 cents to the local association, and the usual discount of 10 cents was deducted, making 23 cents besides the cost of packing and curing.

The disposal of the coming fruit was brought forward again, and discussed at considerable length. Three methods were presented: shipping in the green state in refrigerator cars, canning and drying. It was learned that the attempt to secure reductions in freight rates on green fruit to Chicago had failed; the rates now are $300 for twelve tons, and $100 for ice, making $400 for a car of green fruit from California points to Chicago. It was thought two or three cars a week could be shipped if desired, but this was questioned. Proof that the fruit would carry well was offered in the world's fair exhibit, which arrived in perfect form except for a crushing of a few grape boxes by improper loading.

Mr. Griffith moved that it be the sense of the growers of this locality that no green fruit be shipped until the railroads make a reasonable rate for same, but that the fruit be dried and canned. Carried.

WHAT TO GROW BETWEEN THE ROWS FOR IMMEDIATE RETURNS.

An interesting and instructive discussion followed the reading of an inquiry to this effect.

Mr. Baird being called for said he had done little of this kind of thing; he thought strawberries would pay. He had little success with potatoes. Under the Sweetwater system, however, water is $1.50 extra when anything is planted between the rows.

Mr. Griffith said he had worked eight years here, four years for fun. He wasn't working for fun any more. By all means plant something between your young trees—it is absurd to wait till they bear. Strawberries are best for quick and large returns, and most anything for ordinary returns. Strawberries are being shipped in from the north on account of the late season here. He could sell ten times as many as he now raised, which is ten acres. Mr. Griffith made a good hit when he said many people fail to succeed with strawberries because they don't give them proper attention, though they think they do; they don't know what proper attention is, and won't find out till they are dead. He said it must be constant attention—night and day—water them and weed them—sleep with them. He raises the Duffy. Mr. Dondore recommends the

Oregon Ever-bearing.

Mr. Smith said with water at 60 cents per 1,000 gallons, and with hired labor, there would be no profit in strawberries. If a man has his own water and does his own work, he might do something at it.

JERUSALEM CORN.

Mr. Dondore said he had something to be grown this year, when all are short of hay. Some years ago a missionary in Palestine sent to a friend in Kansas three white flat seeds about as large as an orange seed. These produced five heads, which in turn produced 200 bushels. In the Kansas experiment station it proved its worth in a dry season, outdoing all other varieties. The experimenter there also fattened a pig on it into fine pork, ground it and made a delicious mush for human use, and tested and proved its value for poultry.

Mr. Dondore, (who by the way is an inveterate experimenter, and has promised our readers such information concerning his experiments as are of value), two years ago was dissatisfied with one-half to one ton of hay per acre, and planted nine varieties of grass and fodder plants, among them three acres of Jerusalem corn, getting the seed from Kansas. This he planted April 13; a few days later a shower fell, and the ground was harrowed, no further attention being given the field. It was ordered cut in the fodder, but was overlooked. On August 14 he inspected it, found it ripe, and had it cut and laid in bundles to dry. The roots stooled out and on the 16th of September—thirty-three days—it had grown to five feet in height again,—one to eleven stools from each stalk—and was cut for fodder, being now in the milky stage. He cut four times during the summer, and could have cut again but he had sufficient, and used it for pasture till December 25. January 1 he cut down one row, and plowed up the balance. This row in the latter part of February stooled out and grew better than the new planting.

The plant grows about three-quarters of an inch thick and three feet high, bearing a drooping head, somewhat like sorghum, of white kernels; has many leaves. When dry, horses eat it to within two feet of base, and when chopped fine eat it clean, prefering it to grain. Mr. Dondore feeds it morning and night to four horses and a cow, giving oats at noon, with best results.

Watson keeps the seed for sale; $1.60 paid for the seed for six acres, which have yielded five cuttings of one ton per acre. Could be planted between trees now if water is used. Prant in drills, two grains every six inches; cultivate the same as corn.

On Mr. Dondore's recommendation one neighbor has planted 100 acres, and others smaller areas. There was great interest manifested in the matter.

Speaking of Egyptian corn, Mr. Dondore said at some stage of its growth it had poisoned his horses, which broke out in sores after eating it.

Adjourned to 1:30 p m.

Called to order at 1:30 p.m. by the President.

The first attraction was the reading of a paper on

AN IMPROVED SYSTEM OF FUMIGATION WITH HYDROCYANIC ACID GAS.

BY LEWIS E. AUBURY.

Mr. President, Ladies and Gentlemen:

With a view if possible of improving on the present system of fumigation or "gasing" of trees, with hydrocyanic acid gas, I commenced a series of experiments in February of this year. After examining closely into the methods of past ex-

periments made in various portions of Southern California with this gas, I came to the conclusion that, outside of the present system, all others had proved failures, and that operators were working on the wrong principle and were not attaining the objects aimed at. Otherwise they would have been adopted in preference to the present one.

I do not wish to be understood as being opposed in the least to the present system, now used by this county. I will say from personal experience that I believe it to be the best among the many so far introduced, and when handled by skilled operators its efficacy can not be doubted. The main objections to it have been the "burning" of trees, but this destruction has been mainly caused by careless operators. What I have aimed at principally was the introduction of a system that could be operated by any one of average intelligence without the danger of their destroying themselves as well as the trees operated upon, and at the same time conduct their operations during the day time. According to Prof. Hilgard and other eminent chemists, the destruction of trees by "burning" is due to the action of "ammonia." It is also asserted that the "actinic" rays of the sun change the character of the gas, and thus cause the burning, and in any event "ammonia" gets the blame for all this damage. Had they made further investigation, in my opinion, they would have found that sulphurous acid played an important part in this "burning," and that under certain conditions, when operating by present system, free sulphurous acid is evolved. Whether this is done mechanically or not I am not prepared to state, but in any event free acid is evolved. They are right when they state the character of the gas is changed when acted on by sunlight, but only when sulphurous acid is present, the sulphurous acid being changed to pentathionic acid. By this, I then assert, that I have yet to find the chemist who has admitted, or even known that free acid was evolved, theoretically it perhaps should not be so, but practical work will prove my theory correct, and that instead of laying all the blame for damage to trees to ammonia, pentathionic acid should receive it. I maintain also that the pure hydrocyanic gas will not injure vegetation, and that when the objectionable free acid has been removed from it, that any quantity of the gas can be used on a tree without any damage whatever to foliage, blossoms or fruit; and that the same can be used in bright sunlight as well as at night, without injury. I will admit that the action of sunlight on pure cyanogen will decompose it to a certain extent, but the loss is trifling in dollars and cents. I will not, however, admit, even to so eminent an authority as Professor Hilgard, that the pure gas changes its character in the least when exposed to the "actinic" rays of the sun, except as to decomposition.

To overcome the effects of the objectionable acid mentioned, after much experimenting, I have devised an outside generator, into which are placed the cyanide of potassium and water sufficient to throw the same into solution. This generator is constructed of iron with a lead lining to resist the action of the sulphuric acid, and is made gas tight. Leading into the generator is a lead pipe coiled; when the coil is filled with acid it acts as a trap and prevents the escape of gas by regurgitation, or otherwise, through this pipe to the injury of the operator. The amount of acid necessary to evolve a given quantity of gas is then introduced through this pipe, the gas commences to generate, and is then lead from the generator to a receiver; in this receiver it is

subjected to a chemical treatment which removes all objectionable elements, and the gas is then lead through a rubber hose under the tent or sheet to the base of the tree to be operated upon.

The advantages I claim for this system are: Operations can be conducted in sunlight as well as by night. That when trees are badly infested a double or triple amount of gas can be used without injury to vegetation. That the lives of operators are not in any way endangered; whereas by present system they are. That crockery, generators, acid pitchers, cyanide cups, torches, and other numerous paraphernalia, are dispensed with. That any person can operate it, whereas by present system trained operators are necessary (and they sometimes make mistakes and cause damager). That the base of the tree and the upper roots can be operated upon and the insects upon them completely destroyed, they receiving the strongest portion of the gas. That the properties of the gas are fully as deadly as by the present system. That there are no acid holes to be burned in the canvasses, and as the cost of these is quite a little, and it being necessary to keep them in constant repair on account of these holes, it is an item to be considered. That the whole apparatus can be placed on a small hand cart and be conducted through any orchard. That it requires less labor to operate it, and finally it can be operated as quickly as the present system.

I have made numerous practical tests in the field and have conducted all my experiments in daytime. I have operated on trees filled with blossoms and have given the same ten and sometimes twenty times the amount of gas necessary in an endeavor to see if I could destroy the tree, and have yet to record the injury to a blossom even.

My experiments so far have been conducted about this city, and on the purple and cottony cushion scale, and black aphis. I expect later on to make several tests on the black and other scale, but am well satisfied from the work already performed that it will prove thoroughly effective on all varieties.

So far as experiments have been made the system has proven itself effectual. I shall continue my work and hope by the time of your next meeting to show the effects of my system on a large scale in this vicinity. I remain under many obligations to Mr. W. R. Gunnis, Horticultural Commissioner of this district, and thank him very kindly for aid furnished me in conducting these experiments. I do not wish it understood that the commisssion is in any way connected with this system I have advanced, and that I alone am responsible for the success or failure of the same, which ever it may prove to be.

Should the system prove itself superior to the one now in vogue, and I have every reason to believe it will, I shall content myself that I have labored in a good cause, and that my efforts have not been thrown away.

Allow me, gentlemen, to thank you for your kind attention, etc.

Mr. Aubury illustrated his method of freeing the gas of sulphurous acid with chemical apparatus, explaining clearly the various steps in the process of fumigation.

Commissioner W. R. Gunnis criticized the theory advanced. He held that heat was caused by the decomposition of the cyanogen. If the cyanide was too finely powdered, or was left in water too long, it would go off in a flash and burn the trees. He said he was familiar with Mr. Aubury's experiments, and while there

was good in the process Mr. Aubury was premature in bringing it before the public.

Mr. Aubury said he would leave the matter without further remark, being quite confident of his ability to demonstrate the correctness of his position.

Mr. Gunnis said the injury reported by the present process was often due to the diseased condition of the tree. The same treatment applied to two trees apparently in similar condition often produced different results. The gas really invigorates the trees, acting as a tonic. The burning is often simply the extracting of the coloring matter from the leaves, without injury. He said that Riverside growers repudiated the work unless the young growth was turned down.

Mr. Gunnis spoke also of the folly of washing or scraping fruit. The oil cells are injured by every rough touch, and the fruit fails to keep. We must be rid of scale. At 20 cents per tree, the present process of fumigation is cheap and effective. Mr. Gunnis spoke of the work of the commission, which we have already mentioned in our pages.

The chairman emphasized Mr. Gunnis' remarks that we must be rid of scale, and raise clean fruit.

The rest of the afternoon was devoted mainly to discussing the A. F. Spawn evaporating scheme.

Much interesting information was brought out. The cost per pound of dried fruit was estimated at 1½ cents: vegetables, 2½ cents; 30 to 35 bushels of peaches or apricots could be dried in twenty-four hours. One machine had been sold to W. J. Prout at $350, with an estimated capacity of forty bushels of apples in twenty-four hours; compared with sun drying the work is done in hours instead of days, the fruit is uniformly dried, is free from dirt and insects, and the flavor is retained: Mr. Spawn said it was similar to a roast in a poor oven cooking eight hours, or forty minutes in a good oven, coming out rich and juicy instead of dry and tasteless.

Raisins should be dried in the sun for a while and then finished up in a machine.

Mr. Spawn emphasized the necessity for having the proper varieties. The Royal apricot, Muir peach, the yellow turnip or rutabaga, he knew were good. Nothing that is not fit for the table is fit to dry. Carrots, turnips, parsnips, onions, potatoes, pumpkins, sweet corn, whole figs, dessicated cocoanut, and many other fruits and vegetables can be successfully handled. The weight is reduced from 18 to 1 in onions, 8 to 1 in potatoes, 5 to 1 in peaches.

The San Diego Co-operative Mercantile and Manufacturing Association has taken hold of the matter and will push the manufacturing of Mr. Spawn's evaporators at once.

FRUIT SHIPPED IN APRIL.

The Santa Fe shipped 57 cars of oranges and lemons last month, or about 17,100 boxes. The P. C. S. S. Co. shipped about 5216 boxes oranges, 1187 boxes lemons, 102 boxes limes, 13 boxes apples, 2 boxes grape fruit, 10 kegs olives, 25,670 pounds honey.

CALIFORNIA PURE OLIVE OIL.

We are in receipt of the following circular:

The olive growers of California have established a depot at the store of their Treasurer, Justinian Caire, 521–523 Market street, San Francisco, where all the brands of pure California olive oil, approved by the association, will be on sale. The names and addresses of other dealers where these oils can be had will be freely given, and all particulars regarding the probable quantity of the different brands. All information concerning the importance of the daily use of pure olive oil, its medicinal value, etc., will be in pamphlet for gratuitous distribution. Samples of oils, of which tests are desired to determine their purity, may be left at the depot and an analysis will be made and reported fn due time.

The public will be informed of bogus brands purporting to be California olive oil, which are put up under false labels and offered to the trade. The Association will from time to time purchase such bogus samples and keep them on exhibition at their depot where they can be seen; also the names of all parties who conform to the law by filing their affidavits of their different brands of olive oils will be on record and open to public inspection. The pamphlet referred to contains the names of all persons growing olives and actually making olive oil.

REDUCED PRICES FOR CURING.

To the Fruit Growers of San Diego County:

We have had so much trouble with fruit that arrived cured and packed by grower, having with one exception to repack every lot that has come in, that we have decided to reduce our price for curring and packing ten cents per box, making the total charge now fifty-five cents. The amount of lemons we are handling at present does not justify reduction in price, but we anticipate in the near future the arrivals will be such that we can afford to handle lemons for a total charge of fifty-five cents per box. We have a party who is ready to take all our lemons at exchange prices, providing they can be guaranteed to run in quality as branded. Thus you will observe the absolute necessity of goods being packed uniform exchange grades. As an evidence of good faith in this matter we say to you frankly that if for any reason you do not wish this concern to handle your goods, we most respectfully urge that you have some reliable packing house cure and pack your goods. Recent investigation convinces us that where orchards are properly cared for there is no occasion to cut lemons measuring less than 2½ inches in diameter. Soliciting a fair share of your patronage, we remain,

Very truly yours,

THE HOWARD COMMERCIAL COMPANY.

The iron monuments for the Mexican boundary have been recieved. They are square and white, about six feet in length, and weighing 800 pounds each. On either side is the following inscription in English and Spanish: "Boundary of the United States, Treaty of 1853. Established by Treaties of 1882–1889. The destruction or displacement of this monument is a misdemeanor punishable by the United States or Mexico.

Our friend W. L. Dodge of Sixteenth and K streets, the maker of Tip Top Cough Syrup, recently shipped a gross of his remedy to the sick and suffering of Coxey's army at Washington city. Gen. Coxey wired his thanks, saying California always sends good things east.

LITERARY NOTES.

The complete novel in the May number of Lippincott's is "The Autobiography of a Professional Beauty," by Elizabeth Phipps Train. Gilbert Parker's serial story, "The Trespasser," reaches its fifteenth chapter, and will be concluded in another number. "How I Gained an Income," by "A Bread Winner," records an experience with a lesson that should be useful to many. Under the heading, "Americans Abroad," Hon. Francis B. Loomis, U. S. Consul at St. Etienne, France, concludes that life in Europe is not now cheaper than at home. The poetry of the number is by Kate Jordan, Florence Earle Coates, Mrs. Bloomfield Moore, Harrison S. Morris, and Walter Roger Furness.

The people who make history, who achieve success or make their mark in any line, are the people in whom everyone is interested; and when we are interested in people it is an immense satisfaction if we can know just how they look. A unique feature recently introduced in Demorest's Family every month is two pages devoted to half-tone portraits, about cabinet size, of celebrities of every class and all eras, which are printed so they may be removed from the magazine without mutilating it, and arranged in an album. "A word to the wise is sufficient."

The most elegant and appropriate souvenir of the Exposition which a visitor can carry away is Bancroft's book of the fair, taking it home being the next thing to having the entire Exposition forever with him. It is the most complete and perfect reproduction of the great display that has been made, or that can be made within reasonable limits. The 1,000 imperial folio pages which the work is to contain will be packed with all that is most interesting to read and best worth preserving, while the illustrations are in the highest art, as the numbers so far issued amply show.

"Good Roads" for April is at hand with good articles. "How to Repair a Macadam Road," "The Compressed Asphalt Pavement," "The Inside of a Tramp," "Cities and Street Railways," are some of the interesting illustrated articles. It is an interesting magazine.

PUBLICATIONS RECEIVED.

TUBERCULOSIS IN RELATION TO ANIMAL INDUSTRY AND PUBLIC HEALTH. By James Law. Bulletin 65, Cornell University Agricultural Experiment Station, Veterinary Division.

This is a pamphlet of about fifty pages, and contains much of interest to all who own stock, and as well to all who eat flesh or drink milk. From the first page we quote: "But the deaths from tuberculosis being constant and uniform, people accept them as inevitable and fold their idle hands with true Mohammedan fatalism instead of boldly exposing the hidden death trap and cutting short its destructive work." And again:—"5,490 deaths from tuberculosis * * * occur every year in the city of New York."

Cattle, chickens, guinea pigs, rabbits, swine and sheep are easily attacked, so we read in this bulletin, and dogs, cats, sheep and horses are not exempt. The work merits a more extended review, with extracts at some length from its pages, and this we will give our readers in our next issue.

GOVERNMENT LANDS IN THE MINNEOLA VALLEY. Along the Mojave river, east of Daggett, San Bernardino county, California. Under the Minneola canal. Southern California Improvement Company, Los Angeles.

MONTHLY METEOROLOGICAL SUMMARY.

SAN DIEGO, CALIFORNIA, FOR THE MONTH OF APRIL, 1894.

Date	TEMPERATURE. Max.	Min.	Mean	Precipitation in inches and hundredths.
1	60	48	54	00
2	61	48	54	00
3	60	48	54	00
4	58	50	54	00
5	60	52	56	00
6	62	53	58	00
7	58	51	54	00
8	60	52	56	00
9	65	50	58	00
10	60	52	56	00
11	60	52	56	00
12	64	49	56	00
13	64	46	55	00
14	60	50	55	00
15	58	53	56	00
16	61	51	56	00
17	66	46	56	00
18	71	47	59	T
19	83	50	66	00
20	64	55	60	00
21	62	52	57	00
22	64	54	59	00
23	64	53	58	.05
24	68	47	58	00
25	67	52	60	00
26	62	48	55	00
27	59	46	52	.06
28	59	45	52	.00
29	65	43	54	00
30	70	48	59	00
31	—	—	—	—

SUMMARY.

MEAN BAROMETER, 30.04.
Highest barometer, 30.20, date 1.
Lowest barometer, 29.86, date 15
MEAN TEMPERATURE, 56.
Highest temperature, 83, date 19.
Lowest temperature, 43, date 29.
Greatest daily range of temperature, 33, date 19.
Least daily range of temperature, 5, date 15.

MEAN TEMPERATURE FOR THIS MONTH IN

1871....	1877....58°	1883....57°	1889....60°
1874....56°	1878....58	1884....58	1890....59
1873....58	1879....58	1885....62	1891....58
1874....56	1880....56	1886....57	1892....58
1875....58	1881....61	1887....59	1893....58
1876....59	1882....57	1888....61	1894....56

Mean temperature for this month for 22 years 58.
Total deficiency in temperature during month, 78.
Total deficiency in temperature since January 1st, 4.69.
Prevailing direction of wind, S. W.
Total movement of wind, 38.74 miles.
*Maximum velocity of wind, direction, and date, 19 w. 27.
Total precipitation, .11 inches.
Number of days on which .01 inch or more of precip'n fell, 2

TOTAL PRECIPITATION (IN INCHES) FOR THIS MONTH IN

1871....	1877....26	1883....31	1889....19
1872....26	1878....2.91	1884....2.84	1890....05
1873....10	1879....60	1885....1.20	1891....76
1874....34	1880....1.34	1886....1.95	1892....41
1875....12	1881....1.35	1887....2.14	1893....22
1876....	1882....45	1888....10	1894....82

Average precipitation for this month for 22 years, .82.
Total deficiency in precipitation during month, .76.
Total deficiency in precipitation since January 1st, 4.72.
Number of cloudless days, 17; partly cloudy days, 8; cloudy days, 5.
Dates of frost, none.

NOTE.—Barometer reduced to sea level. "T" indicates trace of precipitation.
* To be taken from any five-minute record.

M. L HEARNE, Observer, Weather Bureau.

CLIPS AND CULLS.

Cannery talk is heard at Redlands.

Oceanside is to have an $1,800 wharf.

The Escondido gold mine is in operation.

Glass doors for ovens is a woman's invention.

Lemons are coming to the front at Otay.

Olives are said to be a success in Butte county.

Julian apples took fifteen premiums at the fair.

At San Marcos water has been found at twelve feet.

Large orders for olive oil are reported at the factory.

Oneonta has been planting trees in her streets of late.

The new Escondido flour mill is nearing completion.

The "King" orange is a variety gaining favor in Florida.

April 10 was San Diego day at the Midminter Fair.

The Escondido cannery is postponed for another season.

A combine of redwood lumber mills has been effected.

Anaheim Irrigation district is considering disorganization.

Half-allowance of flume water is the prospect at El Cajon.

Escondido reports not enough houses to supply the demand.

Some of the most expert orange packers at Anaheim are ladies.

A large demand for California canned fruits is reported in the East.

Some new residents and new buildings are reported at Sunnyside.

The San Diego Fruit Company is a new organization at National City.

The Ontario Record reports a large deciduous fruit yield in prospect.

About one third of the usual hay crop is all that is expected in El Cajon.

At a rabbit drive in Lassen county about 2,000 jack rabbits were killed.

Survey is said to be in progress for the road from the Park Belt line to El Cajon.

San Diego guavas attracted much favorable attention at the Midwinter Fair.

The Chamber of Commerce entertained about 330 ticket agents, on an outing, last month.

"Peanuts as a foodstuff" is the subject of favorable investigation by a German scientist.

J. M. Studdy of Otay has completed a reservoir sixty feet in diameter by seven feet deep.

A Poway writer says it will be advisable to thin out fruit thoroughly on account of dry weather.

A mining revival, both quartz and placer, is reported in San Rafael valley, thirty miles east of Ensenada.

A. H. Julian has been appointed a member of the Board of Public Works, vice J. F. Wadham, resigned.

Herman Jones has been appointed a director of the Jamacha irrigation district, vice R. L. Conklin, resigned.

It is likely that a colony of European vineyardists will improve territory near the mouth of the Colorado river.

Orange syrup is something new which is being prepared in Florida. It is said to be about as cheap as maple syrup.

Spare the birds, the farmers' friends.

The spring wool clip of Echenequi Bros. is 52,000 pounds.

The Chino Champion reports the beet crop doing finely.

The Escondido Land Company shipped eighteen tons of raisins last month.

It is said that if pieces of fresh onions are placed in the nests of hens the lice will depart.

A Redlands bee man thinks nearly half the bees will not survive this summer without more rain.

Four ostriches have been hatched by incubator at the Midwinter Fair; but ostrich incubation is an old story in San Diego.

F. M. K. in the Perris New Era warns against the cultivation of the castor bean and the oleander as being poisonous plants.

Mr. Meehan believes that it is extremely unlikely that the yellows will ever be seen either in California or Florida.

Samples of muskmelon seeds from Smyrna, Asia Minor, have been received by the Chamber of Commerce for free distribution.

F. R. Sawday and D. D. Bailey, representing a water syndicate, have made a proposition to develop water in the Santa Maria valley.

Experiments in the culture of sugar cane are being carried on by the Department of Agriculture under E. J. Wickson on Union Island.

The Union reports the sale of the Guajome ranch to a syndicate for colonization. Tracts of twenty acres and less will be sold to actual settlers only.

The Citrograph reports good prospects for honey.

It is reported that the Wheeler & Wilson Sewing Machine Company are moving toward the organization of an electric company to make use of the Santa Ana river.

"Ship fruit only in boxes that admit air freely; do not press the fruit one layer on another, nor ship in air-tight cases," is advice given in the Chronicle recently.

Charles Bennett in Lower California is irrigating from a forty-foot well with an endless chain and bucket system. He expects to raise 15,000 gallons per hour. So says the Lower Californian.

General Manager Wade is authority for the statement that the Southern California railway brought twice as many people to San Diego in March of this year as in the same month of 1893.—Union.

National City has planted twelve miles of shade trees this season, making forty miles in all, according to the Record. It would be well if there were more women who asserted their rights as does Flora M. Kimball.

The courts have decided that to sell deer meat within the limits of this State while the game law is in force, even though the deer might have been killed in some remote part of the country, where there was no law, is an offense punishable under the statutes.

Prof. J. A. Udden, No. 1,000 Thirty-eighth street, Rock Island, Ill., desires nformation on the great sandstorm which occurred in Southern California on the 22d of February this year, as to the quantity and kind of dust blown about, direction of wind, etc.

PATAGONIAN CORRESPONDENCE.

[We are glad to give our readers the pleasure of a series of hitherto unpublished letters from Patagonia. They will afford an interesting birds-eye view of a "boom," and its influence upon an ambitious young man. The following letter was written on the voyage from England, and does not yet mention Patagonia.—EDITOR.]

GULF OF AKABA, 200 miles this side of Cape Verde Islands, March 8, 1890.

My last letter was posted at Las Palmas, Canary Islands. It was posted in a little windowless one story shanty, lighted by a candle stuck in a beer bottle. Nearly all the houses there were little square boxes, and doors and windows were identical. They have a gem of a theatre in which every seat is a good one and all can hear who are not deaf. At least I should think so for it is a miracle of sweet reasonableness in design. It is not quite finished yet. It is paid for by a tax on the commerce of the port. We went along the beach for a bath and it came on to rain, but we were dauntless. We had the bath. It came on to rain very hard and we walked back to town and bought a few things, such as condensed milk, etc., and about twenty-eight or thirty pounds of green bananas to ripen on the voyage. It is three and a-half miles from the town to the harbor, and we had to carry them. We had a fine dinner, with guavas, bananas and oranges for dessert. The oranges are glorious. It is a pleasure to look at them with stalks and leaves still hanging on to them. There is very little acidity in them and a slight flavor of strawberries. The pulp is very tender and thin and will hardly allow you to tear the orange into divisions and the whole fruit seems nearly bursting with juice! I ate six altogether at once and several more afterwards. They were so sweet and juicy I didn't know when to stop, but something told me when I came to the end. I felt a strange yearning to end my days at Grand Canary eating oranges. But not only oranges,—bananas and guavas; I don't know whether you ever tasted a banana. Anyhow you never did at Grand Canary. It is a bean-shaped fruit and grows in clusters of about 300 or 400 on a stalk as thick as your arm. The thick skin is yellow and easily peels off and the puff is like cold tapioca pudding flavored with something like W. T. puts in pear drops. But the guava—you don't know it. It looks like a small lemon; but it eats more like a pear, while the flavor is that of a fine ripe cherry. But thought will wander back to those oranges, as different from what you get in England as grapes from raisins. Memory fondly lingers, and ardent hope arises. Visions of realms of blissful orange groves uplift the heart and mind from sordid consideration of salt pork and sea biscuit. Oh why? why? why? will brutal fact, harsh and unattractive, tyranize over the gentle, pleasing dreams and light imaginings of aspiring fancy? The weather continues to get warmer. It is August weather today. I don't know what it will do next. I wore nothing this morning and afternoon but hat, shirt, trousers and slippers. I should have gone barefoot only the deck is tarry, and when hot, sticky. At 6 this a.m. I had a shower bath. The boatwswain (bo's'n) played the hose on me. It was grand. I am going to do it every morning. I will conclude for the present.

DRANYER.

The historic old St. Charles hotel at New Orleans was destroyed by fire recently.

PATENTS

NOTICE TO INVENTORS—There was never a time in the history of our country when the demand for inventions and improvements in the arts and sciences generally was so great as now. The conveniences of mankind in the factory and work shop, the household, on the farm, and in official life, require continual accessions to the appurtenances and implements of each in order to save labor, time and expense. The political change in the administration of government does not affect the progress of the American inventor, who, being on the alert and ready to perceive the existing deficiencies, does not permit the affairs of government to deter him from quickly conceiving the remedy to overcome existing discrepancies. Too great care can not be exercised in choosing a competent and skillful attorney to prepare and prosecute an application for patent. Valuable interests have been lost and destroyed in innumerable instances by the employment of incompetent counsel, and especially is this advice applicable to those who adopt the "No patent, no pay" system. Inventors who entrust their business to this class of attorneys do so at imminent risk, as the breadth and strenght of the patent is never considered in view of a quick endeavor to get an allowance and obtain the fee then due. THE PRESS CLAIMS COMPANY, John Wedderburn, General Manager, 618 F street, N. W., Washington, D. C., representing a large number of important daily and weekly papers, as well as general periodicals of the country, was instituted to protect its patrons from the unsafe methods heretofore employed in this line of business. The said company is prepared to take charge of all patent business entrusted to it for reasonable fees, and prepares and prosecutes applications generally, including mechanical inventions, design patents, trademarks, labels, copyrights, interferences, infringements, validity reports, and gives especial attention to rejected cases. It is also prepared to enter into competition with any firm in securing foreign patents.

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JUNE 1894

THE GREAT SOUTHWEST

A MONTHLY JOURNAL OF HORTICULTURE

CONTENTS

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THE GREAT SOUTHWEST.

VOL. VI JUNE 1894. No. 51

AT MISSION SAN LUIS REY.

BY OUR TIMES.

We announced our intention of driving across country to San Luis Rey. We had long desired to see the old mission, and now that the weather was so charming (it was in March of 18—), what could be more delightful than the twenty-five mile drive by the sea-coast.

"Besides," so we argued, "we can visit the farm houses along the way and no doubt pick up some splendid bargains in the way of chickens." For we were going into the chicken business. "We" were my friend E—— and myself. To announce our desire was not all that was necessary however, for the entire family as well as many well intentioned friends, were sure we could never accomplish it. We might get lost. The horses might run away, etc., etc. "Two girls" (we were out of our teens) to drive alone twenty-five miles! Preposterous!" But finally my argument that I knew every inch of the road thoroughly, that at least every mile of the way were residing friends of one or the other, that our horse had never been known to run (in fact we wished he would!) and last that a revolver was all sufficient protection, prevailed.

I must here chronicle that E—— begged that the revolver be left at home as she feared it more than any chance "brigands" we might meet. (E—— lived in anticipation of meeting *brigands* even after her return from Europe!)

However we started early one bright morning in our light wagonette, and our good steady "Moses" between the thills. In the wagon a chicken coop in which to gather our "bargains," and a well-filled lunch basket. All the paraphernalia requisite

*By a special arrangement this article, contributed to "Out of Doors for Women," appears simultaneously in that journal and THE GREAT SOUTHWEST.

for botanizing, and an abundant supply of advice from our male relatives.

But we were off. Through picturesque Del Mar, along the beach to pretty, peaceful, Encinitas, and then we drove over beautiful, flower be-decked mesas, within a half-mile of the ocean, through Leucadia and Merle, until at noon we stopped in a sunny vale south of Carlsbad for our lunch. Here we spent some time getting wild flowers which were all about us in profusion. We draped the wagon (and concealed the chicken coop!) under a mass of clematis and the graceful chilacote (Megarrhiza) and then we drove on and into Oceanside where we put up our horse, and called on some old friends. We were to spend the night with friends at San Luis Rey. "Why, then you must attend the wedding at the chapel this afternoon," said our friend Mrs. H——. "There is to be a wedding at the Episcopal mission chapel up at San Luis Rey and you must go with us." I hardly felt inclined, but as E—— had never witnessed a church wedding I finally consented, and escorted by our friends we drove over the hills to San Luis Rey. I lack words to describe that ride. Seven hills! Seven times we mounted to the summit, thinking that over the brow we should begin the descent into the valley constantly coming into view. At last spread out before us lay the old mission gardens, and the immense white adobe building which we knew must be the "Old Mission."

Close up against the walls of the ancient garden stands the little English chapel built by the modern inhabitants of San Luis Rey valley. A high peaked roof, the walls covered with fancy shingles in patterns, it formed a strange contrast to the ancient building back of it. Inside, surrounded by a fashionable audience, we witnessed the marriage of a young English colonist to the pretty daughter of one of our pioneer American families. The ceremony did not differ from one which might have taken place in any large city, but when the bridal party entered their open carriage at the door to be driven away to their new home, the golden sun shone brightly on the unprotected head of the bride, and as she turned and smiled upon the friends gathered at the church door, the men, Englishmen and all, threw their hats in the air and gave three such hearty cheers as only perfectly good will could inspire.

As we went down the lane from the church we were beset by the most hideous looking aged Indian woman I ever saw. "Moaney," (money) "moaney," she asked, and no doubt she made a rich harvest that day. We now drove to where we were to spend the night, and it is perhaps needless to remark that after partaking of a hearty dinner we slept soundly, though dreams with strange phantasmagoria of brides and "brigands" and immense fortunes invested in chicken coops came to us both!

Early the next morning, with a party of friends, we explored the mission. "The building is a quadrilateral, four hundred and fifty feet square; the church occupies one of its wings; the facade is ornamented with a gallery. The building is two stories in height. The interior is ornamented with fountains and decorated with trees," So wrote De Mofras in 1842. [I insert this quotation from the late Mrs. Jackson's article on the California Missions]. My friends were full of interest in the size and age of the building. I could only *feel* it as a vast whole, the details did not impress me at all. We entered the church at once. From sunshine into a dense gloom. Our voices instinctively hushed; we moved slowly toward the altar. Out from behind a broken image of the Saviour fluttered a snowy dove. No one spoke for several minutes, and then it was of the joy the faithful Indians must have felt when the first service was held at that altar after the completion of their laborious work. The confessional, the penance chamber, and the cells formerly occupied by the young Indian novices all were of keen interest to us.

We turned next to the ancient grave-yard and began deciphering the grave-stone inscriptions, when a glance overhead revealed the belfry, and on the ledge of the widow nodding a sleepy good morning sat a large owl. We hastened up the ruined stairs at a great risk of broken necks, to join Sir Owl, but of course he was gone. The view of the valley and the distant mountains from the eastern window of the tower was sublime, and as testimony that we were not alone in our opinion, were written on the window casings the names of two of San Francisco's most noted artists, as well as those of many well known people from all parts of the globe. We sat for an hour drinking in the beauty of the scene, and finally descended with reluctance to revisit the dormitories and courtyard. A brilliant-hued pigeon rested on a

branch of a spreading pepper tree in the center of the court, and as I looked from the narrow cell in which I stood to the bright garden below, I found myself picturing the longing of some young Indian maiden tied to the aisles of the church and mission, but craving the freedom of the world of sunshine that was all about.

We brought away from the old garden, as souvenirs, leaves from the large prickly pears which surmount the wall, and today they are the most prized plants in our cacti collection.

After parting from our friends we turned "Moses" toward home and began to realize that it was high time to secure our "bargains in chickens." The first farm house we stopped at was occupied by Mexicans. I aired my Spanish sufficiently to ask them if they had poultry, and then began a most comical scene of bargaining, and chicken catching, and ——— but as Rudyard Kipling would say: "That is another story."

NOTES FROM THE TRAVELLER.

Early in the month of April C. R. Orcutt started on a trip through Old Mexico, and the following notes received from him were by an oversight on the part of the printer omitted from last issue. Fortunately, however, they are as true and as interesting as when first written:

Deming, New Mexico, proves the most presentable town I have seen since leaving California. It consists mostly of well-built houses, an indication of a good character of people, who are showing much enterprise. Mr. P. R. Smith, president of the Deming Land and Water Co., showed me their water system, just being put in operation. The well is sixty feet deep, and the pump (which took a premium at the Chicago Exposition) is able to pump a stream twelve by eighteen inches. The reservoir covers an area of ten acres, but has not yet been filled. The company expects to colonize and irrigate some 5,000 acres of land around the town. Fuel used here is mostly mesquite roots, the mesquite here forming only a shrub a few feet high instead of the tree of the Colorado Desert regions in California, but de-

velops enormous roots, which can be obtained for only $2 per cord, and two cords are said to equal a ton of coal.

Mr. Alaire, the principal owner and manager of the canaigre extract works, kindly gave me much information about that industry.

The canaigre root is collected here where it grows wild at a cost of about $6 per ton, dried, leeched out, and the product of the leeching is then boiled down to a hard resin which is packed in boxes and barrels. One ton of the extract is equal to three tons of the dried roots or nine tons of the fresh green roots, and is delivered in the London market at 5½ cents per pound. About one hundred tanners in the United States have or are now using the extract, and the product of its use is said to be a very soft, pliable, light-colored leather of unusually tough fibre.

In cultivation it has never yet been tried on a commercial scale, but it is readily propagated from roots, yielding a crop of fifteen to twenty tons per acre in two years from planting. The seed are here said not to do well, only two or three per cent of the seed germinating.

Silver mines yielding 1,600 ounces to the ton have been discovered cropping out sixty miles south of here, in Mexico. The vein has already been traced for fourteen miles! A new railroad to the Mormon colony in Mexico is one of the probabilities of the near future.

The new colonies are likely to increase largely the acreage that is being planted here to fruit—deciduous trees and vines taking the lead. The horticultural development of the country is in its infancy—just at the turning point it is said, passing from experiment to reasonable certainty.

"As the season of Spring approaches, the irrepressible small boy appears on the scene with sling-shot and target rifle and begins the cruel work of murdering our familiar birds. Most of these birds are, in the long run, beneficial to the horticulturist and farmer. Moreover, for every bird slain a large number are only wounded and escape, to drag out a wretched existence until death relieves them. The thought of the unnecessary suffering inflicted upon helpless animals by the thoughtless or cruel, prompts me to take this opportunity to appeal to citizens of our towns and cities, urging them to see that the laws which forbid the using of sling-shot or gun within the corporate limits, and the laws which protect our birds, be strictly enforced."—Washburn.

THE CODLING MOTH.*

By F. L. Washburn.

Two years ago it was shown that spraying with paris green solution would save from 70 per cent to 80 per cent of fruit which would otherwise be destroyed by the apple-worm. It remained to be seen with how few sprayings this could be accomplished, and the minimum cost of labor and material. The solution used in the experiment the past season was paris green and water (1 lb. of paris green to 300 gals. of water) and whale-oil soap in the proportion of 1 lb. to every 8 gals. of water. As this soap was used simply to secure an even spreading of the liquid and, possibly, to insure the permanency of the solution, I believe that ordinary soft soap would have answered the purpose equally well.

To this solution IXL was added, crushed in small pieces, 1 lb. of IXL to every 16 gals. of the liquid. This, as is well known, is a patent insecticide consisting of lime, sulphur and salt, and sold by Wm. Beck & Co., 112 California street, San Francisco, and 26 North Front street, Portland, Oregon. Cost in Portland, 4 cents per lb. in bbls. (500 lbs. to bbl.) 4½ cents per lb. in 60 lb. box and 5 cents per lb. in bricks, any quantity. It was used the past season because previous experiments appeared to indicate that fewer sprayings were necessary when it was used, and on account of its fungicidal qualities.

The first application was made June 12th but rain interrupted the work, and, more rain occurring a few days later, this first spraying was disregarded and a second application made June 17th, five days later. On June 27th the fruit was sprayed for the third time, in reality the second time, and the fourth or really the third spraying was made August 18th. None of the Waxen or Summer Sweets were treated on this last date.

On August 5th the fruit on the sprayed trees appeared to be quite free from worms, even on a few which were not treated on June 27th and had, therefore, gone seven weeks since the last spraying. Two weeks later, however, August 18th, the Baldwin and Rambos were found to be somewhat wormy, showing that they should have received a spraying three or four weeks earlier. This would have brought the third spraying three weeks after June 27th, i. e., about July 18th. The need of thorough work at about this date is referred to later on.

The apple worm, owing largely to the very inclement spring, was not as bad this year as the preceeding season, and unsprayed orchards looked fairly well in comparison with those which had been sprayed. In October, and earlier, the leaves on some of the trees in the sprayed orchard were noticeably burned, more particularly on the Baldwin trees. The cause of this cannot, in this case, be ascribed to using too strong a mixture, but in the following facts which have been discovered by previous experiments. It has been observed that trees in counties adjacent to, or near, the coast, are more

*Reprinted from Bulletin No. 31 Oregon Experiment Station.

likely to be burned than those in the interior. Further, if a light rain occur during or immediately after the application, the leaves are apt to be burned. Such burning does not show, when paris green is used, for some time after the application. A heavy dew, or hot sunlight, immediately after spraying are conducive to burning. Strangely enough, it has been found that the older leaves are more susceptible to injury than the younger leaves. The under side of the leaf also is more easily burned than the upper side. The very slight rain occurring during our first spraying, June 12th, aided by other climatic conditions prevalent here, undoubtedly caused the burning of the foliage. This injury was but slight, and, another season, might be absent altogether. It must be said, however, that the presence of soap in the mixture appears to make it more liable to burn, than when used without the soap, and for that reason it would be well to use a minimum amount, just enough to cause the liquid to spread over fruit and leaf.

The effectiveness of wrapping burlap bands about the apple trees, as an adjunct to spraying, has been referred to before. Yet it must be borne in mind that the worm found beneath the band has accomplished its work, and spoiled the apple in which it was working. At the same time, many of the worms so killed, would, had they lived, produced female moths, which would have laid hundred of eggs upon the fruit. In our experiments banding began in July, and the bands were examined every five days. In examining the bands, the greatest number of worms were found August 25th, and August 31st, seventy-eight on the first date and seventy-six on the second,—from about forty-five trees. Inasmuch as it has been found that the larva lives four weeks in the apple before seeking a hiding place, it is evident that the mature worms found in such numbers from August 25th–31st, were hatched about July 25th–31st, another argument to prove the necessity of a thorough application about July 20th, in ordinary seasons.

I am convinced that three sprayings, with a fourth on later varieties, will, if judiciously applied, save a large per cent of the fruit, and, as a result of the work of the past three years I unhesitatingly make to the farmer and fruit grower the following

RECOMMENDATIONS.

Spray with the solution above given for the first time about June 10th–15th, in ordinary seasons. A very early spring might call for an earlier application, yet it is very apparent that fruit growers, as a rule, spray too early: there is no need for action until the apples are as large as marbles.

Let a second spraying follow the first in about three weeks, or a little earlier,—say July 1st–6th, and a third July 20th–25th. That should be sufficient on all early apples. A fourth is recommended for late apples—August 15th–20th. These dates cannot be taken as criterions always, but they are based on careful observations here for three successive seasons.

As good a showing may be obtained, possibly, with some other agent in the place of IXL; we suggest it because with it we have had good results. Do not use too much of the solution, for it only makes burning more probable.

It might be well to increase the amount of soap used, to about 1 lb. in every 15 gallons, just enough to cause the liquid to spread evenly over leaf and fruit. Begin banding about July 4th.

COST.

The large trees used in the above experiments were 30–40 years old and each tree required from 2 to 3 gallons of the mixture. This called for an expenditure of 7 cents per tree for each application, for labor and material. Smaller trees, requiring less, would not call for that sum.

It is an interesting fact, though having no special bearing on our work here, that in Nebraska, in 1892, the Codling Moth caused a loss of $2,000,000, a very large proportion of which might have been saved by judicious spraying.

NOTES ON PRUNING THE PLUM AND PRUNE.*

By George Coote.

In pruning back young trees, that are one year of age from the bud, care should be taken to see that the buds cut back to are perfect, especially if the trees have been transported any distance. In such cases, the trees on the outside of the bundles often have their buds rubbed off in handling. If the pruner is not very careful, he may not notice this. It often happens, when it is cut back to a damaged bud, that the stem dies back to a perfect bud, or that the latent buds are forced into growth. When this is the case, the young shoots make but a weak growth. It is better to head off a trifle lower or higher, as the case may be, so that the trees may be cut back to a perfect bud. This will insure a much stronger growth. Three shoots will be all that is needed, the first year. At the next winter pruning, these may be cut back about one-half. From each of these three shoots, two other shoots should be encouraged to grow the following summer. It should be borne in mind that we should always prune back to a bud pointing most in the direction needed for filling up space, and to regulate the distance from limb to limb. At the second pruning there will be six branches. These may be cut back about half of their growth, and from these two other young shoots should again be encouraged during the summer. This will produce twelve main branches, which will be sufficient to form the head of the tree.

During this time the first year's growth, will have formed fruiting spurs which will produce a small amount of fruit the third year. There will also be lateral shoots formed, as well as fruit spurs. These laterals should be pruned back to two or three buds, and on the portions left, fruit buds will form. If this principle of pruning is carried out, the main branches of the tree will be well supplied with fruit spurs, the entire length.

The tree may be kept head down to any required height that the grower may desire. Do not head off quite level, but give the trees a symmetrical form. When cut back level the young shoots become too much matted,

*Reprinted from Bulletin No. 29 Oregon Experiment Station.

thus preventing a free circulation of the air. After a few years, it will be found that the fruit spurs have become too long; when this is the case they may be pruned back by degrees, and other spurs will be formed. It will be found that the main branches will gain strength each year, and be enabled to carry a great amount of fruit without breaking.

The system of cutting back severely for two or three years, produces strong growth, and instead of producing fruit spurs, wood buds are formed. The head of the tree should have its branches trained far enough apart to afford plenty of light and circulation of air.

DISBUDDING.

This is an operation which is not given that attention which it should have. It consists in rubbing out with the thumb and finger young shoots that are not needed, as soon as they have pushed out far enough to be taken hold of, thus doing away with a great deal of young wood. This concentrates the strength to the rest of the tree, during the growing season; and, on the other hand, it does away with much of the winter pruning.

MATURITY OF THE OLIVE.*

By A. P. Hayne.

It seems to be a common belief in California that the proper state of maturity of olives is when they have reached jet-blackness; also, that it makes little difference how long they remain on the tree, or in storage after being picked. This is an error, not only as regards the making of oil, but the pickling of fruit also. The quantity of oil in the flesh is the same at the time of redness as it is a month after the jet-black color has been reached, so there is nothing to be gained in quantity by delaying the harvest. What is of more importance is that the quality of the oil in the olives deteriorates the longer they are allowed to remain on the tree after proper maturity (redness) has been reached; for the olein, which gives true quality to olive oil, diminishes; and the stearin, or solid "greasy" substance, increases. On the European market "greasy" oils bring lower prices than oils without this "greasy taste."

While it is true that some varieties naturally have more stearin than others, yet it is equally true that this "greasiness" is greatly lessened by early harvesting. In two lots of "Rubras" received at the University this year, one of a wine-red color, and the other jet-black, this difference was noted at once, even by persons not accustomed to sampling oil. But aside from this "greasy" or "lardy" taste, oil made from over-ripe olives is more apt to "cloud," and to deposit a granular sediment in the bottles, than in the case of oil made from what are considered "under-ripe" olives. Should the temperature fall to 45°, the oil of the over-ripe olive will solidify, while that of the other will remain clear and brilliant till the temperature

*From Bulletin No. 104 University of California Agricultural Experiment Sation.

falls 8° or 10° lower. As a rule the purchaser will prefer a clear, brilliant oil to a solid one.

Right here it would be well to note that a popular idea seems to be that if an oil solidifies even at the freezing point of water, it is adulterated, while an oil remaining clear at the same temperature is pure. This is a misconception; for both pure olive oil, and the oils usually used for adulteration, solidify at about the same temperature; the difference generally being that partially clarified oil, or oil made from over-ripe olives, is the first to solidify or "freeze." It was found that olives picked in an "under-ripe" condition gave, almost without exception, an oil of a darker color; the jet-black olives gave oils much lighter or yellower in color; while the red olives almost invariably gave that beautiful olive-green tint that characterizes the highest grades of oil, due allowance being made for variety characteristics.

Another striking point brought out by the experimental work in the oil-room was that the variety of olive grown in different localities yielded oils differing very strikingly in quality. Thus several lots of the so-called Redding Picholine were received, some of which were grown in deep rich bottom land, and others either on gravelly hillsides or on higher, well-drained, light soils. In every case the oil from the hilside olive was superior to that from the low lands. Oil from the rich soils was always harder to clarify, and prone to cloud up and solidify much sooner than that from poorer soils.

The Redding Picholine yields at best an oil of doubtful quality, but the difference in its oil, due to different classes of soil, was most strikingly illustrated. Not only was this noted in the case of the Redding Picholine, but also with Rubra, Oblonga, and varieties that give high grades of oil.

FROZEN OLIVES.

There are few parts of the olive-growing regions of the world where an exceptional season or an early frost does not sometimes surprise the grower before the harvest is completed. The fruit of the olive is much more sensitive to the effects of cold than the tree itself. Hence, in localities thus subject to early frosts, care should be taken to plant only those varieties that mature early, for once an olive has been frost-bitten, it is next to impossible to make a saleable oil out of it, and it is quite impossible to make a pickle that can be eaten. The water in the juice of the olive freezes, and in so doing expands, tearing the tissue of the flesh. This of itself, of course, would not injure the quantity or quality of the oil in any way, but unless the frost-bitten berry is at once crushed and the oil expressed, the broken tissue decomposes and imparts to the oil a most disagreeable taste and odor, rendering it unfit for the table.

Among the samples of olives received at the Station this year were several that had been frost-bitten, either before picking or while awaiting shipment. These were separately made into oil as soon as possible. It was found that a delay of three days from the time the olives were frozen to the time of crushing and pressing, was fatal. The oil was, to the eye, as clear,

and to all external appearances, as good as that made from unfrozen olives, but the taste was such as to render it unfit for use. The odor was very disagreeable and very pronounced, and those who tasted the oil pronounced it "made from fermented olives."

When we consider that a delay of three days in crushing caused this, we can at once realize the importance of early harvesting, and therefore, of the selection of early maturing varieties to escape frost, for on a large scale it would practically be impossible to express the oil any sooner than three days.

This fact accentuates the importance also, of picking the fruit as soon as it reaches true maturity, instead of leaving it on the trees any longer than is absolutely necessary.

From the University Experiment Station it was learned that the Nevadillo Blanco was the first to be frost-bitten, the Nigerina second, and the Pendulina third. This being an exceptionally severe season, it was found that the four stations where there were olive trees in bearing, all of the varieties were frozen before the first of January.

CHRYSANTHEMUMS.

I am keeping back my chrysanthemums a month later this year than last, and trying to keep them from going so much to stalk. It is rather late to separate the plants and start them out of doors. I will have rooted cuttings ready very soon. Those who have just planted or are about to plant would do well to keep the soil well enriched and watered, to keep the plants in a juicy and succulent condition: pinch off the tips of the new shoots, keeping back blooms if possible till August 15. I do not think chrysanthemums require so much enriching as is commonly supposed, but they should be kept from hardening while they are being pinched back. When the blossms form, thin them out to one top and two or three lateral blooms to each stem. This will give the finest blooms.

By keeping the stems short much vexatious work is saved in staking and tying up. Last season my latest and smallest plants gave best blooms.

K. O. Sessions.

We recently visited Mrs. W. W. Collier at 567 National Avenue, where we were shown a little room full of silk worms in various stages of growth, and some fine specimens of raw and finished silk. Mrs. Collier has studied silk culture experimentally, has invented and made her trays and spinning machinery, and has turned out samples of thread which San Francisco manufacturers pronounce "very desirable for weaving." Mrs. Collier is enthusiastic over her work, and with true loyalty to her sex is working toward establishing the silk industry as a field for women workers. She is confident San Diego can become a great silk-producing center.

INQUIRY DEPARTMENT.

[The following series of questions from a Chicago inquirer cover a good deal of ground. The answers are furnished through the Chamber of Commerce, and are the combined opinions of several experienced growers. It should be borne in mind that the conditions vary almost infinitely, this county giving innumerable shadings of temperature, elevation and exposure. The answers following are the very best obtainable, and will not mislead careful people.—ED.]

Accurate information upon the following subjects are of special value. Kindly answer the questions as your experience may suggest. E. M. S., Chicago.

In what months do you prefer to set out deciduous trees?

Jannary to March.

Citrus fruits?

April, May and June.

Grapes?

January and February.

When do the following fruits mature:

Apricots?

June and July.

Peaches?

June to November.

Raisin grapes?

September.

Oranges?

January to March.

Lemons?

October to July.

What is the cost per acre per annum for caring for trees?

Deciduous trees, $8.00 per acre. Grapes, $8.00. Citrus fruits, $20.

What is the average yield in pounds per acre of the following fruits:

Apricots?

Four to eight tons.

Peaches?

Five to eight tons.

Prunes?

Five tons.

Pears?

Four tons.

Oranges?

Ten tons.

Lemons?

Ten to twelve tons.

Grapes?

Four to five tons.

In your vicinity are there persons engaged in the business of caring for trees for non-residents?

Yes.

If so, what is the usual charge per annum on grapes?

Three-fifths of crop.

Deciduous fruits?

Three-fifths of crop, or from $10 to $20 per acre.

Citrus fruits?

Twenty to $30 per acre.

Does your answer include irrigation?

Yes.

And cost of water?

No. It is $3.50 to $6.00 per acre per annum.

What is the average profit per acre per annum of the following fruits:

Apricots?

Forty dollars up.

Peaches?

Fifty dollars up.

Prunes?

Thirty dollars up.

Pears?

Thirty dollars up.

Nuts?

Thirty dollars up.

Oranges?

Fifty to $200.

Lemons?

Seventy-five to $500.

How many times per annum do you cut alfalfa?

Four to five.

Give average yield per ton at each cut?

One.

At what age do the following begin to bear fruit to a profit:

Grapes?

Four years.

Apricots?

Four years.

Peaches?

Four years.

Pears?

Six years.

Navel oranges?

Five years.

Seedling oranges?

Eight years.

Lemons?

Four to six years.

Prunes?

Four years.

Nuts?

Five years.

IRRIGATION.

What is the length of your irrigation season?

Two hundred days.

How many times during the season do you irrigate grapes?

Two to three times.

Deciduous fruits?

Two to three.

Citrus fruits?

Four to five.

Alfalfa?

After each cutting.

What amount of water in acre inches do you use per irrigation for grapes?

Three to four.

Deciduous fruits?

Three to four.

Citrus fruits?

Ten to twelve.

Alfalfa?

Twelve to eighteen.

Are you a purchaser of water? If so, do you prefer measurement in inches?

Yes.

CARE.

Do you prefer low topping?

Yes.

Limbs close to ground?

Medium.

Close trimming annually?

Yes.

What are the best months to trim grapes?

January and February.

Citrus fruits?

February and March.

Deciduous fruits?

January and February.

How often do you cultivate between irrigations:

Grapes?

Twice.

Citrus fruits?

Twice (more the better).

Deciduous fruits?

Twice.

What variety of the following fruits do you prefer for profit:

Apricot?

Royal.

Raisin grape?

Muscat.

Peaches?

Muir and Early Crawford.

Lemons?

Lisbon and Villa Franca.

Orange?

Washington Navel.

Pear?

Bartlett.

Prune?

French.

Almonds?

Soft shell.

English walnut?

Soft shell.

Game law revision is sought by sportsmen.

POULTRY.

[Address inquiries on poultry subjects to S. L. Roberts, Lemon Grove, Calif.]

THE TURKEY.

A PROFITABLE AND EASILY BRED FOWL FOR THE FARMER.

The turkey is the most valuable domestic fowl known, and the successful raising of them is profitable to the breeder. Aside from being the largest of all poultry, its flesh is the finest and more esteemed than any. With proper attention it can be bred as easily as the hen, and in proper locations it gathers more than half its living from the woods. By raising an early brood a great saving is made, as the young will catch the first crop of grasshoppers.

The farmer readily sees the profit in turkey raising, and by having them mature early he realizes a clear profit at a small cost and trouble. To successfully raise turkeys you must have vigorous birds. This is more essential with the turkey than any other breed, and in-breeding is to be avoided. Bad food and neglect will dwarf their growth and weaken their constitutions, which gives bad results and poor returns to the breeder.

In selecting the breeding stock, the male should weigh about thirty or thirty-five pounds, while the hen should weigh between fifteen and twenty pounds. The best age for breeding stock is from two to three years old. Eggs should be set in March and April, but the character of the season should influence the time of sitting. A turkey's nest should be on the bare ground, free from danger of flooding during rain, and located in some quiet place. As turkeys are patient sitters, care should be taken to see that the sitters are off their nest at regular periods. Two broods can sometimes be hatched by one hen turkey. The time for hatching lasts twenty-eight days. When the brood is hatched the mother should be confined in a roomy coop with a slatted front, open to the south, on a clean grass run. Before taking the poults from the nest dust them with insect powder. If you find any lice on them, rub a few drops of sweet oil or a mixture of two or three drops of carbolic acid to a teaspoonful of oil on their heads and throat. No food is given for the first twenty-four hours, as the yolk of the egg from which the poult was hatched furnishes nourishment for that period. Hard-boiled eggs, mixed with bread crumbs, should be fed four or five times a day for the first week. Curd made from sour milk, with young onion tops cut fine and mixed with it, is excellent. When the young are a week old they should be fed cracked corn or oat, and wheat grits; oatmeal, with about ten per cent. of pure bonemeal mixed with it. Boiled Indian meal can be used as a variety in feeding. Give fresh, cool water two or three times a day, and if possible, give milk as an occasional drink.

The secret of turkey raising is in keeping the poults from being chilled. When the young are about three weeks old, the old bird may be let out with them every morning after the dew is off the grass, and shut up every evening. If you can keep the young dry until they have thrown out the red on their heads, your chances are bright for success. They then become hardy and should be allowed to roam at will.

A turkey does not attain his full weight until the third year. A great mistake is made by many when they sell their largest birds and save the smallest or latest hatch for breeding purposes. This

should never be done if you expect to produce a large and healthy stock. The large, well-formed birds of perfect plumage will leave their mark upon their progeny.

DRY YARDS.—There are acres upon acres of poor and unproductive land that could be utilized to advantage in poultry raising. The soil that is best for poultry is a dry, sandy soil, and such a soil is calculated to subdue the many diseases that are peculiar to poultry. The yards should be rolling and well drained to prevent dampness. If our farmers would utilize such a piece of land for their fowls they would realize a profit that could not otherwise be made. The ground will naturally be brought to a certain degree of fertility from the droppings, and in a short while, if desired, the land may be used for crops.

See that your fowls are not subject to roosting in drafts; nothing is so liable to cause disease as this. Cracks can be easily covered with strips, and it will be to your interest, as well as the fowls, to see that your poultry is free from them.

You can feed clover to laying hens four or five times a day with profit.

A hen should lay about twelve dozen eggs a year.

The morning mash should be fed warm.

IRRIGATION NOTES.

"More cultivation and less irrigation" is advice that is being heard on every hand. This dry season is rousing many growers to the fact (which the thoughtful and successful have realized long ago) that lots of water soaked about a tree is not the only requisite. It is well known that too much water has done great injury to trees in certain conditions, sometimes causing the roots to decay; and forced vegetables, with their pithy, stringy, tastelessness are common enough. A rule now followed on one of the successful small ranches near the city is not to water until the tree or plant gives evidence of thirst—until the leaves begin to curl a little. This has been found to give good results with small amount of trouble.

Here is a method of irrigating strawberries which is worthy of adoption. Mr. John Doe of National City, has a bed of strawberries in rows about eighty feet long, with a slight slope—too great, he thinks. Across the head of the patch is a trough, with quarter-inch holes bored opposite each row of plants. A three-fourth inch hydrant is opened into the trough, and allowed to run about twenty-four hours. The ground is thoroughly and gently soaked from end to end, and the soil is not washed down hill nor great holes dug in it, and no water is wasted, a thing greatly to be desired this year.

Unselfish people, as well as those who forget to remember that other people have needs, should utilize all waste water, that none be wasted.

Irrigation Age: As an all-round fruit-producing region, it may be safely said that an arid country with good irrigating facilities stands immeasurably above a region of hap-hazard rainfall. The curing and transportation of fruits, and the cultivation of them as well, are greatly facilitated by a dry atmosphere. Water used in proper quantitiy and at proper times, is found to add greatly to the quality of fruit as well as to the quantity, and to insure this the orchardist cannot safely depend upon the natural rainfall.

CHEMICAL LABORATORY.

Mr. E. H. Fosdick and Mr. Lewis Aubury, analytical chemists, have associated themselves together as analytical chemists, in which they are both proficient. They have one of the most complete laboratories on the coast, not surpassed, we believe by the best. They are prepared to perform all necessary work in assaying, soil and water analysis, etc.

Mr. Fosdick was a year or so ago interested with Mr. Riley R. Morrison in experimenting with the manufacture of rose water. It was found that a very superior article was produced, and parties who purchased some of their product were somewhat eager for more. This matter will probably be taken up by the new firm. Mr. Fosdick tells us that the finest bouquet and best general results are obtained with the La France, Agrippina and Marie Henrietta varieties.

Mr. Aubury we were pleased to introduce to our readers through his paper on improved fumigation for trees, on page 27 of our May issue. The paper was read at the recent Horticultural Convention, where it received close attention.

Both these gentlemen show a keen interest in the spreading of accurate information, and our readers will probably hear from them frequently. Mr. Fosdick has consented to give us such information as is asked for through our Inquiry Department.

THE ORANGE INDUSTRY.

HOW AN EASTERN DEALER LOOKS ON ITS PAST, PRESENT AND FUTURE.

The following interesting article on the orange industry of the United States was written for the New York "Fruit Trade Journal" by Horace W. Way. It will be of interest to every orange grower in California, and for that reason we reprint it. Mr. Way says:

THE PAST—MEDITERRANEAN ORANGES.

Thirty years ago the supplies of oranges for the United States came almost exclusively from the Mediterranean, and "Sweet Messina Oranges" filled the popular demand. At that time the entire business was controlled by a few heavy importing houses. The business was done entirely on orders from this side, and indeed these orders were all given in the fall of each season, at which time the sailing vessels for the cargoes of oranges were also chartered, in fact, in September the campaign was arranged for over six months ahead. This method of conducting the business had existed for many years before that time, but about 1865 the actual growers of the oranges in Sicily, who had previously sold all their fruit to the firms who received the orders from the American houses, began to consign the fruit here, and gradually the old importers abandoned their former methods and received the fruit on consignment. Later still, new houses entered the field to secure their share of this profitable business, which I happen to know paid one firm over $30,000 clean commission on their Sicily business alone, during one season. The next move on this checker board, some fifteen years later, was the establishment here of the sons and relatives of various prominent shippers of Palermo and, with the exception of three or four American houses, who still hold their own for one reason or another, the entire business from Sicily is now handled by the parties above alluded to.

The receipts of Mediterranean oranges have fallen off materially during the past ten years, in fact none now come from Spain, and very naturally so, owing to the fact that Florida came to the front about that time, and a few years ago California oranges made their bow to the American public on this side of the Rocky Mountains. At first the importers of Mediterranean oranges ridiculed the idea that the American markets could ever be taken away from them, but it is certain that hardly any of these gentlemen will now entertain the views they then did, simply because it is a self evident fact that, with the constantly increasing production of oranges in the great states of Florida and California, reaching this present season, it is expected, between 6,000,000 and 7,000,000 boxes, not counting at all the yield in Louisiana and Arizona—small now, but growing, nevertheless—we can do without any oranges from Europe. True, some will come, and they may do fairly well, there being still a certain demand for them in the Atlantic Coast states; however, the hand writing is on the wall and he who runs may read—unless he is a blind man in a business sense.

It may not be out of the way for me to give some statistics furnished me by the manager of the Foreign Fruit Exchange, relative to the receipts of boxes of oranges from various ports in the Mediterranean during the past eight seasons. True, over one million boxes came last season, owing to the heavy yield in Sicily, but the results were so poor that no such quantity need be looked for another season.

THE PRESENT—FLORIDA AND CALIFORNIA ORANGES.

Twenty years ago a few oranges commenced to come here from Florida, and were received mostly by houses not directly in the fruit trade. Some even came to butter, cheese, etc., merchants; in fact, Messrs. Walter Carr & Co. received them about 1873, and the managing partner, Mr. William H. Snecker, has assured the writer that he obtained $6.00 per box for almost all sent his house for several years, and even then could not supply the demand for this extra fine orange. Ten years ago the dealers in fruit commenced to receive direct from Florida, and soon there were probably 150 firms and single merchants receiving this fruit; in fact, it is said that a nicely worded circular and a brass stencil were all that was needed to obtain ample consignments of oranges from Florida. Of course, there were some unprincipled receivers who looked after No. 1, just to see that the Florida shipper did not receive any more than he ought to, and in a year or two a great outcry was heard from the South about "swindling commission merchants" in the northern cities. It is undoubtedly true that the growers were swindled right and left, so that it is no wonder they looked about for a remedy, and soon after the Florida Fruit Exchange (now the greatest fruit organization in the world) entered the field and today stands at the head. The number of receivers in this city dwindled rapidly and actually to-day those of any prominence here can be counted on the fingers of one's two hands.

There will always be a certain number continue as of old owing to their handling successfully certain groves, having relatives or very dear friends in Florida, or for one reason and another. The swindlers have been driven out and the prominent receivers here now stand second to none in honesty and ability. The production increased yearly and soon made itself felt by the importers of foreign oranges, as mentioned previously. Almost every season, however, something has occured in Florida to prevent a full yield of perfect fruit; a long continued drought through summer, a plague of red spiders causing the leaves to fall from the tree, heavy rains spoiling the keeping quality of the oranges, and last but not least, visits from Jack Frost, forcing the temperature down to about twenty or twenty-five degrees and naturally ruining much of the fruit on the trees, taking its life, so to speak, and causing it to arrive at its destination puffy, light weight, and devoid of juice. Notwithstanding all these troubles, the crop continues to increase and authorities in Florida assure me that when all the trees already planted are in full bearing (and most of them are now four years old, so that it cannot be long before all will be in full bearing (the crop cannot be less than 10,000,000 boxes per annum. True, the same troubles which have occured in the past may continue in the future; still, we shall probably have a crop of 7,000,000 to 8,000,000 boxes within a few years; 900,000 boxes arrived in New York last season—more than one fourth of the entire yield.

California now steps to the front, and just about the time, or a little before, Florida ends, these oranges come into the western markets, because very few have as yet found their way east of the Alleghanys. Not 5,000 boxes of California oranges in all were ever sold in New York. The crop in Southern California increases rapidly, and this season it is expected that at least 2,500,000 boxes, possibly more, will be sent out of

the Pacific Coast state. If the fruit has to run as many risks in the way of droughts, red spiders, rains and frosts as that of Florida I do not know it, but I think not.

The California crop is expected to increase in size, possibly faster than that of Florida, immense groves having been put out during the past five years, and the yield later on will be simply incredible. One of the heaviest growers of California oranges wrote me lately:

"I do not believe you can comprehend the volume of the California business in the near future. I know it is almost beyond the comprehension of those right here on the ground, and I believe within five years we will have 25,000 car loads (over 7,000,000 boxes) of oranges."

The fruit up to last season had found ready purchasers f.o.b. California, in the merchants of the western cities, but on heavier supplies and a holding back of these orders, it is said that a considerable part of last season's crop actually was sent out on consignment. To my mind more must go, although the association of growers which has just formed, the Southern California Fruit Exchange, may succeed in carrying out their desire to sell all f.o.b. shipping station; still the experience of Sicily twenty years ago, should certainly show those gentlemen that they cannot sell their crop f.o.b. when it reaches a certain size, any more than the other two parts of the world could theirs, and for similar reasons. I certainly wish them every success, but wait to see what this season will bring forth, and if they do not succeed on the lines which I understand they have determined on, i.e., to sell f.o.b. cars in California, then I will cheerfully acknowledge that I was wrong, and at least one year ahead of time.

THE FUTURE?

To my mind it is a question of the survival of the fittest. It is not which orange is indeed the finest, but which will sell the best that all fruit men must consider. Even if the Sicily oranges were as good, or sold as well here as those grown in this country, it must be remembered that with a duty of thirty cents per box, a freight of thirty-two cents (as it is to be this coming season), commission and auction charges of say ten cents, and a cost of forty cents for the box, paper, nails, packing and shipping, this equals $1.12 per box, without the cost of the oranges being taken into consideration. At less than fifty cents per box in Sicily for the fruit alone, I am confident that growers and shippers cannot possibly send it, so we have a total cost, on a moderate calculation, of $1.62 per box for the Mediterranean orange, against which the oranges grown in America must compete.

The charges on a box of Florida oranges are about as follows: thirty-five cents for box, paper, nails, packing and cartage to shipping station; fifteen cents average local freight in Florida to Jacksonville, thirty-five cents freight to New York (five cents less by one line), and say ten cents commission, auction charges, etc., ergo, ninety-five cents for all, without the fruit.

The charges on a box of California oranges are heavy, simply owing to the high freight to New York or Chicago, of eighty-seven and a half cents per box. Add to this thirty-five cents for the box, etc., and ten cents commission, etc.; gives $1.32½ per box, without the fruit. This freight is certain to be reduced, however, because the fruit cannot possibly stand it, and efforts are now being made to secure a reduction to fifty cents per box. It will be some years, in all probability, before any heavy quantities of these oranges come as far east as this city, although I fully anticipate heavier receipts each succeeding year.

On the above calculation, allowing duty, freight, etc., as given, it shows the actual expenses on a box of oranges from the tree to the wholesale merchant here to be:

Mediterranean.....$1 12 per box
Florida..... 0 95 " "
California..... 1 32½" "

To this must be added the value of the fruit itself. Florida has the great advantage of low freights and no duty, while her fruit sells above the others. It must be remembered, however, that I am figuring the cost in New York for all these oranges, because the freight to the western cities from Florida is almost double what it is to this city.

At present the Florida orange stands at the head, and with equal quality and condition it will bring more money than any orange grown. Will it continue to do so? Will it improve or degenerate? Will California come to the front, or will some other point produce finer fruit in ten or fifteen years from now? These are all matters for thought and with same I leave the subject.

CALIFORNIA IRRIGATION COMMISSION.

There are vast tracts of government land in this State that are to-day worthless because they are arid, and which can be made valuable by being brought under irrigation system. Our present laws are entirely inadequate to the reclamation of these lands, because no one can live upon them until they are irrigated, and hence there are no voters to form districts, and if the districts were formed there are no lands to tax to support them as the lands all belong to the government. In some instances railroad companies own the odd sections. Some plans must be adopted by the State and General Government for the reclamation of these lands. There are probably from one to two million acres of these lands which are capable of being reclaimed.

If this vast area was reclaimed it would add hundreds of millions to our wealth and hundreds of thousands to our population.

The State Board of Commissioners of the National Irrigation Congress present the objects of the labor which has been intrusted to it in a circular substantially as follows:

The prosperity of California is founded upon irrigation; the more perfect our irrigation laws the more easily can our arid land be reclaimed and the more prosperous will be our agricultural and horticultural population; and hence the more prosperous will be all classes of our people.

As a result of the International Irrigation Congress, held in Los Angeles, a systematic investigation of the arid land and irrigation questions is being made throughout the arid States and Territories. This investigation is being conducted in each State and Territory by an

Irrigation Commission of five, and the chairman of these Commissions form the National Executive Committee. The Commission of this State consists of Hon. C. C. Wright of Modesto, author of the Irrigation District Law, Hon. Will S. Greene of Colusa, and L. M. Holt and J. A. Pirtle of Los Angeles, and Gen. Eli H. Murray, Chairman. This Commission has outlined its work under the following topics:

First—To compile information relative to the varions streams in the State and their water sheds, amount of water that can be used for irrigation purposes, and the land subject to irrigation.

Second—To ascertain what amendments should be made to perfect the present irrigation district laws and other irrigation laws of the State.

Third—What legislation is necessary to assist in reclaiming the arid land of the State now owned by the government—lands which cannot be settled until irrigated. Also the extent of such arid government land that can be irrigated.

Fourth—The area of lands now irrigated in the State.

Fifth—The area of lands that are capable of irrigation.

Sixth—The development of irrigation water by means of artesian wells, saving the underflow of streams and the storage of water in reservoirs.

Seventh—How should the waters of interstate streams be utilized?

Here is a vast amount of work to be performed, and the value of that work will depend not only upon the energy and ability of the commission, but upon the co-operation and assistance of those interested in these great questions in offering suggestions and furnishing information.

The first work will be to compile information relative to streams and irrigable land. The State has been divided into five districts and each Commissioner has undertaken to compile the desired information in one district.

The first district includes the counties of San Diego, Riverside and Orange, and the work has been assigned to the Chairman of the Commission.

This Commission asks the support of the people, the assistance of water companies, and corporations having a direct interest in settling up and enriching this great State, believes untold good will result from this work and deliberations.

There are similar commissions at work on this important question in all the arid ttates and territories and when the work of these commissions is completed the chairman of the same will meet and compare notes and finally perfect a system of National and State irrigation work that we trust will be satisfactory to the law making powers and a marked step in advance for the great arid west.

Any assistance which the friends of irrigation can give relative to this compilation of information will be thankfully received. One of the features of the work will be an attempt to perfect the present irrigation district laws and the presentation of our plans to the next Legislature. In this work we need the advice of those who have had the experience with the district system.

THE PHŒNIX RAILROAD.

The principal object of the San Diego and Phœnix Railroad Company (of California) is to build a standard-guage railroad from the bay of San Diego to the eastern boundary line of the State of California near Fort Yuma, 175 miles in length.

The principal object of the San Diego and Phœnix Railrad Company (of Ari-

zona) is to build a standard-guage railroad from the western boundary line of of the Territory of Arizona, near Yuma City, to the city of Phœnix, Arizona, 160 miles in length.

Although both corporations are entirely separate and distinct, one being of California, and the other of Arizona, yet both have a special interest in the general success and welfare of the other, as their interests are mutual. Together they present the best railroad proposition before the people of in the United States, for by the building of said railroad the great Salt River, Mohawk, and Gila valleys of Arizona, and the great New River valley and the Jacumba, Campo and Jamul valleys of California, will ship immense quantities of freight to the bay of San Diego. The freight is on the ground today. What will come in the future, by the development resulting from direct communication to Arizona's seaport, will astonish the most sanguine person; yet, the present is bright enough and sufficient, without calculating the great increase which the future will bring. As a local freight road, it will astonish the railroad world as to its great earnings. But, it will not stop there, for its passenger earnings will also be immense, for when completed between San Diego and Yuma, it will be the link which, in connection with the Southern Pacific Railroad at Yuma, will form the shortest and most direct overland route connecting the bay of San Diego with the harbor of Galveston. When completed between Yuma and Phœnix, at the latter place it will be the link which, in connection with the Santa Fe, Prescott and Phœnix Railroad, now building southward to Phœnix (by D. B. Robinson, Marshall Field, N. K. Fairbank, Norman B. Ream and other Chicago capitalists), will form another transcontinental route, which will be the

shortest and most direct route from the bay of San Diego to Denver, Chicago and New York. At Phœnix, the prospects are excellent that the San Diego and Phœnix Railroad will there find awaiting it the Rio Grande Southern, the Rock Island, the Missouri Pacific, and the Denver and Rio Grande railroads—all of which will be glad to make traffic arrangements with the San Diego and Phœnix Railroad, which will result in handsome returns.

C. R. Rockwood, Chief Engineer of the Colorado River Irrigation Company (formerly one of the principal engineers of the Southern Pacific Railroad Company), has reported that the gross earnings to our railroad from the 1,300,000 acres in the great New River valley in San Diego county, will be over $3,000,000 per annum, by a conservative estimate.

The route of the San Diego and Phœnix Railroad from San Diego harbor to Yuma is by the old "Tom Scott" Texas Pacific Railroad survey—the shortest and best transcontinental route.

The distance by the present rail route between San Diego and Yuma is 375 miles, while by that of the San Diego and Phœnix Railroad Company it will be but 175 miles—a saving of 200 miles!

The San Diego and Phœnix Railroad Company (of California) has already acquired valuable franchises, terminals, and privileges along the water front at both the city of San Diego and National City, besides rights-of-way towards Yuma; has over 1,000 stockholders, and is building its railroad as fast as proceeds come in.

The San Diego and Phœnix Railroad Company (of Arizona) has already acquired valuable franchises, terminals, depot grounds, concessions and rights-of-way from Phœnix to Yuma. According to an act of the Legislature of Arizona, approved April 17, 1893, all of the railroads built in Arizona within one and-a-half years, will be exempt from taxation for ten years, as well as the stock of the San Diego and Phœnix Railroad Company (of Arizona) will also be exempt from taxation—which will be equal to a subsidy of hundreds of thousands of dollars.

WM. H. CARLSON.

HOW WE CULTIVATE.

TO THE EDITOR OF THE GREAT SOUTHWEST:

As a matter of general interest, this is the way we cultivate on our ranch. After the first rain in the fall, we plow our ground, eight inches deep. After each rain following we harrow, using a harrow with teeth slanting a little backward, going four inches deep. Toward spring we cultivate with a sub-soil cultivator, using narrow shovels that stir the ground eight inches deep but do not throw the soil any. For summer cultivation we use the harrow. It is customary with many to cultivate once a month during the summer. We have generally done so twice each month, and on June 1 we commenced cultivating every ten days, using the harrow as before and going four inches deep. Our trees are arranged so as to allow cultivation in three different directions, and we change each time. In this way we keep a mulching of fine dust four inches deep over all our soil. This dust is as fine as the dust on a traveled road. Scraping through this layer of dust the soil is found very moist.

The theory is this: Moisture is drawn upward by capillary attraction. If the soil is not disturbed small capillary tubes form through which the moisture escapes. By thorough and frequent cultivation these tubes are broken and kept from forming, and the moisture is retained and can only escape through the roots of the trees. Where the ground is cultivated

only once a month the tubes form and the moisture is lost.

Our soil is sandy loam three to eight feet to hard pan, with a gentle drainage. We do not irrigate. This season we had eleven inches of rainfall, last season eighteen inches: but as the rain fell much more gently this season nearly as much water soaked into the ground. We were laughed at for trying to raise fruit here, with no water: but our French prunes show a growth of fifty inches in sixty days, and in two years from planting, cut to about a foot high, are now seven to eight feet high. Our almonds were in bloom one year from planting and in fruit in four months more. It is not improbable that lemons would grow here without irrigation. There is no question but too much water is given to things, causing roots to rot, and sometimes even rotting large trees through.

We have within three tons of as much hay (oats) as last year.

Let us hear from some one else on cultivation. C. T. DONDORE.

MODERN AGRICULTURE.

BY E. H. FOSDICK, ANALYTICAL CHEMIST.

It is plain to be seen where vegetable life flourishes there must be elements in the soil supporting such life. Careful analysis of a sample of soil and an analysis of the vegetable life on that soil will reveal the fact that just what is found in the soil (fit for plant life) will be found in the plant; that is, in some form suitable for its nourishment.

The potash salts, for example, so necessary to plant life, are found as potassiferous silicates in almost all rocks, either as normal or at least as subsidiary components; their disintegration furnishes, directly or indirectly, all the solu-

ble potash salts. These salts are absorbed by the rootlets of the plants.

Just here a great change takes place: the potash salts must first be broken up in oxalates, tartrales, and other organic compounds. Then, in this condition, are suitable to be stored in the tissues of the plant. As a proof, burn a few branches of a shrub, test the ash, and you will find potash, combined, and always as a carbonate.

Could this carbonate of potash go back to earth, the plants would not need to be supplied artificially; or, could the plant be burned, its ashes washed into the ground by rains, there would be a rich store of potash for some future generation of plant life. But no; this store of potash, with other elements, is gathered, as grain, fruits, etc.; and these, by the processes of nature, are made the food of man.

Year by year there will be found in the soil less of the elements needed for plant life. What is the trouble? All the elements of the soil, suitable for vegetable life, have gradually been taken from it. As a result, the plants and trees are scaly, stunted, and show a general impoverished condition.

Such soil needs fertilizing. There are at our command many ways of doing this. Farmers for ages have had recourse to their barnyard manure, earthy deposits such as marl, lime, chalk, gypsum, more recently sodium nitrate, crude potash (kainites), guano, artificial fertilizer, and lastly, green manuring, by leguminous plants. Any of these, or in some instances a mixture of two or more of these, judiciously applied, will give desired results.

If, for instance, we wish to enrich the soil with nitrogen, we have no better way than by green manuring, by any of the leguminous plants. The leguminous plants absorb their introgen from the air, and when they are turned under all that the plants took from the soil goes back, also a rich supply of nitrogen; thus the lack of nitrogenous matter in any particular soil could be supplied in one season.

The artificial fertilizers on the market give very satisfactory returns to the buyer, if he knows just what elements his soil needs. If farmers in America would make agriculture a scientific study as their brothers in England, they would see their crops flourish, their granaries better filled, and put more money in their pockets.

THE LAW AND GOSPEL OF PRUNING.—Mr. J. H. Hornbeck writes the Sonoma County Farmer as follows: "The whole subject of pruning may be thus summed up: Study tree growth. Get acquainted with each individual tree. Take off anything you don't want as soon as you see it. Never allow a tree to fork into two equal branches. Keep a central stem on the model of the cedar. Don't allow any limbs to cross each other. Don't cut off fruit spurs from young trees, Thin out the fruit spurs of the old trees. Coax trees to grow symmetrical and well balanced. Keep the top well open. Keep all tools sharp and clean. Pretty hard to do, many will say, but come as near as you can to this ideal and you will be both ornamental and useful."

Grape seeds are said to be just the shape for clogging up the small intestines, and should never be swallowed whole. The seed of the Muscat is chewed by some people for the iron they contain.

Fruit skins are not and never were intended for eating purposes, so says Demorest's Magazine.

It is reported that Lake Elsinore is to be utilized for irrigation.

POPULAR TALKS ON LAW.

THE RIGHT OF PETITIONING.

By Wm. C. Sprague.

The march to Washington of the so-called commonweal armies for the purpose of petitioning Congress for the redress of grievances, calls public attention to this subject as it has not been called since the days before the civil war.

The right of petitioning the sovereign is a right that lies deep bedded in English law, and is recognized, among English speaking people, as a fundamental right, by constitutions, by statutes and by courts. Blackstone names it as one of the subordinate rights appertaining to every individual. In England petitions are extant of the date of Edward I., or as far back as the first regular Parliament, 1265. In the reign of Henry IV., about the year 1400, petitions began to be addressed to the House of Commons in considerable numbers. In 1837, the year of the accession of Victoria, there were presented to Parliament 10,831 petitions, signed by 2,905,905 persons. In 1859, 24,386 petitions, signed by 2,290,579 persons. In 1867, 12,744 petitions, signed by 1,145,216 persons. In 1680 the Commons expelled several members for being Abhorrers (a name given to the Court party in England, the opponents of the Addressers, so called from their address to the king praying for the immediate assembling of the Parliment, which was delayed on account of its being averse to the Court) and resolved that it is the undoubted right of the subject to petition for the calling of a Parliament, and that to traduce such petitions as tumultuous and seditious is to contribute to the design of altering the Constitution.

In Russia, Blackstone tells us, the Czar Peter established a law that no subject might petition the Throne until he had first petitioned two different Ministers of State. In case he obtained justice from neither, he might then present a third petition to the prince, but upon pain of death if found to be in the wrong; the consequence of which was that no one dared to offer such third petition, and grievances seldom falling under the notice of the sovereign, he had little opportunity to redress them. Continuing, Blackstone says: Care must be taken lest, under the pretense of petitioning, the subject be guilty of any riot and tumult, as happened at the opening of the memorable Parliament in 1640; and to prevent this it is provided by the statute passed in the reign of Charles II. that no petition to the king or to either House of Parliament, for any alteration in Church or State, shall be signed by above twenty persons, unless the matter thereof be approved by three justices of the peace or the major part of the grand jury in the country; and in London, by Lord Mayor, Aldermen and Common Council; nor shall any petition be presented by more than ten persons at a time. Under these regulations, it is declared by a statute passed in the reign of William and Mary that the subject has the right to petition, and that all commitments and prosecutions for such petitioning are illegal. The statute of Charles II. made the punishment for an offense against this act a fine to any amount not exceeding £100, and imprisonment for three months. At the trial of Lord George Gordon the whole court, including Lord Mansfield, upheld this statute, although it was generally contended throughout the country that the article of the bill of rights which declares that it is the right of the subject to petition the king, and that all commitments and prosecutions for such petition-

ing are illegal, had virtually repealed the statute,

The state of disturbance and political excitement in England after the peace of 1815 produced further regulations and restrictions of the right of petitioning. The people in the manufacturing districts having little employment from the general stagnation of trade; devoted themselves with intense ardor to political discussions, and in some places the partisans of reform, assuming that their demands would not be acceded to, were preparing for the alternative of open force. Under these circumstances, the Legislature thought fit to forbid all public meetings consisting of more than fifty persons, unless in separate townships or parishes, by the inhabitants thereof, of which six days' previous notice had to be given to a justice of the peace, signed by seven resident householders. The act also provided for the dissolution of any public meeting by proclamation of a chief officer of the peace, and persons refusing to depart were liable to seven years' transportation. Persons attending such meetings with arms, bludgeons, flags, banners, etc., were subject to fine and imprisonment for any term not exceeding two years.

But as the mischief was temporary, the restrictions upon the right of meeting to deliberate upon public measures were limited in their duration and have mostly expired, those enactments which were designed to prevent such meetings from being preverted to objects manifestly dangerous to the peace of the community only continuing in force.

The offense sought to be cured by the statute of Charles II. above referred to, was the offense of tumultous petitioning, which was carried to an enormous height in the times preceding the "grand rebellion." (To be concluded in next issue.)

THE SALOON MUST GO.

To the Editor of The Great Southwest.

In one hour and a half twenty women were seen to enter a respectable (?) saloon in our beautiful city. The full significance of this fact will perhaps be better understood after reading the following extract from one of Gough's addresses: "Say to a young man: 'Come with me into that house.' He will respond 'No. 'Go into that house? Never.' Coax him, drive him, and he will rejoin 'No: By the love I bear my mother; by my sister's pure kiss upon my cheek: Go across the threshold of that house? Never; here I stand firm as a rock.' But give him one glass of whisky or brandy, wait ten minutes and then say: 'Will you go with me now?' 'Yes go with you anywhere.' And he will step across the threshold of her whose steps take hold on hell." There are men as sensitive as that, and this is the class who are fast becoming intemperate. Think of it, in two saloons last Saturday night there were one hundred and forty people at one time, and the only organization endeavoring to reach them was the Salvation Army—working bravely and nobly it is true, but sadly in need of your help. This city wants woman's help—read the "Woman's Crusade"—(see "Temperance Reform and its Great Reformers," edited by Daniels) I will just give one short extract in closing: "In Mount Vernon, Ohio, twenty-three saloons surrendered as the result of a twelve day campaign.' Let the women say so and the saloon must go. Earnest prayers and faithful united work would soon close every saloon in the city.

Ernest Fox.

P.S.—Since leaving you to-night I have been with our friend Johnson in sixteen saloons. In the whole we only found fifty-one people, but Monday is a slack night. To-night I have been reading "The Woman's Crusade" and they persuaded one saloon keeper after another to close. They went from saloon to saloon singing, praying and working, the effect was wonderful. You know I told you that one saloon man in the city gave up his saloon in consequence of the prayer meeting held about a year since.

LITERARY NOTES.

SIR FRANCIS BACON'S CIPHER STORY.—Discovered and deciphered by Orville W. Owen, M.D., Howard Publishing Co., Detroit.

It is not strictly in the line of horticulture to mention such a work as this, but the first two volumes have been read with so much interest, not to say amazement, that we feel justified in calling attention to them. A natural disposition to skepticism has has given away to wonder at the man who could write Shakespeare's plays and sonnets, Spenser, Marlowe, Greene, Peel and Burton, and at the same time conceal in all of them a matchless history of himself and his times. We were attracted to the books first by the dedication to Mr. Walter J. Hunsaker of the Detroit Journal, who we believed was above partaking in a hoax; and as soon as we begun we read the cipher story as often as opportunity presented. If Bacon did not at least vitalize Shakespeare and the others named, Dr. Orville W. Owen is the genius or the madman of the age.

The foreign policy of the United States receives special attention in the department "Progress of the World" of the Review of Reviews for May. The advantages to be derived by our people from the construction of the Nicaragua Canal, from our commercial position in the Pacific, and from using Pearl Harbor as a naval repair and coaling station are clearly outlined. The part played by the British Bermudas as a base of operations against the United States during the civil war is recalled as an object lesson to those statesmen who seem over-fearful of any policy looking toward the annexation of Hawaii.

The Bancroft Company, Auditorium building, Chicago, are engaged in a work deserving of more than passing notice. It is the reproduction in book form in the highest style of art, of the entire Exposition. In the Book of the Fair, as the work is called, the great panorama will move from the past to the present, in logical and historical order. The reader will observe how the foundations upon which previous fairs were built gradually broadened, and like some magical plant he will see the unfolding of the ideas which are the base of the Columbian Exposition. Having introduced this latest and the greatest of the world's fairs, the book will trace its evolution in all details, will show how it was built, and who were its chief founders, and then picture it not only in its general but in its special features. In the evolution of the broad foundation upon which the fair is established, in the creation of the fair itself, and in the presentation of the gorgeous and the bewildering spectacle which is now before us, the pencil of the artist and the pen of the author will be complimentary, each assisting the other.

The complete novel in the June number of Lippincott's is "The Wonder-Witch," by M. G. McClelland.

Godey's Magazine for June is attractive inside and out.

PUBLICATIONS RECEIVED.

"Crops and Fertilizers With Reference to California Soils and Practice." By E. W. Hilgard, L.L.D.

"Protection from Lightning." By Alexander McAdie, U. S. Department of Agriculture.

"Biltmore Forest." An account of its treatment and the results of the first year's work. By Gifford Pinchot.

"Indianland and Wonderland" A beautiful booklet by the Northern Pacific road. By Olin D. Wheeler.

"Investigation of California Olives and Olive Oil" Bulletin No. 104, Cal. Exp. Sta. April 1894.

"Cattle Foods of California." Bulletin No. 100, Cal. Exp. Sta.

"Further Examination of California Prunes, Apricots, Plums and Nectarines. Bulletin No. 101 Cal. Exp. Sta.

"Analysis of Figs and Fig Soils." Bulletin 102, Cal. Exp. Sta.

"Canaigre." Bulletin 7, Arizona Exp. Sta., Tucson, Ariz.

"Plant Diseases. Their Cause and Prevention" By Moses Craig, Botanist, Oregon Exp. Sta.

THE GREAT SOUTHWEST.

H. B. ANDREWS, - Manager.

ONE or two complaints have come to us that the premium of World's Fair Views has not been received. If any others have failed to get them after having ordered them, please do us the favor to let us know it at once and they will be ordered again from the publishers. We have paid for them and you are entitled to them.

A VERY interesting series of questions and answers is found in our Inquiry Department this issue. As elsewhere stated, the answers are furnished through the Chamber of Commerce by four of the most experienced growers in this section. This is good information to send abroad.

SPEAKING of sending abroad information concerning California, we have arranged with Stephens & Son, the booksellers on Fifth street, to receive subscriptions to THE GREAT SOUTHWEST, and to furnish with each cash subscription a copy of Kate Sanborn's popular book "A Truthful Woman in Southern California." Subscriptions will also be received at Loring's, H street, and a copy of "San Diego City and County," the descriptive matter being by T. S. Van Dyke, will be given with each cash subscription.

THE water question seems at last to have some energy and determination after it.

IT is probably true that to the Fruit Exchange is due the credit of obtaining whatever the grower has made out of his fruit this season.

THE next regular convention of the County Horticultural Association will meet at 10 a.m. in the Chamber of Commerce, San Diego, July 10. The marketing of fruit will be given further consideration. Making the ranch furnish its own supplies will also come in for thorough discussion; what shall we plant in the kitchen garden in small fruits, etc. It is expected that several interesting papers will be read, and the meeting promises to be a very profitable one.

A good and useful knife needs grinding occasionally and honing often. "As iron sharpeneth iron," so we grind away each others dullness by thus meeting and exchanging ideas. If you have an idea, come and give it to the rest of us and get a hundred per cent. in return.

CRYSTALIZING figs is the subject of an inquiry from Elsinore. We do not know of anything being done successfully in that line in this county, though some of our readers are experimenting. Mr. A. F. Spawn, who is putting up his evaporators for fruits and vegetables in this vicinity, tells us to put the figs when just fully ripe into the hot syrup, allow them to cool and stand six or seven days, until the sugar has penetrated the fruit thoroughly; then take them out of the syrup and place on the drying wrack. An excellent method in drying is to place the figs in a wire basket and dip them in the hot syrup, giving them a coating of sugar, and then drying.

IT is expected that the Spawn evaporators will be in operation in about a week and will be able to handle large quantities of deciduous fruits.

OVERPRODUCTION of strawberries in the East has probably interfered with the orange market.

ON another page is a description of the method of cultivation adopted on the ranch of Mr. C. T. Dondore. Mr. Dondore has done "wonders," and they are not all the result of climate: work, and constant care, are worth more than even San Diego climate. We wish some others would send us the methods of cultivating their ranches. We have been requested to give this information. Can't some of our readers tell us what course they are following? Mr. Dondore's article we transcribed from notes, so he is not to be held responsible for any errors in style.

ON page 29 of our May issue it was stated that the Santa Fe had shipped thirty-seven cars of oranges and lemons during the month of April. This was a mistake, due to a misunderstanding. This was the amount shipped from San Diego and National City, from January 1 to May 1. The shipments by steamer were as given. About sixty-nine cars is the total for the season to date.

"WILD is the witchery of water" wrote George William Curtis viewing the mobile element at play. But like all things feminine, when conquered and controled, the coquette becomes the docile housewife, careful first to obey him who understands and loves her.

WARNING is given against expecting too much from canaigre without water. Mr. Spawn tells us that in New Mexico he always found it in moist soil.

WHILE mining is on the boom, why don't prospectors look about for phosphatic deposits, and other valuable fertilizing matter? They are often worth more than gold.

ESCONDIDO, with cash on hand for her water bonds, is the boomingest town in the Southland. A second Riverside, with an individuality of its own, will be the logical result of existing conditions in that region. Already houses are reported scarce, buildings increasing rapidly, and all things moving along to the tune of industry and prosperity. Water is queen, and unity and generous industry are the lieutenants who develop her domains. San Diego might accomplish like wonders with Escondido by the manifestation of even the activity of enlightened selfishness, not to mention public spirit.

SPEAKING in a favorable strain of the exchange movement, the Riverside Press says: "The risk of the business is after all with the producer, and if he have not the sense and capacity to meet the conditions which exist and fails to use the power which unity of action alone gives then the prospect before him is indeed discouraging."

WE have neglected to thank James Vicks' Sons for a package of seeds, sent as is their custom to editors upon application. An item worty of note is that these seeds all grew, whereas some that we bought did not come up.

THE fruit exchange is organized on the same lines as the United States:—freedom and co-operation is the foundation, the greatest good to the greatest number the object.

THERE is some excuse for a man bowing or even lifting his hat to a telephone; but a San Diego man the other day spent five minutes—changing his shoes before he would talk to his girl by wire.

PATAGONIAN CORRESPONDENCE.

SANDY POINT, PATAGONIA, S.A., JUNE 6 1890.

I wrote the enclosed letter a month ago but did not get an opportunity to get it posted. There have been one or two fellows going into the colony, but as they nearly always get drunk first and attend to business afterwards, I did not intrust my precious missive. I did not stay longer than I could help at my last job, as the wages were very low and it was work from dawn to dark without learning anything. I had $3.75 a month and my keep; but a pair of top boots, cost $4.00, and a blanket and stockings, etc., ran away with the money so much that when I left after seven weeks hard work I had $1.75 to draw. I had also eight fox skins which I sold for twenty cents each; so here I am, for the moment stopping at a comfortable hotel and store at forty cents a day. I came here last night and think of going up the river to the diggings to get a few days work till there is a schooner going over to Terra del Fuego. Doesn't it sound awful. I'd bet my boots you didn't know that there were hotels, farms and gold diggings in Terra del Fuego before. I didn't know there were such in Patagonia until I was well on my way here. I was under the delusion that the whole region was wet and stormy, cold and barren; inhabited by a few specimens of the lowest race of mankind, living on little fishes and shell-fish. As a matter of fact, the climate bright and boisterous, plenty wind and sunshine, short showers, rainbows, etc. Horses, cattle, sheep, pigs, etc., thrive well; besides the indigenous animals—foxes, skunks, ostriches, a kind of deer called guanaco, and short-tailed rats called caruras. The natives are of two races; those of the east coast are wealthy, having many horses and cattle, fire arms, knives, and all kinds of weapons. They are tall, immensely strong, and splendid hunters, and bring into the colony large quantities of furs for which they get everything they want—particularly whiskey. Those of the west coast are small and poor, always avoiding the white man and using arrows and knives of bone, living on what they can pick up on the beach and moving from place to place in leaky, rotten canoes. I am not at all sorry to have come to this country, for I think that for opportunities it can be second to none. Every day we hear of diggers finding plenty of gold: and of men with small capital starting sheep-farms in a small way, which naturally increase by compound interest into a large way, and soon the owner, if sober and industrious, is a wealthy man. The richest man in the country started a few years ago with a small schooner about six yards long and three wide. He got provisions on credit and went sealing. He got six hundred skins worth $20 or $25 each: and now he is worth thousands and thousands: and this is not an energetic Briton but an illiterate Chileno. A man with $1500 can join with others and go up to Buenos Ayers and buy sheep at forty cents each and bring them down here overland, taking twelve month on the journey. Of course he has one shearing on the way and the wool almost pays the cost of the sheep, and he has one lambing which increases his stock fifty per cent, and when he gets here he can get land at a few cents an acre and three years to pay it in. Sheep here cost $1.60 each, so that he is a prosperous man by the time he gets here. It makes my mouth water. I shall go digging in the spring and see what I can scrape together that way. Just now I shall have enough to do to find myself in food and clothes through the winter. Out in the camps anyone is welcome to stop at anybody's house for the night, food and lodging given away and no payment thought of. That is the beauty of this country. The worst is that a fellows boots wear out. You can always get lodging and board for $5 a month and look for gold or hunt foxes or anything else. That is what I shall do in Terra del Fuego when I get there if I can't get work.

DRANYER.

THE FRUIT EXCHANGE.

Wednesday afternoon some thirty or forty leading growers of the county met at the chamber of commerce to listen to an address by H. K. Pratt, a fruit broker of Chicago and agent for the Southern California fruit exchanges. Secretary Young called the meeting to order and introduced the speaker. Mr. Pratt spoke for an hour and then for another answered and asked questions. His introduction was as follows:

MR. PRATT'S ADDRESS.

"Yesterday at Riverside the banks and nearly all the places of business closed and a public meeting of the orange growers was held in the Y. M. C. A. hall and every available space in the entire hall was occupied. It was a regular Methodist love feast and the amen corner got in its work in good shape. It was one of those times that are hard to describe—but are mighty nice to experience—where every expression pointed to one object in view, one purpose to accomplish. There was but one conclusion presented and that emphatically emphasized the success of our exchanges.

"It was decided that the best way for growers to show their appreciation and opinion of whether they wish the exchanges to continue or not was to at once sign and an expression was asked for by a standing vote, and during this vote was the only time there was a vacant chair in the room; not a man kept his seat.

"We all came away with renewed courage—our backbone as straight as a saplin. Here are some of the things we found out: First, from E. C. Kimball, your successful general secretary, we learned the expense of this office, covering my own 15,000 mile trip and all my entire expense as well as all travelling men sent east, Messrs. Nafzgar's and Frost's eastern trip, the expenses of Mr. Chamblin and Mr. Collins in organizing, as well as every other expense paid out by the executive board, were entirely covered at an expense of 1 2-5 cents per box. Mind you, for this small expense you got all the information that could be possible only through a central office on the coast and one at Chicago. For this small sum per box you can know daily just what every important market in these United States can afford to pay you for your oranges.

"Mr. Collins, secretary of the San Antonio fruit exchange, said: 'One telegram sent me by Mr. Pratt would have saved us $1,000 if I had received it twenty-four hours earlier.' Is there any one who would for one moment question whether this 1 2-5 cents per box spent was a good investment?

"Your general eastern agent's expenses at Chicago, from the time the office was first opened, had they been paid by a regular brokerage, would have more than paid every expense of this office by the cars coming directly under my care and settlement. So my office has virtually given you all my general work and advice, consuming three-fourths of my time, at no expense whatever to your board.

"Taking this expense of my office, which paid its own expenses, from the amount paid out by the executive board, and you have the general expense under one cent per box. From facts drawn from Mr. Perry's report of the Riverside fruit exchange, and also from Mr. Collins' report, we find the total cost of packing and marketing not to exceed 40 cents per box—the lowest sum charged last year for packing only—leaving us with no expense whatever for marketing: giving our growers a half million dollars saved in marketing alone over the former plan, provided we had shipped our entire crop this year.

NET PROFITS TO GROWERS.

"Again, I find from Mr. Perry's report he has shipped in round numbers 400,000 boxes, and received for the shippers net $400,000—well-earned dollars. From the San Antonio, Semi-Tropic, Colton and Riverside exchanges it is an easy matter to figure out that the entire shipments made will average above one dollar net to the grower for the season just closed. Remembering that a large portion of this fruit was more or less frosted and that in the neighborhood of 400 cars sold at public auction on this account, what grower would need one minute to decide on what he should do next season?

"The entire interests of the state are depending on our success. The two leading newspapers of San Francisco, the *Examiner* and *Chronicle*, thought it of sufficient moment to ask that the associated press be wired 1,000 words.

"Can there be but one decision of our growers on this matter? And what will you say or think of a grower who still persistently refuses to sign our contracts, and by this shows us he considers our exchange unworthy of support, and in this selfish way does his part to disorganize us?"

SOME POINTED COMPARISONS.

Mr. Pratt then gave a more detailed account of the work done by the exchanges. He showed the condition of the times; how cattle in Texas sold for $2 per head; cotton did not pay expenses of cultivating; sheep at Omaha sold for 74 cents apiece; wheat down to 40 cents per bushel; many fruits and other products selling at less than half their value. In face of all this Southern California has received a fair price for her oranges. But for the frosts the net results would have been several times what they were last year. Mr. Pratt showed clearly that these excellent results were brought about by organization. He said that last year Florida realized on an average $1.30 per box, while for the season just closed almost everything had gone for packing, freight and commission. Florida had a magnificent crop and with organization might have had excellent results. As it is, while having no frost, she still came out away behind Southern California.

The speaker said that all the better class of buyers of the east desire the success of the exchanges and would be very much disappointed if they should disorganize. He went on: "We are now recognized as the best fruit shipping organization in existence and the trade will gladly give us their liberal patronage. Our exchanges are no longer an experiment. In no future years can the commission shipper give you net results to compare with our exchange." He continued:

"Our orange industry has drawn capital and citizens from every land, and has been the great attraction to the shrewdest investors. California is known all over the world as the fruit growing state, and on this line she has made her great reputation as possessing a greater future than any other spot on this green earth.

"The solid organization and successful operation of our Southern California fruit exchanges have been looked upon as the solution of the continuation of our past success, and the success of our exchanges means the success of Southern California.

"The eyes of our buyers are watching us very closely and it remains with the growers only as to whether we shall continue our prosperity, or disorganize and go down together."

THE LEMON QUESTION.

Mr. Pratt then went on to show what the serious results would be if very many of the growers stood out and continued to work through commission men. The result would be demoralization all along the line. He continued:

"You not only need this exchange for your oranges, but at once you should include your lemons, and carefully prepare to take the first position in every market on this fruit, as this line of fruit requires more intelligence in preparing and marketing than our oranges.

"Your deciduous, green and dried fruits, and the 100 cars of walnuts, should have the protection of the benefits under the exchanges.

"The Northern California Fruit Exchange will gladly unite with you as soon as fully organized, so we may have men of ability and experience the year round in all large markets, whose entire time and aim shall be the systematic development of the entire fruit industry of California, and when this time comes I am safe in promising every grower in this state, we can increase the demand faster than our growing orchards can furnish the supplies. And when the shrewdest buyers in the east, and our own successful orchardists say this is the only salvation of California's great future, I know every grower in this state will come to our support.

"Growers of Southern California Fruit exchanges, you have elected from among your own number, men of ability and honor, whose interests are identical with your own. They cannot do anything for their own interests unless you get the full benefit of it, and I beg of you to look beyond your own narrow or selfish ends, and stand by the only thing that will insure to you and your loved ones prosperity and a happy home."

In answer to a question Mr. Pratt said that the first and largest crop of Sicily lemons was picked in November and cured in cave-like houses in the side hill. In three months they were ready to ship. Later pickings were cured in

the orchard and shipped in about four weeks. He believed that so far Mr. Garcelon of Riverside was more successful than any other lemon grower in Southern California. He considered 300 to the box the best size.

Another question brought out the fact that some of the leading orange growers sweat or cure their oranges for about one week before packing. The answer to another question was that washed oranges do not carry so well. The best remedy is to keep the trees clean.

SOME PRACTICAL SUGGESTIONS.

Condensed answers to a large number of questions were as follows:

Use refrigerator cars during January and February and the early part of March. The balance of that month and during April use ventilators. After that use either, of course icing in the refrigerator.

Have been in the business of selling oranges nineteen years—thirteen as a commission man and six as a broker.

The fruit you shipped east this year was well packed. The grading could have been improved a little.

Each locality should have its own brand. All growers are not honest, and should be held personally responsible as much as possible. You should remember that while you look at the best fruit you pack the buyer hunts for the poorest. Every poor orange you put in a box not only brings you nothing, but detracts from the balance.

Some fruit I saw from your county was smutty and some heated, the latter from lack of proper ventilation while in transit.

Clean up your trees, pack carefully, market bright fruit and you will get good prices.

It will be much better to have one central office to which all orders are to come than for each exchange to sell its own fruit.

I am going on north and will meet with the Northern California exchanges. It is proposed to consolidate all the exchanges of the state, and then the men you put on the road and the brokers can continue their work all the year round. Some part of California furnishes fruit every month in the year.

There is more fruit in the east than has been reported. Especially so is this true of apples. I do not think you will get as much for your fruit as you were led to suppose from the first reports sent out.

I do not like the auction system. It is perhaps a little better than the commission system, but does not at all bring the growers the results they should have.

If all the growers of California would agree to do as you of San Diego county have done, viz., ship no more green fruit until the railroads have reduced freight rates, it would not be a month until rates would be very materially lower than they now are.

Riverside is going right ahead re-organizing. Another meeting will be held on Friday of this week to complete the work. San Diego should not wait, but get in shape as soon as possible.

Chicago is most too far east for your lemons. You will get more for them west of the Missouri river.

For a comparatively small exchange San Diego is well known in the east. You have nothing to lose and much to gain by continuing to work with the strong exchanges of Southern California.

I understand that a certain firm which recently started in the commission business in your city and a few days ago went out under a cloud was backed up by Porter Bros. It was an effort of that firm to break up your county exchange.

The exchanges are established. From now on they can handle fruit much cheaper than can commission men, and why should growers pay middlemen a large profit when they can handle their own fruit through their own organization?

A general talk followed these questions and answers, during which Mr. Pratt urged the growers to stand solidly by the exchange.

On motion of H. L. Story Mr. Pratt was given a hearty vote of thanks for his valuable information and the meeting adjourned.

Mr. Pratt as eastern agent has had much to do with the success of the fruit exchange movement. He has received letters from most of the exchanges commending him for his excellent work.

The new bridge over the San Elijo river, between Encinitas and Del Mar, is 261½ feet long, cost about $1400, was built by Capt. A. Levort, and is said to be one of the best in the county.

In an item advertising a spring medicine in our May issue a word was left out through somebody's inadvertance and the item read "Tip Top Cough is pleasant," Perhaps the printer had the "syrup" in his mouth as well as in his mind, and it was so pleasant he kept it there instead of putting it in the sentence which should have read "Tip Top Cough Syrup is pleasant."

W. A. Hawkins succeeds Geo. L. Hasson & Co. in the fruit packing business at the Silver Gate warehouse.

MONTHLY METEOROLOGICAL SUMMARY.

SAN DIEGO, CALIFORNIA, FOR THE MONTH OF MAY, 1894.

Date	TEMPERATURE. Max.	Min.	Mean	Precipitation in inches and hundredths.
1	66	51	58	00
2	62	52	57	00
3	63	53	58	00
4	63	51	57	00
5	62	49	56	00
6	62	53	58	00
7	64	53	58	00
8	63	54	58	00
9	61	50	56	00
10	62	54	58	T
11	65	54	60	00
12	63	56	60	00
13	62	54	58	.01
14	62	54	58	00
15	60	50	55	.08
16	65	45	55	00
17	72	48	60	00
18	63	51	57	00
19	67	49	58	00
20	66	50	58	00
21	66	50	58	00
22	65	55	60	00
23	65	55	60	00
24	66	55	60	00
25	69	54	62	00
26	70	55	62	00
27	67	53	60	00
28	66	56	61	00
29	65	57	61	00
30	65	57	61	00
31	66	56	61	T

SUMMARY.

MEAN BAROMETER, 29.97.
Highest barometer, 30.07, date 15.
Lowest barometer, 29.83, date 30.
MEAN TEMPERATURE, 59.
Highest temperature, 72, date 17.
Lowest temperature, 45, date —.
Greatest daily range of temperature, 24, date —.
Least daily range of temperature, 7, date 12.

MEAN TEMPERATURE FOR THIS MONTH IN

1871....	1877....60°	1883....61°	1889....51°
1872.. 60°	1878.. 62	1884....61	1890... 66
1873....60	1879....60	1885... 63	1891....61
1874.. 60	1880...61	1886... 62	1892....61
1875....63	1881... 62	1887....62	1893 ...61
1876....61	1882....62	1888 ..61	1894....59

Mean temperature for this month for 22 years 61.
Total deficiency in temperature during month, 96.
Total deficiency in temperature since January 1st, 5.65.
Prevailing direction of wind, W.
Total movement of wind, 42.28 miles.
*Maximum velocity of wind, direction, and date, 18 nw. 15
Total precipitation, .09 inches.
Number of days on which .01 inch or more of precip'n fell, 2

TOTAL PRECIPITATION (IN INCHES) FOR THIS MONTH IN

1871...	1877... .43	1883...1.14	1889...0.03
1872... .12	1878... .58	1884...2.17	1890...0.08
1873... .03	1879... T	1885...0.61	1891... .35
1874... .34	1880... .06	1886...0.04	1892...1.15
1875...0.05	1881... .04	1887...0.47	1893...0.39
1876...	1882... .15	1888...0.15	1894...0.08

Average precipitation for this month for 22 years, 0.39.
Total deficiency in precipitation during month, .27.
Total deficiency in precipitation since January 1st, 4.98.
Number of cloudless days, 14; partly cloudy days, 10; cloudy days, 7.
Dates of frost, none.

NOTE.—Barometer reduced to sea level. "T" indicates trace of precipitation.
* To be taken from any five-miuute record.

M. L. HEARNE, Observer, Weather Bureau.

PATENTS

NOTICE TO INVENTORS—There was never a time in the history of our country when the demand for inventions and improvements in the arts and sciences generally was so great as now. The conveniences of mankind in the factory and work shop, the household, on the farm, and in official life, require continual accessions to the appurtenances and implements of each in order to save labor, time and expense. The political change in the administration of government does not affect the progress of the American inventor, who, being on the alert and ready to perceive the existing deficiencies, does not permit the affairs of government to deter him from quickly conceiving the remedy to overcome existing discrepancies. Too great care can not be exercised in choosing a competent and skillful attorney to prepare and prosecute an application for patent. Valuable interests have been lost and destroyed in innumerable instances by the employment of incompetent counsel, and especially is this advice applicable to those who adopt the "No patent, no pay" system. Inventors who entrust their business to this class of attorneys do so at imminent risk, as the breadth and strenght of the patent is never considered in view of a quick endeavor to get an allowance and obtain the fee then due. THE PRESS CLAIMS COMPANY, John Wedderburn, General Manager, 618 F street, N. W., Washington, D. C., representing a large number of important daily and weekly papers, as well as general periodicals of the country, was instituted to protect its patrons from the unsafe methods heretofore employed in this line of business. The said company is prepared to take charge of all patent business entrusted to it for reasonable fees, and prepares and prosecutes applications generally, including mechanical inventions, design patents, trademarks, labels, copyrights, interferences, infringements, validity reports, and gives especial attention to rejected cases. It is also prepared to enter into competition with any firm in securing foreign patents.

Write for instruction and advice.

JOHN WEDDERBURN,
618 F Street
Postoffice Box 384. Washington, D. C.

San Diego, Cuyamaca and Eastern Ry.

EAST BOUND.			Distance from San Diego.	Elevations.	STATIONS.	Station Nos.	WEST BOUND.			
6 Sun Only	4 Daily.	*2 Daily Ex. Sun.					1 Daily Ex. Sun.	*3 Daily Ex. Sun.	5 Sun Only.	7 Sun Only.
Lep't. A. M	Dep't. P. M.	Dep't. A. M.					Arrive A. M	Arrive P. M.	Arrive A. M.	Arrive P. M.
9 40	5 00	9 10		14	† San Diego	0	8 10	4 10	9 20	4 40
9 45	5 05	9 15	0.7		Golden Hill F	1	8 05	4 05	9 15	4 35
9 51	5 11	9 21	2.1		Mt. Hope F	2	7 59	3 57	9 09	4 29
9 59	5 19	9 30	5.3		Richland F	5	7 51	3 50	9 01	4 21
10 07	5 27	9 40	8.5		Lemon Grove F	8	7 48	3 41	8 53	4 13
10 13	5 33	9 47	10.2	559	Spring Valley (Helix) F	10	7 37	3 35	8 47	4 07
10 16	5 36	9 50	11.1	532	Allison (La Mesa)	11	7 34	3 32	8 44	4 04
10 23	5 43	9 57	13.2		Ft. Robinson F	13	7 27	3 25	8 37	3 57
10 30	5 50	10 10 / 10 20	15.5	463	† Cajon Hights (El Cajon)	15	7 19	3 15	8 29	3 49
10 32	5 52	10 22	16.1		Hawley F	17	7 17	3 13	8 27	3 47
10 37	5 57	10 29	18.6	364	Santee F	18	7 10	3 06	8 20	3 40
10 41	6 01	10 35	20.4		Riverview F	20	7 04	3 00	8 14	3 34
10 45 / 10 50	6 05 / 6 10	10 40 / 10 50	22.	391	† Lakeside	22	7 00	2 55	8 10	3 30
10 53	6 13	10 55	23.1		Moreno F	23	6 57	2 52	8 07	3 27
11 00	6 20	11 05	25.5	452	†Foster	26	6 50	2 45	8 00	3 20
A. M. Arrive	P. M. Arrive	A. M. Arrive					A. M. Dep't.	P. M. Dep't	A. M. Dep't.	P. M. Dep't

† Telegraph Stations. F Flag Stations—Stop for passengers and freight. * Carry Mail

No. 2 and 3 make stage connections at Lakeside for Alpine, Viejas, Descanso, and Cuyamaca.

No. 2 and 3 make stage connections at Foster for Ramona, (Nuevo), Ballena, Santa Ysabel, Julian, Banner, and Warner's Ranch Hot Springs.

A. E. KINNEY, Superintendent. WALDO S. WATERMAN, General Manager.