PRACTICAL AGRICULTURE.

[This Department is prepared for the SACRAMENTO RECORD-UNION by its Agricultural Editor. All matter relating to the agricultural interest will be found under this head.]

ORANGE CULTURE IN CALIFORNIA.

The orange is said to be a native of tropical India, and according to ancient records was, some time during the eleventh century, introduced into Arabia and Persia, and from thence to Spain, from whence it spread into different parts of the world where the climate was sufficiently favorable to warrant its cultivation. The orange groves of Florida are not indigenous to the country, but were undoubtedly brought there in the early settlements from Spain and cultivated for a time and then abandoned with the changes which time and revolution wrought in that section. The orange was also brought from Spain to the southern coast of the Pacific, and the first orange groves of Southern California were planted by the founders of the old missions, who were also from Spain. The oldest orange grove in Los Angeles county is at the Mission San Gabriel, and is now over ninety years old, but is still in a healthy condition and bearing heavy crops each year. The orange is a long-lived tree, and when cared for retains its fruitfulness to a wonderful age. There is a tree in the orangery of the Versailles now over 450 years old. It has an interesting history. It grew from some seed of a bitter orange planted at the commencement of the fifteenth century by Eleanor of Castile, wife of Charles III., King of Navarre. They were planted—as many of the seed from which have sprung a number of the trees growing in different sections of this State—in a pot, and were grown and kept in the same vessel until 1584. In 1799, when more than 200 years old, they were removed from Pampeluna to Versailles, and the survivor of these trees is now in a healthy and vigorous condition, not exhibiting any signs of decay. There may not be at this time an orange tree growing in this State that will live as long or achieve so interesting a history and so lasting a name as the Grand Connetabable, as this old Versailles orange tree is called, but there are many that to those who planted the seed and nursed the trees till they began to bear the golden fruit have a history that will be preserved in family traditions for generations to come, and those who planted and reared them will be remembered as benefactors by the people who perhaps centuries hence may pluck and eat of the golden apples that will then weigh down their branches. The apple, the peach, and the pear, though of great value to man on account of their food properties, and so general cultivation and use, have never been regarded with so much interest as has the orange in every country in which it has found a genial climate and soil. The orange tree, on account of its beauty, its symmetrical form and deep evergreen foliage, is and has ever been a universal favorite in all countries where care and nursing can bring it to anything like perfection, and in those countries in which it grows naturally in groves and forests it still has a stronger hold upon the affections of man than any other fruit or ornamental tree. But it is not of the beauty of the tree, or of the fruit, we propose to speak in this article; we rather intend to call the attention of the people of our State to the value of orange culture as a matter of profit, as a product of commercial importance to California. First, then, we will consider

WHERE THE ORANGE CAN BE CULTIVATED

With profit in California. The fact that the original European settlers on this coast had never planted the orange to any extent in any but the extreme southern portion of the State, now embraced in the counties of San Diego, Los Angeles and San Bernardino, would indicate that they held to the opinion that this was the only locality where it would prove successful. The fact that the Americans for a term of twenty years or more after the State was settled by them did not plant orange orchards in any other portions is an indication that they also entertained the same opinions as to the circumscribed area in which orange culture could be successfully prosecuted. This opinion, so long held and acted on, has, like many other erroneous opinions of the capabilities of our State, been dispelled more by chance than design. A few persons in nearly every section of the State, after the fact had been demonstrated that our climate was generally favorable to fruit culture, had the curiosity while eating oranges to plant the seeds, not thinking to do anything more than grow the trees as a novelty or as a garden ornament. Among those so planted and that first came into bearing, was a single tree grown on Bidwell's Bar, in Butte county, almost at the foot of mountains covered with perpetual snow. The traveler may pluck and eat fruit from this tree in the morning, and on the evening of the same day may retire to his bed surrounded by snow banks, and with the thermometer 10° to 20° below the freezing point. The fruit from this tree is of more than medium size, of a good deep orange color, the skin is thin and the flesh fine-grained, sweet and of a most excellent flavor. Indeed, it is one of the best oranges ever raised in the State, and, though a seedling, the scions from the tree are much sought for for propagation. Marysville, Sacramento and many other cities and towns from San Diego to Red Bluff, have large numbers of orange trees now in bearing, and at this time of year the golden fruit shines out from the dark green foliage in thousands of front-yards all over the State. Though most of the bearing trees are now of natural fruit or seedlings, the fruit, as a general thing, bears a favorable comparison with the best imported oranges, and, in many respects, is superior to the same. Of course the trees grow and bear better in protected localities than in the open plains, where the prevailing winds either from the north or south have an uninterrupted sweep at them. A good border of evergreens, of pine or spruce and any good-sized building, furnishes sufficient protection to insure success to the orange after three or four years old. Outside of the cities, where the buildings and shrubbery favor the orange both in summer and winter, the

FOOTHILLS

Of the Sierra Nevada and Coast Range mountains have been found more favorable for orange culture than any other sections of the State. Like the grape, the orange seems perfectly at home on the eastern slope of the Coast Range and the western slope of the Sierra Nevada, from Tehama county on the north to the extreme south end of the State. Contrary to general expectation, the orange ripens from two weeks to one and a half months earlier in nearly every locality north of San Francisco than in Los Angeles. In some localities in the foothills, favored by the warm belts frequently found there, it is believed the fruit on mature trees will ripen two months earlier than in the present orange orchards of the southern counties. While this fact would give to these localities great local advantages over sections where the fruit ripened later, the general result to the State would be of immense value, as we would be able to supply oranges for so long a time each year that the income therefrom would be greatly enhanced, while the profits of the trade would be distributed through nearly all sections of the State. The peculiar adaptability of the foothills to successful and profitable orange culture has been so fully demonstrated by actual successes at many different points, that the attention of practical men, as well as capitalists, has been attracted to this industry as a new opening for the enterprise of the former and the investment of the latter. In localities favorably situated for transportation, like Newcastle, Penryn and other stations on the Central Pacific, and Folsom and Mud Springs, on the line of the Sacramento Valley Railroad, every acre of available land for orange and small fruit culture is being taken up, brought under cultivation and planted into orchards, and land in these localities has, within the past two or three years, enhanced in value from 100 to 200 per cent. Now these are not the only localities favorable to this culture. There are hundreds of other places, now without a name, in these foothills, all along from Butte to Los Angeles county, with equally as good natural locations and with even better soils and more favorable climates, and where land in abundance can be had for the taking up—the only disadvantage being that they are not provided with railroad facilities for transportation. Let these lands be appropriated and cultivated in the vine and orange, as those in the vicinity of the places named are being planted, and an equal enhancement in value will very soon follow, and railroads will come also when freight is assured for their transportation. There being no longer any question as to the natural advantages of very large portions of California for orange culture, it is in order to inquire whether

ORANGE CULTURE WILL PAY

When the business is greatly increased and the product is proportionately augmented. That the culture is at present very profitable is attested by facts too plain to be overlooked. During the past few years property generally in the southern counties has been at a low figure and the times extremely dull, but amid this almost universal depression no orange orchards have been placed upon the market, and none could be bought at any price. This kind of property has uniformly remained firm and unchanged. An intelligent cultivator of this fruit in Los Angeles county, speaking of the business last year, remarked: "An orange orchard is a bank, whose deposits are safe beyond a question, and whose dividends are regular, munificent, and, we might say, princely." In answer to an inquiry of the Los Angeles Chamber of Commerce in 1876, another well known orange cultivator made this statement in regard to the results of his own experience: "By very careful estimates made in 1874, of the crops on an orchard of 436 trees, 309 of which were 12 years old from the seed (the balance being too young to bear), I obtained as a net result, over and above cost of transportion to San Francisco, commissions on sales, etc., $20 50 per tree, or an average of $1,435 per acre. I do not claim this amount as an average crop or result, but I do think that with proper care and attention the average can be made to equal $1,000 per acre on trees 12 years old. I have seen trees on our property that have yielded 3,000 oranges per tree, which oranges at $20 per thousand would give per acre a result of $4,140. The average price for the past five years, to those who have shipped their oranges, has been between $20 and $25 per thousand." The average prices for oranges in San Francisco for the past two years has been $22 50 per thousand. A gentleman in old San Bernardino has an orange orchard of eighty-three trees to the acre, and the average sales per tree has been 2,000 oranges, sold at three cents apiece, or $30 per thousand, equal to $60 per tree, or $4,980 per acre. The Wolfskill orchard in Los Angeles, consisting of sixty acres of bearing trees, realized for its owner in 1878 the sum of $80,000. Gallesio speaks of trees seen by him in Spain which yielded 4,000 oranges per annum, and it is certified to that one tree in the Sandwich Islands produced 12,000 oranges in one year. These are of course somewhat exceptional products, but they go to show the possibilities of orange culture under favorable circumstances and offer great inducements to the creating of favorable circumstances by cultivators. Will the business continue to pay? The oranges produced in California now are all consumed within the State, and 5,000,000 more are annually imported from Tahiti and other islands, so that until this demand is satisfied there is already a market awaiting an increased production. By the time this demand is supplied from our own orchards it is certain that the increase in population in the Pacific coast States will create at least another equally increased demand. But it is not to the Pacific coast alone that we may look for a market for our oranges when we have produced a surplus. It will be remembered that up to the time when we had raised wheat in excess of home consumption the price of wheat was not as steady and certainly remunerative as when Liverpool merchants were assured that they could draw on California for the supply of a certain portion of their annual deficiencies. It is an almost universal rule of commerce that a supply creates or discovers a demand. When Chicago, New York, Philadelphia, Boston and other Eastern cities can be supplied with California oranges, their merchants will look to California for that supply just as certainly as the merchants of Liverpool now look to California for her annual surplus of wheat. There are good reasons for this assertion other than commercial reasons.

SUPERIORITY OF CALIFORNIA ORANGES.

California oranges are superior to either the Florida, Louisiana or Havana oranges in many respects, among which we may mention in this connection their superior keeping qualities, which gives them great advantages in a commercial sense. The New York *Evening Post*, speaking of some oranges sent them from Los Angeles, says: "They are of remarkable fineness and of a flavor which, without possessing the saccharine sweetness of the Havana orange, is even more rich, and, in consequence of the blending of its sweetness with a little acidity, is more agreeable. * * * The orange of Tyre, of Sidon and of Jaffa, is peculiarly fine in size and quality, but it does not excel in either respect that of Los Angeles." An intelligent writer in a New York journal, comparing the Los Angeles oranges with others in that market, says: "They combine the qualities of the Florida, the Louisiana and Havana oranges, having the size of the former, the skin of the second, and the delicious flavor of the latter. The trees are stronger and bear more luxuriantly than either of the above mentioned, and the fruit lasts longer on the trees, is better adapted for shipment and market than the Florida orange, which rots rapidly." The Cedar Keys *Journal*, of Florida, speaking of the orange business in that State in 1878, says: "The markets were crowded at the start with half-ripe fruit, which no doubt caused, to some extent, the low prices that ruled. * * * The Florida orange, while unsurpassed for its rich flavor and size, will not keep long." A San Francisco commercial journal, speaking of the San Francisco trade in oranges for the same year, remarks: "The Tahiti orange crop is later in market than the Los Angeles crop, and arrives in San Francisco in hot weather in a damaged condition. The business has become quite unprofitable, so much so that California importers propose to abandon the trade." Thus it will be seen that the difficulty in the way of a successful trade on the Atlantic coast in oranges grown in the Gulf States or the West India Islands, is that they lack one of the most essential commercial qualities—the quality of keeping while in transportation and while waiting for consumption. To get them to market before they decay they are picked and shipped green, and even then they open up in a decaying condition, while the more sound fruit is much damaged from being wilted and tough, and from loss of natural freshness and delicacy of flavor which fruit picked ripe only can retain. Our California oranges have the advantage over all others in this important particular. Being grown in a dryer climate they may be allowed to remain on the tree till fully ripe before gathering, and then will stand transportation for long distances, and will keep longer than any other oranges known. Mr. Shorb, a Los Angeles, producer before referred to, says "that on this coast oranges remain for a period of at least from four to six months on the trees after they are matured without decay, thus giving us that period to ship in, while other orange-producing countries are compelled to ship their fruit as soon as it is matured, and very often before. While other countries are compelled to gather their entire crop in a very limited time, we can supply the market as fast as the consumption warrants." If we possess such great advantages over other orange-producing countries now, while only a few of our southern counties are producing a surplus, what will be our advantages when we are producing oranges all along the foothills, and in Central California, and the crop in the foothills begins to ripen from six weeks to two months earlier than it now does in these southern counties? We will then be able to supply the demand for oranges at home and abroad for six months in the year, and our orange crop will become almost as much a staple of the world's commerce as is now our wheat crop. In further proof of the shipping and keeping qualities of our oranges, Mr. Shorb states, "eight boxes of oranges were gathered and shipped from my orchard about the last of March, 1875, to Wells, Fargo & Co.'s agents in London, Messrs. Eiris & Albin. They were shipped to San Francisco by steamer, thence over to New York, and from there by steamer to Liverpool, where they arrived in perfect order and condition, not one being decayed and gave general satisfaction. F. M. Shaw, in 1874, took with him from the Wolfskill orchard, Los Angeles, two boxes of oranges across the Isthmus, to New York, and then to England, consuming in the trip forty-nine days and through a tropical climate, and yet the oranges arrived in perfect condition. Mr. Shaw in his report of the fact says: "It was almost incredible to the party of ladies and gentlemen who partook of the full, flavored and nice-looking oranges in Londonderry, Ireland, and Edenburgh, Scotland, that the delicate and luscious samples had come 9,000 miles and been seven weeks in transit, but the authority of the fact was indisputable." In both these cases the oranges were fully ripe when picked. With these facts well authenticated it may be reasonably assumed that when we produce the oranges, we may depend on not only the Atlantic States, but the Canadas and Europe also for a market.

BUDDING THE ORANGE.

Most of the oranges of the Pacific and West Indies islands are seedlings, as also are most of those produced by the old orchards in this State; but more modern cultivators are rejecting the seedling tree system and are planting in the orchards budded trees almost exclusively. The advantages of budding the orange were well set forth in a discussion on this subject in 1877 before the Southern Californian Horticultural Society, when the most experienced cultivators of that section gave their views. We cannot present these advantages in a more forcible light than by quoting some of the points made by the speakers. Thomas A. Gray said: "It would pay to bud the orange the same as it would pay to raise fine stock or fine fruits of other varieties. All fine fruits are at first the result of accident, and the fine varieties are perpetuated by budding. A thousand peach pits would produce numberless varieties of the peach, while probably only one would be worth perpetuating. The same rule applies to the orange, only not to so great an extent. The orange is more true to itself when grown from the seed than any other known fruit. Good seed, or seed from fruit will generally produce trees that will produce good fruit, but not always. Nurserymen get seed from the poorest oranges, generally because these oranges contain more seed, but those seed will produce trees that will bear inferior fruit, unless budded. One advantage of budding is early bearing, budded trees producing fruit three or four years earlier than seedlings." Mr. Short says: "My own experience teaches me the necessity of budding. My budded trees are larger than seedlings of the same age, and the fruit is certainly as good. Nor have I been able to observe that the production in numbers is less. In conclusion, I will say that budding enables us to grow a uniformly good fruit, and of different chosen varieties not obtainable otherwise. It shortens the time of fruiting and relieves the orchardist of several years of expense and care, and oftentimes grinding poverty. I therefore give my unqualified opinion that it will not only pay to bud the orange, but as intelligent men we cannot afford to do otherwise." The Committee on Semi-tropical Fruits, appointed by the Society above named, reported upon this subject as follows: "The committee find budding the orange and lemon so universal that no argument is needed in this report on this branch of the subject. Many foreign varieties of orange are in successful cultivation and many of the Los Angeles seedlings have been perpetuated by budding. Several orchards of the latter are now in fine bearing." Those who propose to plant orange orchards will do well to secure budded trees of the best named and recognized kinds.

VARIETY TO CULTIVATE.

With the orange, as with all other kinds of fruit, it is better to cultivate but few of the best varieties than to cultivate a large number of kinds, many of which must be inferior. In this State one of the best kinds so far produced is Garey's Mediterranean Sweet. Of this orange the Los Angeles *Herald* says: "It commences to fruit the second year from the bud. It bears regular and heavy crops. The fruit commences to ripen in December and remains sound and firm on the tree until the following August." The Southern Horticultural Society at one of its meetings adopted unanimously the following resolution: "That we recognize in the orange known as Garey's Mediterranean Sweet, specimens of which have been presented to this Society at every meeting since April last, an orange which possesses rare keeping qualities, as the specimens presented to this Society this 11th day of August fully testify." Very few better oranges are found in the world than some of the best Los Angeles seedlings, but these should be perpetuated by budding, and are now so perpetuated. The Naval, Blood and St. Michael are also good varieties.

IRRIGATION AND CULTIVATION.

The orange is a tree that manifests a grateful thrift for good care. It will grow and bear well in nearly all parts of Central California where other fruits will prosper without irrigation; but good cultivation through the first part of the summer, and the addition of judicious irrigation later in the season, will add to the size and quality of the fruit. Sub or underground irrigation is particularly adapted to the orange, as it is naturally a surface feeder, and water applied to the surface has a tendency to bring its roots too near the top of the ground, while water deeper down induces a deeper and better position of the roots, and the trees will thus be in condition to withstand a greater drought without injury in case of necessity.

DISEASES OF THE ORANGE.

The orange tree, as a rule, is very free from diseases of any kind; but poor, neglectful cultivation and too much irrigation in the southern counties of this State, have produced a disease known there as the gum disease. It affects the tree at or near the roots, and more particularly in heavy soils when the water is allowed to come in contact with the tree. Sub-irrigation would not probably produce this disease, as the surface soil would remain light and dry. Strong manure applied immediately at the base of the stem is believed also to cause the gum disease. Care in cultivation is the best preventive and the best cure of this disease. Oranges budded on the orange root make a more healthy tree than when budded on the lemon root. The scale-bug, which is found in some of the orange orchards, is also believed to be induced by neglect, and to be prevented by care and good cultivation. If the tree is thrifty it is not likely to be troubled with disease. Whale oil soap and sulphur applied to the tree is a good remedy for the scale disease, and it is believed to be a good application for the tree in other respects. We are not aware that any disease has shown itself in central California, and we trust with good cultivation it will remain exempt.

MISTAKES IN WHEAT CULTURE AND HARVESTING IN CALIFORNIA.

The cultivation of wheat has formed one of the principal employments of man since the remotest periods of antiquity. Ancient history, both sacred and profane, give accounts of the manner in which wheat was sown, cultivated, harvested and prepared for food since the first historical periods of the world. As nations have arisen and advanced to civilization and power wheat culture has increased, and wheat has become more and more the principal article of food. The Chinese and Japanese are the only important exceptions to this general rule. Rice has been with them what wheat has been to the other great nations of the earth, and the check in the advancement of their civilization is attributable, it is believed by many, mainly to the inferiority of rice to wheat as food for man. The modes of sowing, cultivating and harvesting wheat have changed materially since the Romans plowed the ground with a crooked stick, brushed the seed in with the top of a tree, and gathered the golden grain with a hook or hand-sickle, but the principle changes in these plans of working have taken place within the last half century. The United States has within that time become the greatest wheat-growing country in the world, and within the last quarter of a century, or since 1850, the product of California has increased from 15,000 to 40,000,000 bushels. The old modes of cultivation could never have brought about such a product. Nothing but the facilities of the gang-plow to turn up the soil, the seed, sower to sow the seed, the immense harrows in use in this State to cover it, could render it possible to put in such a crop as was put in in 1877-8, and had not the improved facilities for harvesting and thrashing it been invented and brought into use it would have been impossible to have secured the crops that have been produced in this State for the past few years. We have been rushing into the wheat business so rapidly, and it has been, as a rule, so profitable to individuals, and such great immediate financial gain to the people as a whole, that we have not taken time to inquire whether we have not been making many mistakes as individuals and as a State. Twenty years ago the average yield of wheat in California was forty bushels per acre, while today the average yield is hardly twenty. One of the main causes of this shrinkage, no doubt, is the *defertilization of the soil*. We have been drawing from the soil cultivated in wheat the properties required to produce wheat, and we have not returned to the soil anything to restore these properties. Under these circumstances, is it any wonder that our wheat yield has decreased per acre? But this decrease in bulk or weight is not the only way in which we have been losers in wheat culture. Twenty years ago our wheat was counted the best wheat sold in the Liverpool market, and brought the highest price. Now it ranks second or third in quality, and the fact is that while we have lost about 50 per cent in yield per acre we have also lost in quality about 25 per cent. Now it is quite common to attribute these losses to the deterioration in our soil by too constant cropping. While this may be, and probably is, the principal cause, it is by no means the only one. We have allowed our land to become foul with weeds and have not been careful enough in cleaning our wheat before putting it upon the market. Buyers, to protect themselves, have been obliged to charge the farmers with the proportion of weed seed estimated to be contained in the wheat, but they have also made a deduction in price for the expense of cleaning this seed from the wheat. Another, and by no means unimportant, mistake we have been making for twenty years past in wheat raising is, that we

REPEATED OUR SEED,

As well as our crops, on the same land. The seed we are using now to a very great extent is the product of the seed we began with a quarter of a century ago. As the soil has grown weak the seed has grown weak and impotent, not only because it has been unable to extract the material from the soil to make it strong, but because of the well-known law of nature, in the vegetable as well as in the animal kingdom, that like produces like. A mustang sire will not produce a thoroughbred, not will wheat seed inferior in the qualities required to make good, strong milling wheat, produce good, strong milling wheat, and the oftener we repeat the crop the greater will be the ratio of deterioration. We have no hesitation in stating that it would be a good paying enterprise for the farmers of California to import their seed at least as often as every two or three years, and to exchange seed with different localities in the State every year. The climate and soil of the San Joaquin and Sacramento valleys is quite different from the climate and soil of the coast counties, and a change as between these different localities could be made with but little expense each year, and the gain would be to each individual important, and would add very materially to the quantity and quality of the whole crop. If the defertilization of our soil were the only cause of the decrease and deterioration of the wheat crop of the State, then our virgin soil—or soil bearing its first, second or third crop of wheat—should make as great a yield of as good wheat as did the virgin soil twenty years ago. Another very important cause of the decreased yield per acre of our wheat lands and the deterioration of the quality of our wheat may be traced to the time and manner in which

WE HARVEST OUR WHEAT.

It has been considered one of California's chief advantages, as a wheat-growing State, that her dry summer climate favored the plan of allowing wheat to remain standing till it had become so ripe and dry, that it could be cut with a header and thrashed and sacked immediately without risk of damage from heating and molding. That considerable is gained in the way of economy in the handling of the grain, and in avoiding the handling of the straw, is certain; but it is now worth our while to inquire whether we have not all the time been losing more in one way than we have been gaining in another. It is well to know that a cargo of our dry wheat, while on the passage from San Francisco to Liverpool, gains largely by the absorption of moisture—nearly enough, we believe, to pay the freight. Is it not evident, then, that what the shippers gain by absorption, the farmers have lost by evaporation? Taking into consideration the loss in weight alone, by allowing the wheat to become over ripe before cutting, this loss is considerable; but the gain by absorption by no means represents the full loss to the farmers, by allowing their wheat to become over ripe, and cutting it with the header. There is a certain stage of ripeness or maturity when wheat has gained its greatest weight and best quality, and if cut at this stage, with the full length of straw, and allowed to remain in the straw in a position to harden up gradually, this weight and quality become fixed so as never to be lost. But if the grain is cut before this proper condition is attained the kernels shrink and wilt, and the meat or flour-making substance becomes tough and leathery, and there is a heavy loss both in weight and flour-making and food-producing qualities. The effect of cutting wheat too green is precisely the same on the kernel as is the effect on an apple plucked from the tree when too green. It is simply killed. The nutritive juices, which would otherwise go through a natural chemical or refining change, making sugar and gluten, evaporate, leaving simply the shrunken organization of the kernel, without the life-giving and sustaining properties which are absolutely necessary to make good milling or flour-producing wheat. On the other hand, if grain be allowed to stand in the field uncut till it has passed the proper stage of ripeness, the effect is almost or quite as bad in our dry climate as that which results from cutting it too soon. Every farmer has experienced how detrimental it is to hay to allow it to stand uncut till over-ripe. The leaves part with their substance, while the stem becomes hard, brittle and woody, and loses nearly all the qualities that, if cut at the proper time, would go to make it good feed for stock. The effect is precisely the same on wheat straw, while the berry loses its sugar and glutin and leaves only the form—the dry, woody substances and starch—with a material reduction in weight and milling value. These statements are not founded upon mere conjecture or theory, but are substantiated by analysis and actual field experiment, and by the experience and observation of all good, thoughtful millers. An experiment conducted by Charles T. Lacy, of Minnesota, in 1879, at the suggestion of President Folwell, of the State University of that State, is especially interesting and suggestive to the farmers of this State. Six plats of ground, 429½ feet long and 13 feet wide, with vacant spaces between them about 18 inches wide, all on the same character and quality of soil were selected. These plats were all sown on the 15th of April with Scotch Fife wheat, and the grain grew uniformly and presented an even appearance. The result of cutting at different times and stages of ripeness and weighing may be seen in the following table.

No. of cutting.	Date of cutting.	Condition at time of cutting.	Yield per acre, in bushels of 60 lbs.
First	July 16	Early milk	4.5
Second	July 19	Advanced milk	7.0
Third	July 23	Early dough	8 5
Fourth	July 26	Advanced dough	11.0
Fifth	July 29	Ripe	14.0
Sixth	Aug. 6	Dead ripe	12.0

Mr. Lauey, in commenting on the experiment in the Minneapolis *Tribune*, says:

The appearance of the grain advances and declines in precisely the same way as the quantity. The grain of the first cutting was miserably shrunken, resembling, it was frequently remarked at the fairs, that of the crop of 1878 in the southwestern portion of the State. That of the second cutting showed a vast improvement. That of the third some improvement over the second, but not so much as in the preceding case. The grain of the fourth cutting was by a few pronounced the best, but the majority readily agreed on the fifth. The grain of the sixth cutting had lost its bright color — was bleached. The condition termed ripe was this: Most of the stems, or straws, had turned, not dead white, but a rich, lively yellow. Some were still somewhat green. The berry, when pressed between the soft parts of the thumb and finger, would yield, but nothing liquid or doughy could be pressed out.

Thus it will be seen that there was a loss of two bushels and a half to the acre by cutting the grain in the advanced dough, and of one bushel and a half to the acre by allowing it to pass the ripe stage and become dead ripe. This is the loss in grain yielding only fourteen bushels to the acre, and in the comparatively damp climate of Minnesota. On grain yielding twenty-one bushels to the acre in the same climate the loss, it will be seen, would have been two and a quarter bushels to the acre by allowing it to stand till dead ripe. It is also evident that in our dry climate the loss would naturally be much greater, as the evaporating force of the air and sun are much greater than where this experiment was made. But allowing the loss to be the same from the same cause, let us see what California farmers lost on their wheat crop of 1878. The number of acres sown that year were 2,470,000 and the total yield was 41,999,000 bushels, or about 21 bushels to the acre. Now, assuming that our crop stood in the field till it was dead ripe that year, as is the custom with us in order that it may be cut with a header, and heaped up in the heads or thrashed and sacked immediately—the loss to the farmers on that one crop in weight was 5,557,500 bushels. At a dollar a bushel, $5,557,500. This is the loss in weight alone, but we have seen that the loss in quality is also very great. Some of our best millers estimate the latter at least from 5 to 10 per cent. Now we present these facts and considerations to the farmers of this State thus early in the year, that they may study the subject well before the crop they are just now planting is nearly ready for harvesting. But there is another consideration in connection with this subject. We refer to the

GREATER DRAFT UPON THE SOIL,

As a result of allowing the grain to stand till dead-ripe. It is well known to all farmers that all growing crops draw more heavily both on the moisture and fertilizing properties of the soil during the last stages of ripening. Since it has been proven that it is an actual damage to the wheat to allow it to go through this stage while standing connected with the soil, and it is known that the soil itself is greatly defertilized by the process, we would suggest whether California farmers are not making a serious mistake in their time and mode of harvesting? Does it pay to use the header as a harvesting machine! Are we not unnecessarily drawing the fertility from our soil, while at the same time we are deducting from the weight and quality, the money and full value of our wheat?

THE BEST WORK OF HIS LIFE.—Signor Brumidi, the famous fresco artist, whose work in different parts of the Capitol at Washington has been so universally admired, is now forced on account of old age and physical incapacity to stop work. His last task, that of painting an allegorical and historical circle in the Rotunda, is not more than one-third done, and it is not probable that he can live long enough even to see it finished by others. Altogether Signor Brumidi has been at work in the Capitol about twenty-five years. His fall about a month ago from the scaffold where he does his work so unnerved him that, although he has tried many times since, he has been unable to make much progress with his work. He regards this last labor as the best of his life, and is exceedingly anxious to live long enough to see it finished, but he has given up all hope of doing it himself. In a recent conversation he said that he thought he would be able to finish the cartoons with crayons on paper, and that he thought an artist could be secured in Italy who could transfer the designs to the walls of the Rotunda. Signor Brumidi has a son, now 18 years of age, who gives great promise of being a fine painter.

KISSED AGAINST HER WILL.—When it is remembered that in these United States there are at least five million pairs of ripe and rosy lips, it stands to reason that some of them must even now and then get kissed against the will of their owners. But this statistical deduction did not possess the mind of Miss Emily Otto, of 2224 Gravois road, St. Louis, on the evening of the 12th of October last, when a masculine arm, quick of caress, wound itself about her neck and a masculine mustache smothered her rising shriek. The name of the bold thief was Jean P. Damm, and Mr. Damm said it, and with the prefix, too, when he was summoned before Judge Cady to answer a charge of assault and battery preferred by Miss Otto. Judge Cady heard the case, and was deafened by roof-lifting salvos of applause as he said: "Fifty dollars fine, oh, most unnatural youth!"

A little girl of four years was recently called as a witness in Court, and, in answer to the question what became of little girls who told lies, innocently replied that they were sent to bed.

All blacksmiths have at least one vice—[New York Herald. You allude, of course, to forgery.—[Detroit Tribune.

PLACER COUNTY.

THE WEALTH AND SOCIAL CONDITION OF ITS POPULATION.

Pistols and Pianos—Schools—The New Race—The Domestic Female Head—Indians and Chinese.

NUMBER EIGHT.

The reader who may feel satisfied with the exhibit now made will naturally desire to know something of the people. Whatever they are in character, they must aid in giving tone to the future civilization of Placer county, and even the new comers, though they come in thousands, will take on much of their spirit. The county of Placer contains a population of about 15,000. Seven thousand of these live in and west of Auburn; four thousand east of Auburn and between Bear river and the North Fork, and about four thousand on the "divide," between the north and middle forks. On the "divide," among the mines, are found representatives of every nation except the Turks, and as a rule the population of the entire county is cosmopolitan in its character. A very good idea of the general character, as to nativity, etc., will be obtained from an analysis of the Great Register, which was prepared by District Attorney W. B. Lardner, of Auburn, for the special use of the RECORD-UNION. August 5, 1879. The registered vote of the county was 3,332, which included all that were eligible to registration, except about 300. Among the registered voters are 1,003 foreigners who have been naturalized in the United States and State Courts. There are 113 who are citizens by virtue of their fathers' naturalization, and 4 who were born of American parents temporarily abroad. Among the voters are 154 native Californians, young Americans from the age of 21 to 29. Two thousand and three are native born. Of these 1,592 were born in the Northern States and 411 in the Southern. The best represented Northern States are New York, Maine and Ohio; the best represented Southern States are Missouri, Kentucky and Virginia. About fifty-five came from the District of Columbia and the Territories, or became citizens by treaty with Mexico or honorable discharge from the army. At the last election fifty-seven young men voted, who had just reached the age of 21. The average age of the 3,332 voters is 45.11. At the general election in 1879, 2,800 votes were cast; in 1873, 2,552; in 1872, 2,250; in 1871, 3,028; in 1855, 5,554. The latter vote indicates an enforcement of the rule that required electors to

VOTE EARLY AND OFTEN,

And in the anti-registration days the foothill electors never suffered a friend to fall behind if horse flesh could be found to carry them to a sufficient number of voting places. In those times an election day was a gala occasion for honest miners. The apparent incivism indicated by the small number of votes arises to some extent out of the fact that Californians are always on the wing, and consequently often absent from home on election days. There are several facts that go far to show that the people are not indifferent to public affairs. The county does not owe a single dollar; the rate of taxation is only $1 50 on the hundred, and these has never been an instance of official defalcation. Besides, the roads and public buildings are in good order. In former years candidates for office first secured the influence of the saloons, but now that art is not much relied upon. That the reader may understand the present strength of the several parties, we give the votes cast for Governor in 1879: Republican, 1,213; Workingmen, 828; Democrat and N. C. P., 759. Party ties are not very strong in the foothill counties, and no party can call out its full strength except by the nomination of good men. As a rule the eastern half of the county dominates in politics—the miners were always devoted to politics. Taken generally, the miners and merchants are Republican; the farmers, Democrats, and the laboring classes, "Workingmen." The financial condition of the people is very poor, as will be seen by the assessed values on the tax roll, which reaches the sum of $5,642,932. At the same time it must be said that an equal amount escapes assessment altogether, and that which is assessed is certainly rated less than it ought to be by at least $10,000,000. It seems certain that

THE ACTUAL VALUATION

For purposes of taxation ought to be fixed at $20,000,000. In the year 1872 the assessed values were $8,146,336, and it is evident from a comparison between the two assessments here given that the Assessors do about as they please, without much reference to fact. And the reader will probably agree with this statement when we say that the land is rated at an average of less than $4 per acre. Much of the mineral land is worth at least $20,000 per acre, and a large portion of the farming land is valued by its owners at from $50 to $175 per acre, and no land, except Government and railroad land, can be obtained for less than $5 per acre. Of course nearly $2,000,000 of the estimate belongs to railroad companies. A very careful investigation made shows the fact that the people of Placer are nearly out of debt. Many mortgages are on record but they are decreasing very rapidly. The improvements of the county are very considerable. In one district the real estate, other than city or town lots, is valued at $607,830, and the improvements at $807,100, and in all the towns valuable and pretty houses are being erected in great numbers. Generally the people live very comfortably. A few facts from the Assessor's lists will give the reader a view of the social as well as the financial condition. The sewing machines are valued at $20,338; musical instruments at $24,090; firearms at $6,947; watches at $30,027; and thoroughbred horses at $67,960. From this statement the reader will see that

THE PIANOS HAVE BEATEN THE PISTOLS;

That the domestic sewing horse is following close on the heels of the racer; that the women of Placer county receive a reasonable share of the fruits of prosperity. The Assessors have not numbered nor valued the washboards, churns, smoothing irons, etc. Nevertheless, tes.imony is to be borne to the general industry of the women; in fact, they excel the men in this accomplishment. The stock mania has recently subsided. In former years nearly the entire population suffered from this species of commercial insanity, and we have no doubt that they have in the past donated to the stock kings at least $1,000,000. In this respect they are on a par with all other Californians. But a new era has arrived and the money that was formerly spent in this foolish manner is being invested in business of a legitimate character. The people have at last come to the conclusion that a good living and slowly accumulated wealth pays the best. The miners formerly went to the "Bay" when they accumulated a few thousand dollars, and nearly all of them soon spent their money and were compelled to return to the mines. Now they invest their money in United States bonds, and they do this because they feel that the investment is safe and that they are wholly unfit for any business except mining. The regular miner has no commercial blood in his veins.

There are three newspapers in the county, the Placer *Herald* and *Argus*, both published at Auburn, and the Dutch Flat *Forum*, and they are all ably conducted. The Placer *Herald* is the third oldest paper in the State, and has the first printing press that was ever brought to the Pacific coast. It is now in order to inspect more particularly the domestic or

SOCIAL CONDITION OF THE PEOPLE.

Husbands, generally speaking, are much older than the wives, as might be expected among a race of miners whose opportunity did not come until late. The girls of the new race do not, as a rule, marry until they are 20. Very many of the foothill wives were once school teachers, and they are therefore more thoroughly "educated" than the husbands. And there are in the foothills, as elsewhere in California, thousands of women who received, and successfully used, in the East, the highest possible educational advantages, and who are married to men who have never seen the inside of a school-house. But these men are not therefore ignorant; on the contrary, many of them are careful readers and exceedingly good thinkers. If the object of education is to discipline the mind so that it may think with vigor and continuity, then some philosopher will yet advocate the theory that the young men and boys who came to California in 1849 and have remained, have received a good education without the aid of schools. Divorces are as frequent as they are anywhere. In October, 1879, there were twelve cases on the calendar, and the average of divorce cases is about four per quarter. This percentage in a population of 15,000 is not very great, and in passing judgment upon the circumstance one must remember that the parties to marriage are often comparative strangers to each other, as must be the case in a new country. The grounds relied upon are mostly always desertion and abuse, though graver charges could no doubt often be preferred. The demi-monde of the foothills is mostly composed of persons of Spanish origin. The families are not as a rule large, and the number of children to a family will not average much over three upon any basis of calculation that can be agreed upon. Most of the large families are from abroad, and the foreign born bear the most children. The great register gives a fair basis of calculation. There are 2,003 native born voters and 1,000 foreign born, which is a fair representation of the proportion of foreign and native adults. In 1879 there were 1,946 children born to native parents, and 1,962 to parents of foreign birth. This difference does not arise out of a lack of vigor in the native population, but is the result of great "prudence," or something of that nature. The morals of the people will compare favorably with the general tone of other communities, though, on this subject, the data is imperfect. The County Jail, in October, 1879, gave hospitality to six inmates; two were held for disturbing the peace, two for resisting officers, one for grand and one for petit larceny. The prisoners average about twelve, and in 1878 there were five arrests for murder. But the criminal Courts have a special constituency which lives wholly apart from the general community, and but little accurate knowledge of the general condition can be obtained from that source. In the mines gold-stealing is becoming more frequent. The foothill churches are badly attended, and in some towns containing nearly a thousand people, religious or church services have not been held for a year. The benevolent societies or orders are quite numerous and have a large membership; of these there are at least thirty-six well-sustained lodges. In the early days, before churches were established, these societies took a strong hold upon the people, and they still command the situation. Whether or not the churches and benevolent societies can both prosper at the same time, is a problem that must be solved by the new-comers. At present the churches are very weak.

UNCONSCIOUS PROFANITY

Is the prevailing vice, and everywhere the tourist is greeted by the most vigorous oaths. Whether this profan