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The San
Joaquin
Valley of
California
in 1902 



Santa
Fe



THE
SAN JOAQUIN VALLEY
OF THE
STATE OF CALIFORNIA

A BRIEF DESCRIPTION OF THE TOPOGRAPHY, CLIMATIC
CONDITIONS, INDUSTRIAL DEVELOPMENT AND
RESOURCES OF THE REGION; ILLUSTRATED BY PHOTOGRAPHS
OF TYPICAL SCENES
AND CONTAINING MAPS

*Issued by the PASSENGER DEPARTMENT
of the SANTA FE*

FIFTEENTH THOUSAND

LOS ANGELES, MARCH, 1902

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Press of
C. M. DAVIS CO.
Los Angeles, California

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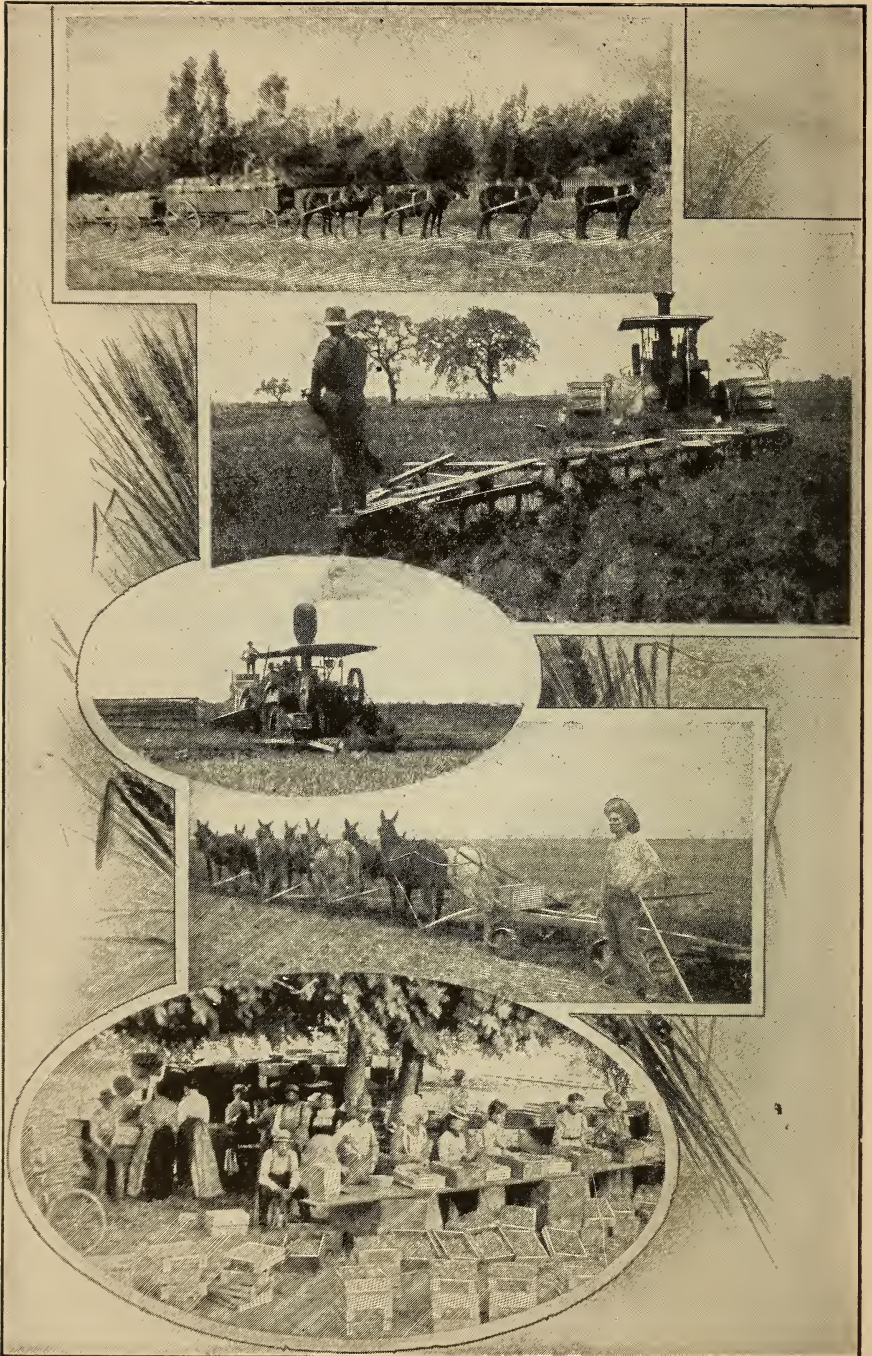
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FARMING IN THE SAN JOAQUIN VALLEY.

THE SAN JOAQUIN VALLEY.

CHAPTER I.

THE STATE OF CALIFORNIA. THE GREAT INTERIOR VALLEY.
THE SANTA FE RAILWAY.

CALIFORNIA is associated in the minds of most people with the idea of bigness, but it is not with the area of the State, nor the size of the things in it, that constitutes its most remarkable feature. The greatest wonder lies in its variety. No other State and no other country comes so near being an epitome of the whole earth—an epitome that is on a liberal and a practical scale. It has climates of all sorts, from the burning and arid deserts to the intense cold of the ever-white mountain tops, and between these a dozen forms of even and salubrious changes of temperature. Its topography includes ocean, mountains, table-lands, rivers, lakes, bays, hills, forests, meadows, and sinks below sea-level. Its population is cosmopolitan, forgathered from all quarters of the Union, and from Old Spain and Mexico, with a few of the aboriginal Indians and some Chinese. Its institutions are eclectic. Its history is romantic, and composed of many shifting phases, each quite independent of those that went before. Its industries cover almost every branch of human endeavor. In agriculture it leads all other States in barley, is in the front rank in wheat, and fills the Eastern cities with winter vegetables. In horticulture, it alone, of all the States in the Union, produces, figs, prunes, olives, and English walnuts, and it is without serious competition in oranges and lemons. Its deciduous fruits, both dried and green, are a large factor in the national markets. It supplies all of America with raisins. It exports fifteen million gallons of wine and brandy every year. It produces more beet-sugar than all other States of the Union. No State grows so much wool. Its butter and cheese are measured by tens of thousands of tons. Its stock interests are enormous. Almost every form of manufacturing is represented on a scale commensurate with the needs of the State, and many lines are produced for export. Of its shipbuilding, the Oregon is a sample. Its mineral products are worth over

twenty-five million dollars annually, and forty different articles of importance are included in the list. Over half a billion feet of lumber are cut every year. The fisheries yield twenty-five million pounds of fish. The bees prepare each year over two million pounds of honey. And in addition to all the various forms of industry thus set forth, it must be remembered that California is the gateway to the commerce of the Orient, and that it is, moreover, the greatest health resort and winter resort on the continent, and contains much of the finest scenery. Nothing of importance seems to have been omitted by the Creator in His gifts to this favored section of country. It is a variety that "age cannot wither nor custom stale."

This variety is due not so much to the size as to the physical form or topography of the State. It is eight hundred miles in length from north to south, but the same distance measured along the Atlantic Coast, or down the Mississippi Valley, gives no such differences of climate and no such diversity of products. The chief elements in this topography are the sea and the mountains; and in the relation in which they bear to one another is to be found the explanation of the climate. Except among the high mountains, there is no winter in California. It has a wet and a dry season, after the manner of the tropics; it has a summer that is comfortable and healthy for the white race. The State faces the Pacific, largest but least turbulent of all the oceans, with a west and south exposure of 1,000 miles of sea-coast. The high Sierras, with an altitude of from 8,500 to 14,000 feet, form a wall along the eastern boundary, shutting out the storms that seek to enter from that direction. A second range, considerably lower in altitude, runs the full length of the coast. On the north the Siskiyou mountains connect these two ranges, and on the south the Tehachapi line completes the parallelogram. A wide gap in the Coast Range at San Francisco admits the ocean trade-winds to the interior valleys. These are the essential elements of a topography that produces the unique climate—or to speak more accurately the set of climates—of California, and these are, in turn, the cause of the variety in the industries and interests of the State.

The extreme difficulty of describing as a whole an area so

vast, with so complicated a topography and with products so diversified, makes it necessary that the various portions of the State that form unities in themselves should be treated separately. The Tehachapi mountains cut off the lower fifth of the State, and that is called Southern California. Between the Coast Range and the sea there is a strip of some magnitude, which widens out in places where it is cut into by rivers and bays, and this is known as the coast country. To the north and northeast is the mountain country, where are the mining and lumber districts. The great parallelogram, formed by the



A LIVE-OAK TREE.

mountains, which occupies the whole interior of the State, consists of two principal valleys; one is drained by the Sacramento river, which flows south, and the other is drained by the San Joaquin river, which flows north. Both of these rivers terminate at the head of the great San Francisco Bay.

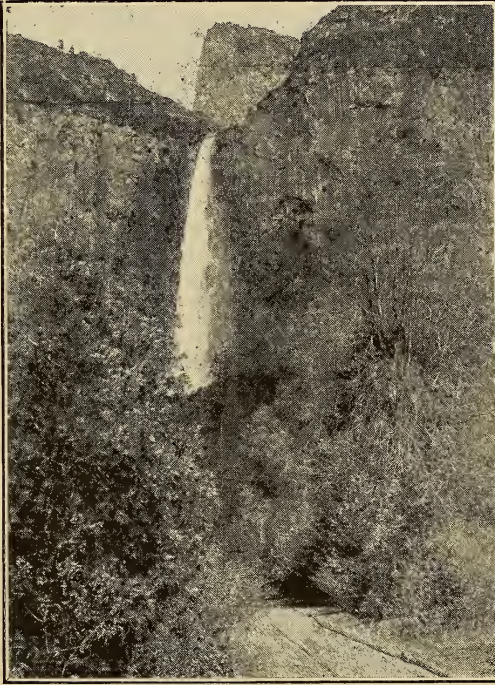
This pamphlet has to deal with the San Joaquin Valley, which is the southern part of the great interior section of the State. It constitutes about one-fifth of the total area of California, and embraces the following twelve counties: Kern,

Kings, Tulare, Fresno, Madera, Merced, Mariposa, Stanislaus, San Joaquin, Tuolumne, Calaveras and Amador. It measures 250 miles in length by about 100 miles in width, and contains 32,500 square miles of territory.

The geographical unity of this section lies in the fact that it is all within the water-shed of the San Joaquin river and its tributaries. The central portions of the valley have a similarity of climate and production, but the outside edges being mountainous present numerous points of difference to the remainder. These mountainous portions are chiefly valuable for the mining and lumbering opportunities which they afford, and to some extent for sheep-herding. They also contain points of interest to travelers and lovers of scenery, as, for example, the Yosemite, which is the most remarkable piece of artistic landscape to be found in the world; the Kings river and Kern river cañons, the big trees, the National Parks and the Minarets. But the San Joaquin Valley—as the title is generally used—refers more particularly to the level arable strip in the center of the great water-shed—a strip that averages nearly fifty miles in width and is over 200 miles long, and is plenty large enough to make several small Eastern States.

Although this district is not densely populated, containing only about 190,000 people, it has been long enough under cultivation and improvement to have entirely passed the doubtful stage of existence, and the advantages originally bestowed upon it by nature have been supplemented and enlarged by human industry until now it is admirably equipped for the use of man. It is not a wild, barren frontier, but a highly desirable piece of American territory, occupied by an intelligent, industrious and progressive people, who have already accomplished much toward its development. Yet it is not like the older and more thoroughly improved sections of the Eastern States, lacking in opportunity for the newcomer who has his way to make in the world. On the contrary, while everything that can be done to clear the way for the settler and put the land in order for his use has been accomplished, he essentially is needed to complete the development so admirably begun. If he comes with nothing but his hands, there is plenty of labor to keep him employed; if he can bring some money to purchase a small holding for

himself, there is land to be had at a low figure, on easy terms, with all the water he needs brought to him in an irrigating ditch; and he finds, for his encouragement, all about him the well cultivated acres of successful and prosperous farmers. If he comes as a capitalist, there is ample opportunity in mercantile lines, in manufacturing, in the development and application of power in the mountain water-courses, in mining, in lumbering, and in countless other ways. All are welcome, for the valley is large, and there is much to be done.



BRIDAL VEIL FALLS, YOSEMITE VALLEY.

The first essential in the up-building of a country is that it should have the soil, climate and location that are available for that purpose, and the second is that it should have transportation facilities. Owing partly to the fact that it lies on the main highway from the Eastern States to the Pacific Coast, and partly to its extraordinary fertility and productiveness, the San Joaquin Valley is probably better supplied with railways than any other section of the Union where the population is scattered over an equal amount of territory. Two main lines

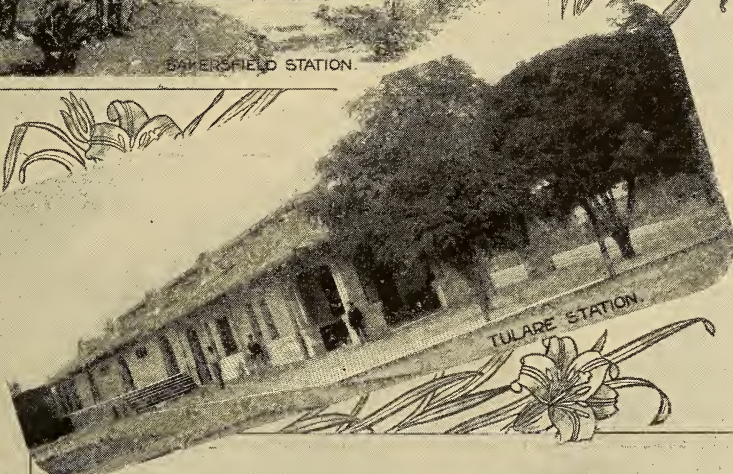
run the entire length of the valley, the overland routes of the Santa Fe and the Southern Pacific. In addition to these are numerous parallel branch lines and cross lines, three, four and five abreast, through the greater part of the valley. The total railway mileage of the district is 1200 miles.

The Santa Fe Railway, whose direct line from Chicago to San Francisco passes through the whole length of the valley, publishes this pamphlet with the view of disseminating through the East a wider knowledge of this remarkable piece of country. This company came into existence in the State of Kansas as the Atchison and Topeka Railway, in 1859, and was extended to Santa Fe in 1880. In 1880 it began to push through to the Pacific Coast, and a few years later was in possession of a transcontinental system with a number of important feeders in Southern California. The line from Chicago to Kansas City was opened in 1888, and a through passenger service began between the former city and Los Angeles and San Diego.

In 1895 the people of San Francisco and the San Joaquin Valley began the construction of a railroad from Stockton to Bakersfield, to which was presently added a line by way of Visalia and Tulare. This was known as the Valley Road. It was acquired by the Santa Fe Company by purchase in 1898, and a connection from Stockton to San Francisco was completed and opened for business in May, 1900. By this purchase the Santa Fe acquired what was needed to make its Pacific Coast system complete, viz., a through line from Chicago to San Francisco. Trains for the latter city leave the old line at Barstow, cross to Mojave, and proceed thence northward through Bakersfield, Fresno and Stockton, thence westward to Port Richmond, where a short ferry line completes the distance. It is an admirably equipped route, both for passenger and freight service, and in point of mileage and volume of business transacted, this is one of the greatest railway systems in the country. In the State of California it has 1200 miles of track. Its route in the valley lies through the richest and most productive sections and the most prosperous towns. While the purpose of this pamphlet is to describe the country rather than the road that traverses it, this much of introduction seemed to be required in order that the reader might understand on whose authority the statements made in this book depend.



BAKERSFIELD STATION.



TULARE STATION.



VISALIA STATION.

SANTA FE STATIONS IN THE VALLEY.



SANTA FE STATIONS IN THE VALLEY.

CHAPTER II.

GENERAL DESCRIPTION OF THE VALLEY: ITS TOPOGRAPHY, COUNTY DIVISIONS AND CLIMATE.

THE geography of the San Joaquin Valley is simple, and may be quickly learned. It is an oval-shaped piece of territory, about twice and a half times as long as it is broad, and it extends in a northwest and southeast direction through the center of the State. Measured from north to south it is almost exactly in the center of California ; that is, the distance from the southern boundary of the valley to Lower California just equals the distance from the northern boundary of the valley to the Oregon line ; but as the San Joaquin river lies somewhat nearer to the ocean than to the Nevada boundary, the valley is not exactly in the center of the State, on an east and west measuring.

The northern end of the valley—which is the lower end, if we reckon by drainage—consists of seven counties lying side by side along a division line that marks the center of the whole district. These are : San Joaquin, Stanislaus and Merced to the west ; and Amador, Calaveras, Tuolumne and Mariposa to the east. Next on the south comes the huge county of Fresno, which runs clear across the valley, from the Coast Range to the Sierras, out of which a piece has been cut on the northeast to make the county of Madera. Below Fresno lie the two counties of Kings and Tulare, side by side. The great county of Kern extends clear across the southern end of the valley.

The San Joaquin river does not run through the center of the valley, but lies about midway between the central line and the western boundary. Thus the eastern section of the valley is about twice as extensive as the western section. But since fully one-half of the western section is taken up with mountains, the greater part of the arable portion of the valley will be found in a strip about thirty miles wide on each side of the river, or sixty miles in total width. This runs the entire length of the valley, and is practically all good farming land. In some few places alkali appears, which limits its use for agricultural purposes, but such districts are very small in extent, when

viewed against the great expanse of the whole valley. There are perhaps 15,000 square miles of territory, out of the 32,500 of the entire valley, that are available for agriculture. The counties of Amador, Calaveras, Tuolumne and Mariposa contain a large proportion of mountain land. About one-third of each of the counties of Fresno, Madera and Tulare is covered with the Sierras, and each of the remaining counties contain some mountain sections. A small portion of the county of Kern projects over into the Mojave desert.

The general level of the interior section of the valley is only a few hundred feet above the sea, and it is, for the most part, a smooth and even plain, until the mountains are approached, where it is broken by foothills. The gradual rise of the Sierras, and their enormous height, make the eastern side of the valley one of the most perfect water-sheds to be found in any country, a water-shed that is particularly adapted for the irrigation which the valley requires. The tributaries of the San Joaquin all flow into it from the east. The first of these, as we go up the valley, is the Stanislaus, which forms the dividing line between Calaveras and Tuolumne counties, and also between the counties of Stanislaus and San Joaquin. The next is the Tuolumne river, which rises in the county of that name, and joins the San Joaquin about twelve miles above the Stanislaus. The Merced, which rises in the Yosemite Valley, flows through the counties of Mariposa and Merced, and reaches the San Joaquin about twenty miles above the Tuolumne. Thirty-five miles further south, we come to the Fresno river, and just below this the San Joaquin bends to the east and northeast, and to follow it one must make his way up into the mountain country. In the center of Kings county, about fifty miles southeast of this turn in the San Joaquin river, there formerly lay a swampy body of water, about 20 miles in diameter, known as Tulare lake. A series of dry years, and some work of reclamation done in this vicinity have contracted the area of this lake, so that it has now practically ceased to exist. It was the sink into which the surplus waters of the Kings river, the Kaweah river and the Tule river, three large streams, having their origin in the Mt. Whitney country, and flowing through Tulare and Kings counties, formerly emptied.

With the growth of the irrigation interests in these counties, the water of the rivers has been used on the lands, and this has helped to cause the drying up of Tulare lake. At the point where the San Joaquin river bends to the east, a stream which is known as Kings River Slough takes its place, pursuing the same general direction to the northeast. In this way Tulare lake is connected with the San Joaquin, and the whole section brought into one water-shed—although it must be admitted that at the present time the connection is theoretical,



VEGETABLES BETWEEN THE TREES.

rather than real. Sixty miles south of Tulare lake, in Kern county, are Buena Vista and Kern lakes, into which the Kern river is supposed to flow ; and these are connected with Tulare lake, although the latter, like some other portions of this system is decidedly dry at the present writing.

The San Joaquin river is at all times navigable to Stockton, and a large part of that city's commercial prosperity is due to this fact. In seasons of ordinary rainfall, flat-bottom boats can get up as far as Hill's Ferry, 90 miles from Stockton. In

years when the rains were unusually heavy, navigation was attempted with fair success to Fresno county, and even further south. Gen. N. P. Chipman, in a report to the State Board of Trade, declares that "canal navigation south through the San Joaquin Valley and through Tulare lake as far as Bakersfield is by no means a dream, but may come with increase of business and population."

While the climate of the level sections of the valley is not quite so near perfection as that of the coast regions and of Southern California, which is more often prescribed for invalids, it is nevertheless superior, both for health and comfort, to the climate of the Eastern States. There is no snow in winter time, and if ice appears at all, it is only at rare intervals and in the form of a thin sheet early in the morning, or small icicles that melt when the sun comes up. There are portions of the valley that are entirely frostless, and in these citrus fruits and trees and plants of the more delicate sort are raised. Through most of the valley, frosts in the winter and early spring are to be expected. These sometimes occur late enough in the season to effect some portions of the fruit crop, but losses on this account are by no means so common as in Eastern fruit-growing States, nor are they more common than in other parts of California.

The summers in the valley are at times decidedly warm, if one chooses to measure them by the thermometer only, but owing to the fact that there is no rainfall during those months, and the air is entirely free from humidity, very little discomfort is experienced. It seems incredible, but it is a fact to which hundreds of thousands of people who have experienced the summer heat of the valley can testify, that a temperature of 105°, to which mercury occasionally attains, is by no means so trying as 85° would be in an Eastern city. The heat is only superficial in its effect upon the person; it does not enter the system and debilitate it. One proof of this lies in the fact that men can work all day long in the hot sun of the harvest field and experience no evil effects—no heat prostration. The sun-stroke is unknown in the San Joaquin Valley. Residents talk of the heat and make jokes about it, but they are never heard to complain of it as a really serious matter.

The greater part of the central and southern area of the valley has a very light rainfall, averaging under ten inches a year. The outer edges, which lie near the mountains, and the northern end, which is near the bay of San Francisco, have a heavier fall, varying from ten to twenty inches per annum. In the mountains the rainfall increases rapidly as the higher levels are attained. On the summits it is from forty to eighty inches a year, and the snow never entirely melts. These mountains are heavily wooded in the levels between 5,000 and 10,000 feet, whence it happens that the snow melts gradually,



A FIG TREE.

and the streams are kept constantly full. Abundant water is thus provided for irrigation ; and a region, which, by reason of its limited rainfall, might otherwise have been a desert, is brought to a high degree of cultivation.

It is estimated that there are 10,000,000 acres of good agricultural land in the San Joaquin Valley. This would make 250,000 tracts of forty acres each, which is a desirable size for fruit, dairy, or general farming. Assuming that each tract would take care of five people, this would allow for a population on

the farms of a million and a quarter. The work of transporting the products of the ranches, and of merchandising and of local manufacturing would call for a population in city and town almost if not quite as large as that in the country districts, and lumbering and mining would add their quota. It is not unreasonable to suppose that the valley, when it is well settled up, and its resources thoroughly developed, will contain over two and a half millions of people; and this in a district that now has scarcely two hundred thousand. It is a beautiful and wonderful change to contemplate, though it will simply mean the continuing on a larger scale of the changes of the past thirty years. At first a stock range, then a wheat farm, and lastly a well watered, carefully cultivated fruit ranch is the story of hundreds of thousands of acres that have already achieved their destiny of full productiveness, and it will be the story of millions more. As the population of the world increases, and the demand for the comforts and luxuries of life become more general, the soil must be made to yield all that it holds; and in the general forward march this great and fertile valley will not be overlooked.



A ROSE-COVERED COTTAGE.

CHAPTER III.

PRODUCTIONS OF THE SAN JOAQUIN VALLEY. OUTLINE OF ITS INDUSTRIAL DEVELOPMENT.

IN considering the industrial side of the San Joaquin Valley, as in the matter of its climate, a distinction must be made between the level and the mountainous section. The level portions of the valley are essentially an agricultural country, whereas but little agriculture is practiced in the mountains. Here and there an interior valley may present a few square miles of arable land, but the extreme difficulty of getting the products out to market forbids agriculture, unless it be for the benefit of some mining camp in the vicinity.

The industries of the mountains are chiefly lumbering and mining, although the development of electric power from the water may perhaps be included. There are 15,000,000 acres of timber land in the State of California, of which about 20 per cent is located in the San Joaquin Valley. The principal lumber trees of this district are the sugar pine and the yellow pine. The latter very much resembles the white pine of the Eastern States, and both are woods that finish well, and are available for building purposes. Spruce is used for heavy construction timbers, having great strength and tenacity. White fir is used for boxes, and for purposes of light construction. Along the lower valleys, some varieties of hard woods are found, such as oak, maple, ash, buckeye and some others. Much of the lumber cut in the mountains is floated down in long flumes to the mills in the railway towns, where it is worked.

The mineral products of the valley aggregate about seven million dollars in value per annum. The great part of this is gold, and the three mountain counties of Amador, Tuolumne and Calaveras yield over a million dollars each of this precious substance every year. It is only a question of time, however, when the petroleum product of the valley will surpass the gold in value. Although the presence of petroleum in paying quantities in several counties of the State has been known for many years, the development did not begin in earnest until 1898. In

the western section of the San Joaquin Valley, that is, between the San Joaquin river line and the Coast Range, a great oil belt is found to exist. Oil mining towns have sprung up in half a dozen places, and fortunes are made with amazing rapidity. Within the next few years the story of Pennsylvania is likely to be repeated on the Pacific Coast.

Other minerals of importance in the valley are silver, antimony (which is produced exclusively in Kern county), coal, granite, marble, copper, asphaltum, gypsum, mineral paint and natural gas, the latter in San Joaquin county.

The level sections of the valley offer conditions that are almost ideal for the pursuit of agriculture. There is the variety which one has learned to expect in California. There are soils of all kinds, and the climate, as has been said, differs somewhat in the various sections of the valley. From this results the great variety of products ; for the conditions that will admit of one form of agriculture may not be favorable to another. Nearly everywhere there is good soil and abundant water, and a climate which, in combination with these, makes things grow like magic. Very little of the level land is useless, even at the present time, and when the irrigation systems of the valley are further developed, which they will be as the need appears, almost every acre is likely to be brought to a high state of cultivation.

In the beginning of its industrial history the San Joaquin Valley was a huge cattle ranch. Natural grasses grew over the plains in years of normal rainfall. On this herds of sheep, cows and horses subsisted. The railway came down into the valley in the early seventies, and by 1877 was through to Los Angeles and East. Then began the era of wheat farming, and it was necessary for the legislature of the State to pass a law requiring the cattlemen to keep their stock within bounds, so that the wheat-growers could pursue their line of industry unmolested. At that time the land through the valley was cut up into large tracts of from 20,000 to 100,000 acres in extent. Many of these tracts still remain, and on these wheat farming is now conducted on an enormous scale.

For a time California was the greatest wheat-growing State in the Union—it is still one of the greatest. In 1890 it pro-

duced a million and a quarter tons of wheat, nearly all of which was grown in the Sacramento and San Joaquin Valleys. But wheat farming is not intensive farming, and hence is not so well adapted to individual efforts as other lines. On great ranches, where large gangs of men are employed, and the latest types of machinery used, the business can be conducted each year with fair profit, but the possessor of a small farm who relies upon wheat alone is not likely to do as well as the man who raises fruit trees or who goes in for general farming. This seems to be the case in California to a greater extent than



THE COMBINED HARVESTER.

in the Middle West ; not that wheat farming is more difficult or less profitable here—a comparison of crops showing the contrary—but that there are in California so many other lines to which the farmer may easily devote himself. Thus by a natural process the smaller wheat farms were gradually planted to fruit trees, alfalfa, vines or vegetables of various kinds, and the third or present stage of the development of the valley began.

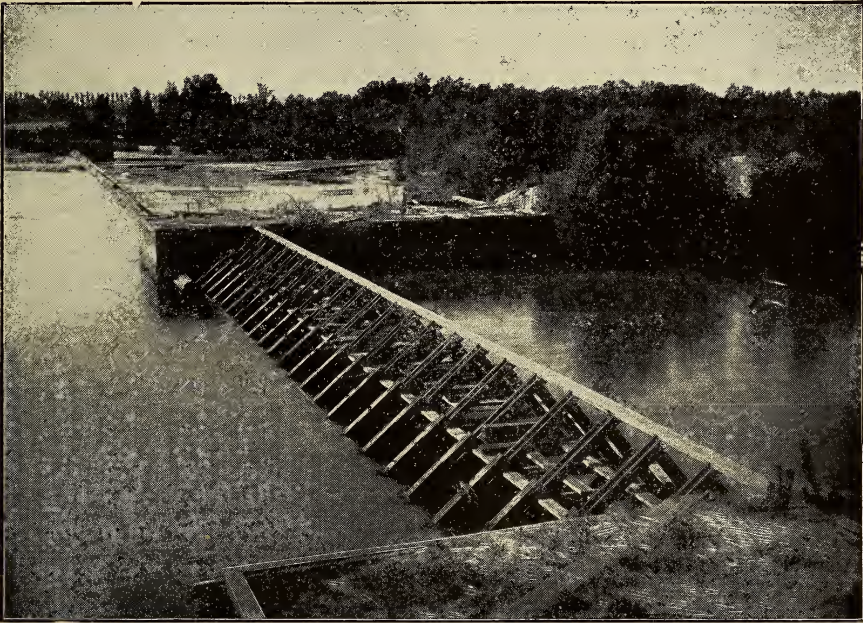
But this present stage would not have been possible without

irrigation. In the beginning irrigation was never practiced for wheat farming, and it is not practiced now to any great extent. Land that must be irrigated to grow wheat will not pay interest on its value in that commodity. If a ditch had been constructed and water conveyed to the land, some more intensive form of agriculture should be practiced. The beginnings of fruit culture, and of other forms of agriculture than wheat farming, took place on the lands near the rivers, where the soil was rich and water easily obtainable. Presently the owners of the large tracts, who were desirous of selling off some of their holdings, found it profitable to construct headworks, or diverting dams above the property, and carry the water down in large canals, which were then tapped by laterals, and the water conducted all over the land. For the last twenty years this work has been in progress, until now the entire San Joaquin Valley from Stockton to Bakersfield is a wonderful network of main and lateral canals, carrying water to millions of acres, and equipping them for the highest forms of agriculture.

The Eastern farmer, who fears a drouth as he does nothing else except the grasshoppers or a cyclone, is aghast at the idea of trying to grow crops where not as much rain falls in the whole year as he is accustomed to see fall in a single spring shower; but when he comes to the San Joaquin Valley, and sees the great quantity of water that rolls down from the Sierras, and is led in gentle, even streams across the plains to the edge of each farm, and when he learns how, at a trifling expense of money and labor, the precious fluid is applied just at the proper time and at the right place, and when he beholds the marvelous results that follow, in the size and excellence of the crops, he appreciates the force of the motto of the irrigationist, "Science, not chance." To have the rain come and go at his will; to say "let the land be wet," and it is wet; or "let it be dry," and it is dry; this is ideal farming. And when he learns, in addition to all this, that the water, although pure and odorless, carries so much silt in solution that it constantly enriches the land, and to a considerable extent relieves the necessity of fertilizing, he is likely to declare that it is entirely too good to be true. But a careful study of the condi-

tions as they exist in the valley will show him that it is all substantial fact.

Some of the most notable of the irrigation enterprises of the valley have been achieved by the farmers themselves, under the Wright Irrigation Law. An irrigation district is established by vote of the electors, and when a satisfactory project has been devised, bonds are voted, and with the funds thus raised the work is done. The land in the district pays a tax sufficient to meet the interest and provide a sinking fund, and the users of the water pay a small fee to cover cost of mainte-



DIVERTING WATER FROM KERN RIVER.

nance. This system has worked well in some places, and very badly in others, depending largely upon the wisdom shown by the people in the work attempted, and the business skill with which it was carried through. Recent decisions on the legality of this method has so affected the value of the securities that it is no longer practiced. A similar coöperative advantage is secured where a number of land-owners form a water company, each taking stock according to his acreage. If portions of the land are sold, the proportionate shares of stock go with it.

Under these conditions it is not easy to estimate just what the farmer pays for his water. As a rule, when he buys the land he buys a water-right with it, included in the original purchase price. This may be in the form of water stock, or it may be included in his deed, or it may be that the right comes to him through his location in an irrigation district, in which case he pays for his water in annual taxes. The actual maintenance expense is never large, as it merely covers the employment of a ditch-tender for the system and a little occasional work on the canals. It averages from \$1 to \$2 per acre per year. In many cases it is under \$1. The cost of bringing water to the land—the construction of waterworks, main and lateral canals, etc.—which appears in the original cost of the land, or in subsequent taxation, varies, of course, with different localities; and there is also some variation in the area which a given amount of water will irrigate. One system, for example, built under the Wright Irrigation Law, cost \$1,200,000, and will irrigate 375,000 acres plentifully, or 500,000 fairly well. Another a coöperative stock company, irrigates 150,000 acres, and cost \$2,000,000. Another, a private enterprise, irrigates 100,000 acres, and cost \$4,000,000.

But all figures of irrigation expense in the valley are more or less vague, for the reason that what is technically known as the "duty of water," viz., the amount of agricultural work that a given quantity of water will perform, is an uncertain factor in the problem. As a rule the people of the valley want more water than they really need. Its abundance leads them to be profligate. In Southern California and Arizona, where water is scarce, people are well satisfied with an inch to ten acres, but in the San Joaquin Valley one inch is generally allowed for every five acres. It is a general rule in irrigation farming that frequent cultivation will not only save the necessity of water, but it will also greatly improve the resulting crop. Much depends, however, upon the character of the product to be raised on the land. Alfalfa, for instance, requires four times as much water as deciduous fruit. The character of the soil is also to be considered, and the general location. In some regions there is a natural sub-irrigation that takes the place, to some extent, of water turned on the surface.

Roughly speaking, the San Joaquin Valley can grow just about everything that can be grown anywhere in the United States, including half a dozen things that cannot be successfully produced outside of California. But not everything that can be grown successfully is actually produced in commercial quantities, that is to say, for purposes of export. Cotton and tobacco, for example, can be grown in the San Joaquin Valley, but neither is grown in any considerable quantity, for the reason that other things have been found more profitable. A distinction must be made, too, between things that are grown



HOW PUMPKINS GROW.

in commercial quantities, but only for local use, and those grown for export. While figures are obtainable on export articles, a great amount of production of an agricultural country is for home consumption, of which no record is kept, but which contributes to the comfort, and in some sense to the wealth of the region.

Although a large part of the acreage formerly devoted to grain has been taken for fruit and vines, the wheat crop of the valley is still an enormous factor of its agriculture. The aver-

age crop of the State, when there is a normal rainfall, is three-quarters of a million tons, of which forty per cent is made into flour within the State. Of this the San Joaquin country produces about one-half. The greater part of this is grown on great ranches of from 10,000 to 100,000 in extent, and the work is done on a wholesale scale. The crop is harvested by a combined harvester, operated by four men and about thirty horses. It passes rapidly through the wheat-field, leaving behind it sacks of grain, heaped in piles, all ready for shipment. The expense is only about a dollar an acre. The yield varies greatly, depending upon whether the soil has been put in use year after year, or is allowed to lie fallow. The average yield of the entire State, good and bad together, is twelve bushels to the acre. The average in the San Joaquin is somewhat higher, and in many places, in good years, runs from 20 to 30 and even 40 bushels to the acre. This crop affords employment to a great number of men in the plowing and harvesting season, and the great ranches keep a large contingent at work by the year. About one-third of the wheat produced in the valley is milled at Stockton and other valley towns.

Other grains produced in the valley, on a smaller scale, are barley, rye, oats and corn. The latter is grown on irrigated land to be fed to hogs. It attains great size and bears heavily.

The chief forage plant of the valley is alfalfa, of which tens of thousands of acres are grown. It can be raised only on irrigated or excessively moist land, and it can be cut four or five times a year on the average, if it is to be used for hay; or, if it is to be used for pasturage, it will support from one to three cows to the acre. Other forms of hay are also grown (not timothy, however), the favorite being barley, which is fed dry with the heads on to the cattle during winter. An Eastern farmer would not attempt to feed his stock on straw, but the California barley straw contains succulent qualities that make it an admirable forage plant.

The stock and dairy interests of the valley are beginning to assume considerable proportions. These are pursuits to which the region is admirably adapted, by reason of the abundance of water, the evenness of the climate, the fertility of the soil, and the completeness of the railway facilities. Creameries

have been established in a number of cities, and skimming stations are to be found wherever stock is raised in any quantity. Sheep are seen occasionally in the valley. A quantity of honey is produced. The Belgian Hare industry rages here as it does in other parts of the State. Poultry is raised chiefly for home consumption, and in fact scarcely enough for that.

The horticultural and viticultural interests of the valley are large, and are continually increasing. The deciduous fruit trees are chiefly apricot, peach, prune and plum. These fruits are shipped green, or dried or packed, or are canned. Most of



THE BUSY BEE.

the larger towns have canneries. Arrangements for packing, on a large scale, will be found near to every group of orchards. This line of industry provides employment at good pay for the women and children of the neighborhood. The fruit trees are irrigated once or twice a year. In good years, when the crop is large, and the market in a natural, undisturbed condition, the profits are fine, but there comes occasionally years of a different sort. The average, however, to the man who has good land to begin with, plenty of water (but let him beware lest he

use too much), and the right varieties of trees, and who gives his attention to the business, as all men must who achieve success in any line—to such a man the average returns from 20 to 40 acres of fruit ought to mean home comfort, freedom from debt, and a good bank account. If he fail to achieve these, he is an exception among the thousands of fruit farmers of the San Joaquin Valley.

There is a citrus belt of considerable magnitude in the San Joaquin Valley. Orange and lemon trees may be grown almost everywhere in the level sections, but they are a commercial proposition only in a limited district of Tulare county, where nearly 5,000 acres are now in citrus groves. They ripen earlier than the Southern California product, and are a favorite in the Eastern market.

The railroad figures show that 1300 carloads of green deciduous fruit are shipped East from the valley annually, 1940 carloads of dried deciduous fruit, 303 carloads of canned goods, and 350 carloads of oranges.

The San Joaquin Valley produces nearly all the raisins used in the United States, the annual product running to about 4,000 carloads. All but a very few of these are grown in Fresno county. Under present conditions, when the crop is intelligently handled and is marketed through an association, the returns are excellent. The average gross receipts to the growers during the past two years have been \$100 an acre a year. While it has not always been so high in the past, and may not always be in the future, there is no doubt that it is naturally one of the most profitable and safest lines of agriculture to be found in California.

There were 260 carloads of nuts shipped out of the valley last year, chiefly almonds and walnuts. Two hundred and fifty carloads of vegetables are noted as passing through Stockton from the valley on their way to the East, but as one item, that of sweet potatoes from Merced, would absorb almost the whole of that figure, this will serve as an illustration of the fact that local consumption must be reckoned with to calculate total production. San Francisco is a large consumer of the products of the valley. The small fruits, berries of all kinds, are grown with profit, as well as a variety of fruits less

important in matter of quantity than the apricot, peach and prune, such as, for example, the apple, which does excellently in the foothills, the fig, the olive, the pear, the nectarine and the quince. Table grapes are grown in commercial quantities; wine grapes occupy thousands of acres, and there are many large wineries. Buhach, or insect powder, is grown and manufactured, and hops are raised. Sugar beets are grown, although no factory exists as yet in the valley. Indeed the list of things that are grown in paying quantities, but on a small scale, might be stretched out to an indefinite length, for, as the re-



SIX-YEAR-OLD APRICOT TREES.

gion possesses all the essential elements that go to make perfect agriculture, the results are there to be seen in a hundred forms of success.



DRYING PEACHES.



GOING TO WORK.

CHAPTER IV.

KERN COUNTY AND THE CITY OF BAKERSFIELD.

THE County of Kern lies at the upper or southern end of the San Joaquin Valley. It is the largest of all the counties in this region, measuring 8,159 square miles, or 5,221,760 acres. About one-third of this area is either desert or mountainous, and about one-third, lying on the western side of the valley, is beyond the reach of present water development, and hence not valuable for agricultural purposes. The southeastern corner of the county projects over into the Mojave desert, a portion of which may sometime be converted to agricultural uses.

There are unmistakable indications of petroleum in the desert, and some discoveries of coal of unknown value have also been made. That portion of the Sierra Nevada range lying within the boundaries of Kern county are well timbered and have an abundance of game, affording fine hunting and fishing during the summer months. There are also valuable mineral deposits found in various localities, such as gold, silver and antimony. There are groups of low mountains and hills in the Mojave desert, in which are located several valuable mineral deposits—both placer and quartz—as at Randsburg, Garlock and Goler.

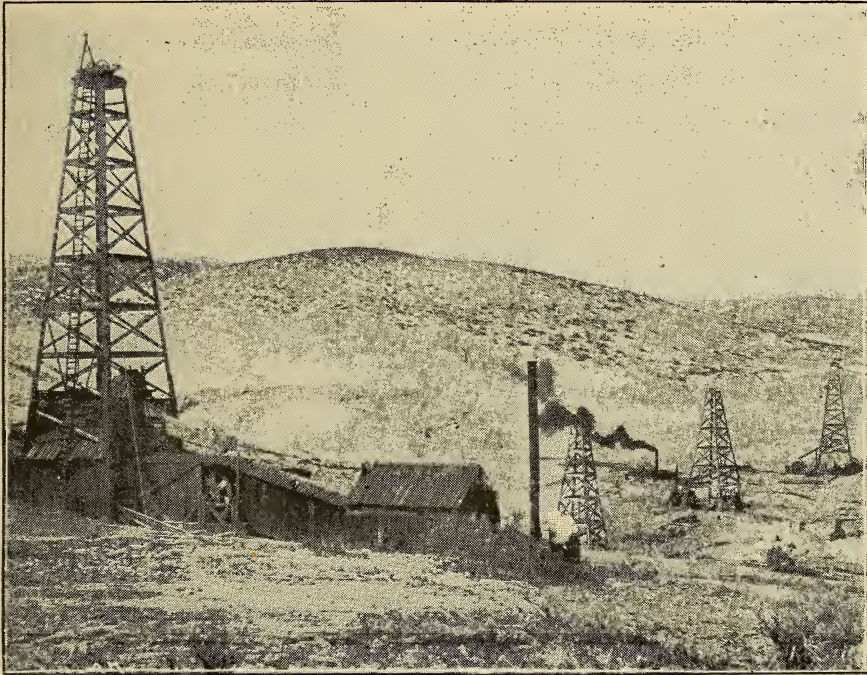
In point of mineral production, Kern ranks eighth among the counties of the State, and with the rapid growth of the petroleum development, it is likely soon to advance several points in the list. The famous Randsburg district of gold mines lies just on the border of this county and San Bernardino. It is reached by a branch line of railway, 26 miles long, running north from the station of Kramer on the Santa Fe system. Gold mines of considerable value are found at Garlock, and at other points in the county. Kern alone, of all the counties in the State, produces antimony. It has vast fields of gypsum. Copper, sulphur, borax, limestone and coal are also found.

It will not be long before the annual production of petroleum in Kern county will reach the million dollar mark. While the

presence of oil and asphalt deposits in the region has long been known, it is only within the last three years that mining for these products has been carried on in earnest. There are three principal districts in the county : one at Sunset, or Hazelton, which is about forty miles southwest from Bakersfield, a second at McKittrick, fifty miles west of Bakersfield, and the third on the Kern river immediately adjoining the city. All of these districts are successful, as are also others of smaller magnitude ; every day sees new wells go down, practically all of which strike oil at no very great depth. This new development has come so suddenly, that it is impossible to present definite figures upon it, which will last to the printing, but it has given a great impetus to all forms of commercial activity in the city of Bakersfield, and has greatly increased its population. The prosperity which it brings is, however, of a substantial and permanent order. The work calls, and will continue to call, for the services of great numbers of men. The wells are owned by Californians, and many are held by people who reside in Kern county, so that the money earned will be spent at home. There is demand in California for ten times the oil now produced in the State, and with the manufacturing enterprises that the new cheap fuel will render possible, the demand will double and double again. It can be exported to a profit all over the Pacific Coast. This oil is exceptionally valuable, both for burning and for paving purposes. The fortunes that have already been made are astonishing, and yet this is merely a beginning. On the other hand, the fact must be recorded that many people of small means, who are putting money into oil schemes gotten up by inexperienced and irresponsible men, are likely to suffer loss.

The presence of cheap fuel means a greater manufacturing development for Bakersfield, which is now the leading city of the southern end of the valley. It is already supplied with electric power, which is generated in the mountains by the fall of the Kern river. The oil business calls for foundries and machine-shops and wagon-shops ; and the long distance that stretches out between Bakersfield and the nearest large city will always tend to throw it upon its own resources in manufacturing lines.

But while it is the oil development that chances for the time to attract special attention to Kern county, the story of its prosperity has many chapters previous to that, for it is primarily an agricultural country. There are a million and a half acres of good land tributary to Bakersfield. If not more than half of it were brought under cultivation it would support a population of several hundred thousand. An enormous volume of water flows down the mountains into the Kern river, and a splendid irrigation system conveys this over a great area of farming land. No county in the State has a more



IN THE MC KITTRICK OIL FIELDS.

complete system ; it includes 300 miles of main, and 1500 miles of lateral canals. The water when distributed is sufficient to irrigate about 200,000 acres. When that area is all under cultivation, more water can be developed. In fact, the quantity available is practically unlimited, as Kern county has an underflow easily reached by wells, and brought to the surface at small expense by pumps run with electric power. The huge canals of the Kern County Land Company, averaging forty feet in width at the bottom, one of them thirty miles long

measuring 125 feet wide, not only supply all the moisture that is needed, but enrich the land as well, for they carry natural fertilizers in solution, so that land that is irrigated needs, as a rule, no artificial resuscitation.

This is ideal country for alfalfa, which yields six to eight crops a year, and which will grow continuously, without re-seeding for fifteen years. It will maintain two cows to the acre. The climate is so mild that cattle can be kept out of doors all the time, and by breeding at the right season can be made to give plenty of milk at the time of year when butter is the highest.

The assessment roll of Kern county, which shows \$14,000,000 of property, gives the number of cattle as 65,000, hogs 25,000, sheep and lambs 1,000,000, and Angora goats 90,000. Hogs are raised on alfalfa and fattened on corn, the latter growing to a great height and bearing heavily under irrigation.

The soil of Kern county is especially adapted to growing deciduous fruits ; and apricots, peaches, pears, plums and prunes are grown to perfection. At the World's Fair in Chicago, and at many other places, the exhibit presented by the Kern County Land Company, a corporation of San Francisco and Bakersfield capitalists who have done a great deal toward the developing of this region, attracted wide attention for its beauty and excellence. A little of this fruit is shipped green ; most of it is dried or canned.

The population of Kern county, as given by the latest published figures, is 16,000 people, of which number Bakersfield contains nearly one-half. This is a light population for the farming districts, compared with the number that could easily be supported on such fertile, well watered soil. A tract of forty acres set to fruit or alfalfa, or used for general farming, will maintain a family of five in comfort. There are many thousand such tracts now on the market at reasonable figures, waiting to be taken up by farmers who know how to put them to good use.

Bakersfield is located in the center of Kern county. It was laid out in 1870 by Col. Thomas Baker. When the Southern Pacific came down the valley in 1873, it fixed its station at Kern City (then called Sumner), a new town which it undertook

to establish three miles from Bakersfield. But the latter place held its ground and declined to be moved. It is today a genuine city, with miles of cement sidewalk, and considerable area of paved streets, a sewer system, street-car lines, etc. For a long time it was held back by the unwillingness of the conservative element that it should incorporate as a city. Until a few years ago it was merely a district in the county, and it achieved an unpleasant fame for gambling and other forms of lawlessness. Now it contains many beautiful homes, and is in favor as a residence city.



STACKING ALFALFA.

There are many blocks of first-class business buildings in Bakersfield, and it is to be questioned whether any city on the Pacific Coast can show, at the present time, an equal amount of improvement under way, in proportion to its population.

The educational system of Kern county is very complete, and that of Bakersfield is especially creditable. Several beautiful school buildings are to be seen as evidence of the consideration

which the work of educating the young receives in that region. Few of the smaller cities of the United States are as fortunate as Bakersfield in the matter of a public library. A strikingly beautiful edifice has been erected by Mrs. Beale, in memory of her husband, Gen. E. F. Beale, one of the famous pioneers of Kern county. The status of woman in the community is shown by the presence of a Woman's Club building, a very creditable brick structure, built and owned by the women themselves.

Bakersfield is the natural center for all railway development in that section of the valley. The main line of the Southern Pacific enters the city from the northwest, and passes out to the southeast. Over this line, from Mojave, come the west-bound transcontinental trains of the Santa Fe. A branch line of the Southern Pacific runs due west to McKittrick, and another is in process of construction to the Sunset oil district. At Bakersfield the valley division of the Santa Fe has its terminus, passing out to the north to Corcoran Junction, where it divides, one line going straight ahead to Fresno, and the other diverging by way of Visalia. The Santa Fe has a handsome station in the city of Bakersfield, built in old Mission style, and surrounded by a little park.

There is nowhere to be found in the State of California a city that gives better promise of a steady and rapid acquirement of population and business than Bakersfield. The record of progress during the last three years is phenomenal, but thanks to oil and a great agricultural awakening, the record of the next three bids fair to make the past seem commonplace.



CHAPTER V.

TULARE COUNTY, CITIES OF VISALIA AND TULARE, THE CITRUS FRUIT DISTRICT. THE BIG TREES AND THE MOUNTAINS.

TULARE County lies directly north of Kern, an almost square piece of territory, containing 4,935 square miles, or 3,158,400 acres. As originally formed by legislative enactment in 1852, it included, in addition to its present area, all of Kings and Inyo counties and a large part of Fresno. The plan was to take into one county all the territory in the watershed of Tulare lake, a district which was then called the Upper San Joaquin Valley. This included the country drained by the Kings River Slough, which connects Tulare lake with the San Joaquin river, the Kings river, the Kaweah river, the Tule river, and one or two other small streams that lose themselves in the sand before reaching the lake. The Kings river territory is now in Fresno county, and the western triangle of the original Tulare county was cut off in 1893 to form Kings county. In spite of this curtailment, Tulare is still one of the larger counties of the State, and is about the size of Connecticut.

It is a wonderful piece of country—wonderful for the height and beauty of its mountains, for the enormous groves of sequoias, for the extraordinary fertility of its soil, for the abundance of water that courses through it, for the variety of its products, and the prosperity of its people. It has scenery that many declare to be superior to the Yosemite. The highest mountains in the United States is on its eastern border. It contains almost the only successful citrus territory to be found in the San Joaquin Valley, where oranges are grown that equal the finest produced in Southern California. It was the earliest territory of this whole region to be settled up and devoted to agricultural purposes. In many other ways it is a unique and interesting portion of the great valley.

Almost one-half of the area of the county is taken up with mountains, and out of these flow a series of streams, the largest and most northern of which is the Kaweah. Soon after this

leaves the mountains, it spreads out into a number of channels, forming a fan-shaped delta about ten miles wide and 24 miles long. This was originally known as the "Four Creeks Country," from the four principal channels of the Kaweah river, and that name, which was used for all the surrounding territory, was in popular use for a long period of years.

The geological indications show that for hundreds of centuries the Kaweah river and its various channels wandered about this delta, and at times overflowed the whole country; and in this way the deep rich soil was made that now produces such wonderful fruit. By this continual flow all the alkali was washed out of the soil and carried down into the lake. It would be hard to imagine more favorable conditions for agriculture than are to be found here.

South of the Kaweah river the Tule river repeats the action of the Kaweah, forming a similar delta, although of smaller dimensions. Deer creek and White river are south of the Tule. The land slopes gradually to the south and west, at from seven to ten feet to the mile. To the east of these deltas lie the citrus fruit lands, which are entirely different in soil and climatic conditions from the bottom lands; they are warmer, the soil is not so rich, nor so thoroughly watered, and for these reasons they are especially adapted to the orange and lemon.

In spite of its great fertility, the Tulare country was never occupied by the Spaniards. Its first settlers were the Americans, who drove out the Indians in a series of bloody wars from 1850 to 1858. This fact has an important bearing on land titles in Tulare county, which go back to American government patent, without passing through any Spanish land grant, and hence are less liable to complications.

When the first permanent settlers came and undertook wheat-raising in the Kaweah delta, they found the cattle of the great stock-raisers already on the ground, and for many years agriculture was conducted under great difficulties. Even as late as 1870, Tulare county's production of cereals was not sufficient for its own consumption. With the coming of the railroad in the early 70's, agriculture began in earnest, and the stock man was slowly driven back, and the country fenced in. Tulare county is still one of the greatest stock-raising counties in the

State, but that line of business is no longer a menace to agriculture, but is a legitimate part of it. Under the plan of intensive farming that is possible with irrigation, forty cattle can now be maintained in a district that was formerly roamed over by one. They are grown rather for meat than for dairying, although the latter industry is increasing rapidly, and a number of skimming stations are to be found in the region. Not enough butter is produced even for the home market, which shows that an excellent opportunity is going to waste. The explanation of this particular state of affairs probably lies in the



DAIRY STOCK.

fact that the newcomers to the country have, for the most part, gone into the fruit business, which is profitable and satisfactory, and the older residents, who have been raising stock for many years under older methods, are not adapted by taste and experience to the dairy business.

The great glory of Tulare county is its deciduous fruit orchards, which lie all along the channels of the Kaweah and Tule rivers. The soil is a deep alluvial loam, rich in nitrates and in potash, and free from alkali. An analysis of this soil

shows that it contains the elements that the deciduous fruit tree needs, and is free from those that retard its growth or diminish its crop. Late frosts are rare ; the spring is warm and early ; and the heat of the summer, including the nights, which, while not uncomfortably warm, are free from the excessive chill they have in some other sections of California, gives the fruit a perfect richness and sweetness. While irrigation is generally practiced at least to the extent of giving the tree one good drenching a year, there are many ranches where the underflow is only six to twelve feet from the surface, rising even higher in the spring time, and there no artificial water is needed.

The cost of preparation of land and planting trees, allowing fifteen cents apiece for the price of the latter, amounts to about \$22.30 an acre of seventy-five trees. They come in bearing, on the average, in the fifth year. Four years care will cost about \$24 an acre for the period. Land suitable for deciduous fruit will cost from \$50 to \$75 an acre, depending on location. Putting the item of interest for this five years at a total of \$40 an acre, we have a total cost of the orchard, when it comes into bearing, of about \$160 an acre.

Now, when we come to consider the question of returns, if we take some well authenticated case of a single tree that bears over a thousand pounds of prunes per annum, and figure the fruit at a cent a pound, and then calculate seventy-five trees to the acre ; or narrate some other equally well proven instance of some man with five acres, who, by coaxing and petting some particularly fine variety, and packing the crop with extraordinary skill, and sells the whole on some lucky condition of the market for \$2,000, we shall merely illustrate the well known fact that, while figures may not be able to lie, the inferences drawn from them are sometimes the most dangerous kind of fiction ; but if, on the other hand, we take the whole area devoted to some variety of fruit, good and bad together, skillful cultivator and careless alike, and knowing the total crop from the railway shipments, and the price paid from the market returns of a whole season, and when we compare this with other seasons, find but little variation from year to year, then we know we are getting down to the real facts in the case.

A thorough canvas, made by the California Cured Fruit Association of the bearing prune area of Tulare county, shows that it is 2,800 acres. There were 14,200,000 pounds of cured prunes shipped from this district in the season of 1899, averaging over 3 cents, probably $3\frac{1}{2}$ cents a pound. At 3 cents, this would yield \$150 per acre gross, or deducting \$15 per acre for drying, \$10 per acre for interest, and \$12.50 per acre for care, we have a net of \$112.50 per acre.

Exact and complete figures are not so easily obtainable on peaches, but it is known that this fruit does, on the average,



LEMONS IN THE SAN JOAQUIN.

about as well as prunes. Numberless cases are quoted where the returns were from \$90 to \$110 per acre. Unlike the wheat business, fruit-growing cannot be carried on so successfully in large as in small tracts. It calls for the personal supervision of an owner. Yet there are two corporations in Tulare county that farm, each of them, 440 acres, and their profits, paid out as dividends, are known. The Visalia Fruit and Land Company is capitalized on a basis of \$200 per acre, and on that earned profits of $36\frac{1}{2}$ per cent last year (1899). The Encina Fruit Company, on a similar capitalization, paid $27\frac{1}{2}$ per cent.

The total shipment of deciduous fruit from Tulare county last year aggregated about 30,000,000 pounds. Of this more than half was dried fruit, largely prunes, and the remainder green or canned. In spite of a shortage of cans 5,000,000 pounds of fruit were shipped.

The picking, packing, drying and canning of this crop calls for the services of nearly four thousand people, mostly boys and women. It is the proper thing in Tulare county for everybody to take hold and work through the summer when the rush is on. Girls in the canneries and packing-houses make from 75 cents to \$1.75 per day, and boys, by whom most of the picking is done, earn from \$1.50 to \$2.50 per day. The work is not severe, and the terms are sufficient to greatly stimulate the bicycle and piano market by the end of the season, and to start a large crop of small bank-books.

The principal town and county seat of Tulare county is Visalia. It is the oldest city of San Joaquin Valley, founded in 1852 by the brothers Vice, for whom it was named. It is a thoroughly modern, well improved, prosperous little city, of about 3,500 people, with every prospect of continuous active growth in the future.

Visalia is exactly midway between San Francisco and Los Angeles, but it was not until 1897 that it was connected with the main lines of the railroad. When the Southern Pacific came into the valley in 1872, it left Visalia seven miles away. Instead of despairing and moving the town, as was done in many other similar cases through the valley, the Visalia people constructed a line of road to Goshen, and another to Tulare, and continued to be the mercantile center for the surrounding district. In 1897 the Valley Road, now the Santa Fe, built into Visalia, and it is now as well supplied with railway connections as any city could ask.

The principal streets of Visalia are paved with asphalt and lighted with electricity. It has a number of substantial public buildings, including a court-house and hospital and a high school that cost \$15,000. Its assessment roll includes about \$2,000,000 worth of property. It has three banks. The manufacturing interests include a flour-mill, planing-mill, foundry, machine-shops, granite-polishing plant, ice factory, bottling

works, electric-light plant, a fruit cannery, and four fruit-packing establishments. Electric power is supplied from a mountain water-course, and it may be expected presently to give considerable impetus to local manufacturing. There is an active Board of Trade, made up of progressive men who are ready to work for their city. The schools are excellent, and there are churches of all denominations, as well as all kinds of social organizations.

Tulare city is the second in point of size in Tulare county; it is about ten miles south of Visalia, and has a population of



PICKING OLIVES.

about 2,500. The main line of the Southern Pacific, and the Tulare-Visalia line of the Santa Fe pass through the city.

In the surrounding country great numbers of cattle, hogs and horses are raised, and there are flourishing orchards and broad wheat fields. It is well supplied with large and substantial brick buildings on broad, beautiful streets. The removal of the railroad shops, which were formerly located at Tulare, and some unfortunate litigation in which the city became involved, served for a time to retard its growth; but as it possesses the

fundamental elements of agricultural success, in climate, soil, and plenty of artesian water, it will, in the long run, hold its own with other places in the county.

The school system of Tulare city is exceptionally fine, graduates from its high school entering the State University without examination. There is a free public library, with some 2,500 well selected volumes, and a large reading-room.

Tulare possesses the largest pavilion for general meetings to be found anywhere in this region, and it is a favorite place for political rallies, and for horticultural and other shows. The town is active in an industrial way, containing a flour-mill, several grain warehouses, and many shops and good stores.

The citrus fruit belt of Tulare county lies about twenty miles east of Visalia, and includes a series of settlements or districts, chief of which are Lindsey, Exeter and Porterville. This land is practically frostless. Throughout the upper portion of the San Joaquin Valley, as the Sierras approach the plain, there intervenes a broad mesa, or table-land, averaging about 600 feet in elevation. This does not exist in Tulare county. Here the mountains rise directly from the plain. The cold air, which drifts down from the upper levels, is carried over this little strip of land, nestling close to the side of the mountain, and it thus escapes the frost.

The soil of this district is shown to contain exactly the elements that are needed for the growth of citrus trees. Freedom from fog gives it immunity from insect pests, which need moisture in the air to prosper. The long warm summer brings the fruit to maturity earlier in the season than is the case further south (where the nights are colder), and, as a result, the Tulare county fruit is put into the Eastern market in November and the first weeks in December, in ample time for the Christmas trade. This is a great practical advantage.

Most of this district has a plentiful supply of water in the form of an underflow—a natural reservoir at a depth of from 50 to 75 feet. It is raised by pumping. Formerly the pumps were operated by gasoline, but now they are supplied with electricity, which is to be had at a reasonable price. The ranch houses are lighted by electricity, and the cities of Visalia and Tulare and the towns of Exeter, Lindsey and Porterville are supplied from the same plant.

There are about 5,000 acres under cultivation in citrus fruits, of which only a small part is in full bearing. The product now averages about 700 carloads a year, and is rapidly increasing. The Porterville oranges have repeatedly carried off first prizes in the citrus fairs of the State when entered against the products of the best sections of Southern California.

Orange land may be had for from \$25 to \$100 per acre, the price depending upon whether the water is all ready for use, or must be developed by the purchaser. An orchard four years old begins to bear a little, and by that time it represents an



AN ALMOND ORCHARD.

investment of about \$300 an acre. The profits run from \$125 to \$200 an acre when it is in full bearing. It is a form of agriculture that may be characterized as "giltedged."

In the northwestern part of Tulare county, in the Alta district, a considerable acreage is devoted to raisins. These do quite as well in this county as in any other section of the San Joaquin Valley, although their cultivation has not been attempted on so extensive a scale as elsewhere. The vineyards in full bearing produce from a ton to a ton and a half to the

acre, and the returns, on years when the market is normal, average a round \$100 to the acre. Raisin land in this district may be had at from \$30 to \$50 an acre. By the time it comes into bearing it represents an outlay of \$80 an acre. Full bearing is attained in six or seven years.

About fifty miles northeast of Visalia is situated the Sequoia National Park, a reservation by the government of the largest grove of sequoia gigantea trees in existence anywhere in the world. The reservation contains about 250 square miles. There are more than 3,000 sequoias in this grove that measure over fifty feet in circumference and 300 feet in height. The General Sherman in this forest is said to be the largest tree in the world. Over 100 feet from its base it is 80 feet in circumference.

Last year Congress appropriated \$10,000 to extend a wagon road to Giant Forest, and this year an additional \$10,000 was appropriated. This money will be sufficient for the purpose, and the road will be completed early the present season. The county authorities keep that portion of the road not within the boundaries of the park in good order, and it will be one of the pleasantest rides from Visalia to the Big Trees to be found in California. It has cost \$35 for the round trip to the forest heretofore, three days allowed in the park; but now that a good wagon road will be ready for travel by July 1st of this year the cost will be considerably reduced.

Beyond the Sequoia Park to the northeast lies the famous mountain country of the Kings river and the Kern river cañons and Mount Whitney. The famous mountain writer, John Muir, declares that the scenic beauty of the Kings River Cañon surpasses that of the Yosemite. This view is shared by others who have seen both localities. It takes about three weeks time to visit the principal points in this beautiful region, including the ascent of Mount Whitney, which is the highest point of land in the United States, 15,084 feet above the level of the sea. Parties are fitted out with animals, guides and camping paraphernalia at Visalia, and the usual charge is \$3 a day for parties of less than six, or \$2.50 a day with larger numbers.

Kern River Cañon, which is often compared with the Yosem-

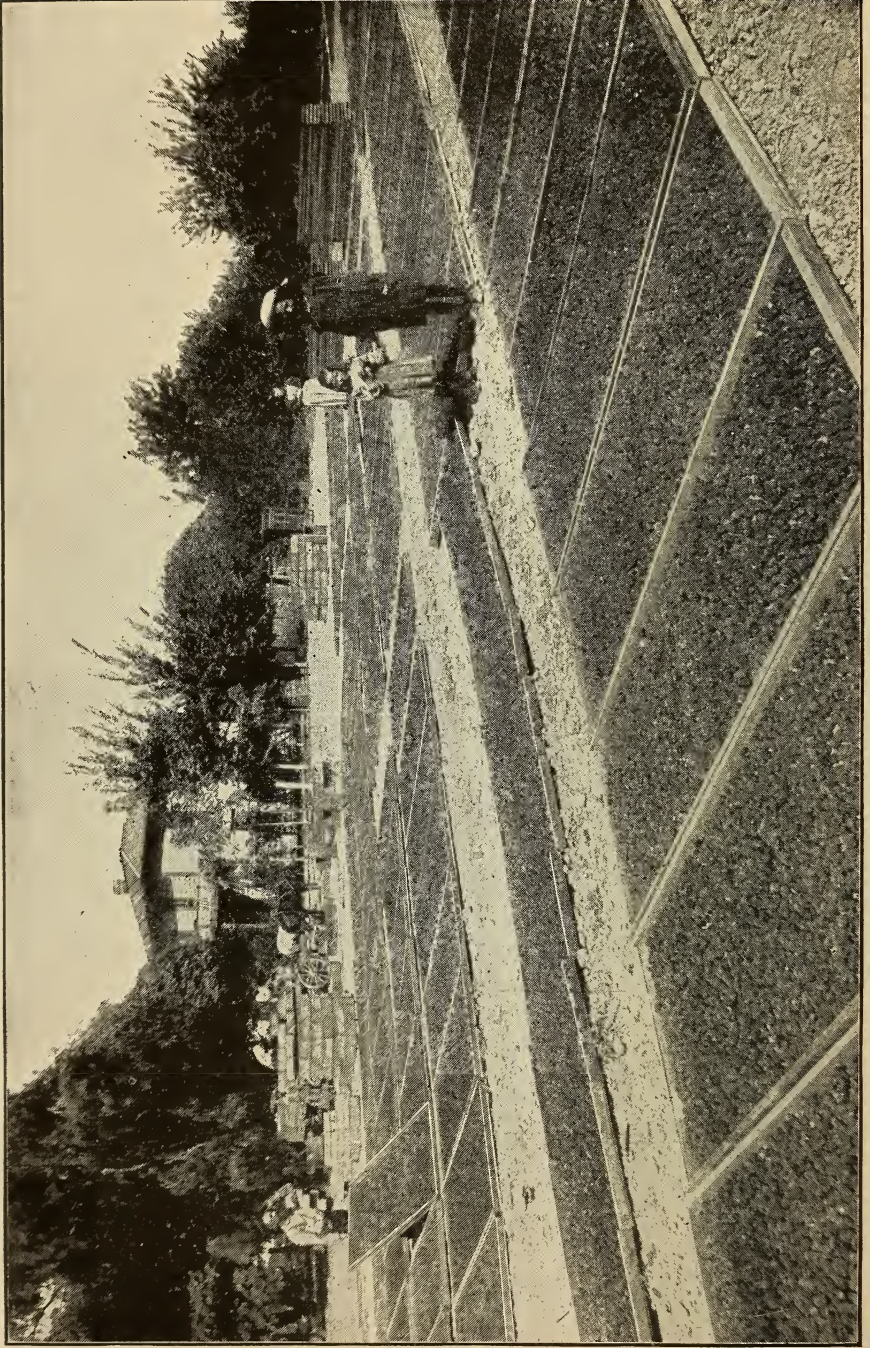
ite, is a gorge in the mountains, from 6,000 to 9,000 feet above sea-level, the sides of which rise almost sheer from 3,000 to 6,000 feet. There are many large and beautiful waterfalls, among them the Chagoopa Falls of 3,000 feet. There is excellent fishing in the stream, and golden trout, a fish which is to be had no other place in America, may be obtained in Golden Trout creek, a tributary of Kern river.

In spite of its great height, Mount Whitney is not difficult of ascent; the climb to the summit may be made in three hours. The view is probably the greatest and grandest to be found anywhere on the continent, extending for hundreds of



SEQUOIA GIGANTEA—GEN. SHERMAN.

miles in every direction, and dropping in an almost straight descent 11,000 feet. It is entirely feasible to build good wagon roads and easy trails all over this great park, and in course of time that work will undoubtedly be accomplished by the government.



DRYING PRUNES

CHAPTER VI.

KINGS COUNTY AND HANFORD.

KINGS County is the youngest member of the California sisterhood, having been severed from the old county of Tulare in 1893. It has an area of 1,267 square miles, or 810,880 acres. Of this area 612,522 acres are on the assessment roll, the total valuation of the county being \$7,500,000. Its population is about 10,000, of whom about one-third live in the chief town, the county seat, Hanford.

Practically the whole of Kings county is level land; the southwest corner barely touches the mountains. The center of the county is taken up by Tulare lake, which at the present time is nearly dried out, and at no time was anything more than a shallow slough or sink. Its diminution was caused partly by the dry seasons which have prevailed during the past three years, and partly by a diversion of a large part of the water, that formerly poured into it, for purposes of irrigation. It is possible that a succession of seasons with rainfall above the normal average might partially fill up the lake again; but it will probably never come back to its original size. The land made by the retreating of the water is not adapted to all uses, as it contains a good deal of alkali, washed out of the surrounding territory by the many rivers and channels of rivers and main irrigating ditches with which the country is threaded. With the exception of this old lake bottom, however, the whole of Kings county is land that is perfectly adapted to all forms of agriculture, and the district affords one of the most striking illustrations of intensified farming to be found anywhere in the world.

The illustration is quite as perfect on the social and economic side as it is on the agricultural. The original settlers of the "Mussel Slough District," as the region along the Kings river slough was formerly called, were farming people from the Middle-Western and Southern States, who came to California in emigrant wagons, entirely without capital. They selected these lands because they saw the soil was rich and deep, and that plenty of water was obtainable for irrigation. There was

no great corporation ready to construct an irrigation system for them, so they went to work themselves with shovels and picks, and built their own canals and ditches. As a result, they own the water, and have no interest to meet. The cost of maintenance is light, averaging under thirty cents per acre per year.

They supported themselves in the beginning by the simpler and quicker forms of agriculture, wheat-growing, stock-raising and general farming. With the large returns which the rich soil gave they were soon able to begin tree-planting and the laying out of vineyards. The latter form of development has been in progress about twenty years, with results that are so extraordinary that they must be actually seen with the eyes to be comprehended—or perhaps to be believed. Here is a community that presents conditions that approach the ideal, for all are prospering in very nearly an equal ratio. The original poor settlers are now well-to-do, and thousands of others who have come since the beginning, people of small means, or of no means at all, have earned places for themselves from which they now derive a steady, comfortable income. There are no very rich men, and no poverty class. The assessed valuation of the county is \$7,000,000, which, according to the ratio that assessments usually bear to actual values, means at least \$10,000,000. There are 9,000 people, or say 2,000 families. The average is \$5,000 to the family. But while this is the invested capital, so to speak, of the individuals of the county, it must be remembered that there are few forms of legitimate business where the combination of intelligent labor with a small amount of wealth brings so large a return in annual dividends as it does in this class of farming. Estimating the actual yearly income of the county, as it shows in the carloads of various products shipped out, the earnings of each of these 2,000 families in the sale of exports would be over \$1,200 a year. The average, indeed, would run considerably beyond that figure, for it is not to be supposed that every family in the county derives all its income from agriculture alone. It must be remembered, moreover, that this income is practically net, for in addition to what is raised for export, the community grows about all the food products it needs for its own consumption. This steady accumulation of wealth, and its even distribution,

makes comfort, happiness and contentment general among the people.

Another feature of the situation in Kings county which makes it the more valuable as an illustration of intensified farming is the great variety of products. There are many sections of the State where a community enjoys a large income from one particular product, such as oranges or raisins, for example, but in Kings county the farming is of a general character, and includes twenty or thirty different items. This community proceeds on the principle of not trusting all its eggs



TURKEYS FED FROM THE STUBBLE.

to one basket, and is not likely to suffer seriously from variations of the market. One year wheat may be low, and the next year raisins may have a slim crop, and the next the bottom may fall out of the dried fruit market ; but the prosperity of Kings county will not be affected, for it is founded not on wheat or raisins or dried fruit alone, but on a great number of products, all of which can hardly fail at one and the same time.

The soil of Kings county is alluvial in character, having been slowly washed down for countless centuries by the Kings river

and the Kings River Slough, and deposited in the form of a fine silt on which vegetation sprang up and decayed and then was buried under the wash. It is sandy and porous in quality, which enables the horticulturalist to practice a form of irrigation that is rarely used in other sections of the State. This is called irrigation by seepage. Instead of flooding the land, the water is allowed to pass through it in ditches from one-fourth to a half a mile apart. There is a considerable underflow which the water from the ditch reaches and brings to the surface by capillary attraction, and this process tends to continually enrich the land, for the water from the lower levels is saturated with the elements that are needed by the trees. This process is much less expensive than other forms of irrigation, and, where it is practicable to employ it, takes the place of fertilization and of deep plowing. As the soil is practically unlimited in its depth (for wells sunk to a distance of 1000 feet show no variation in its make-up), there is no reason why this process should not be continued indefinitely.

The chief export products of Kings county are grain, including wheat, barley and corn, alfalfa, live-stock of all kinds, wool, raisins (the annual export is nearly 400 carloads), prunes (there is one orchard of 750 acres), peaches, apricots, pears, apples, table and wine grapes, dairy products, nectarines, cherries, figs, almonds, wine, canned goods, vegetables. There is no county in the State that produces such an amount and variety of material for export in proportion to the number of people.

Hanford is exactly the active and prosperous town that one would expect to find in the center of such a beehive of industry as Kings county. It has a population of about 3,000 entirely free from any indolent or shiftless or undesirable element. The town is built almost wholly of Hanford-made brick, and has many large and handsome buildings. There is an artistic court-house, which the visitor is astonished to learn cost only \$32,000. It may be well to note in this connection that as the county is all level land, the cost of running the government is light, and the bonded indebtedness is trifling. The school system is complete and thorough, and there are excellent school structures, including a large high school.

The trade of Hanford is far beyond that of the average town of similar size, which may be explained by the fact that there is always plenty of work for everybody at good pay. During the summer, when the schools are closed, the children are busy in the fruit fields at occupations which they seem to enjoy, and in which they earn considerable money. At the end of the summer day one may see trains of wagons rolling into town from the fruit-drying establishments, filled with women and children, who were laughing and singing as though they were just back from a holiday. Among the labor-employing con-



A PRUNE ORCHARD.

cerns in the city may be mentioned a cannery with an output of 100,000 gallons of fruit a season, a raisin-seeding plant, a creamery, a huge winery, a flouring mill, a planing mill, an electric light and power plant, machine shops, etc.

Hanford is on the main line of the Santa Fe, and on the cross line of the Southern Pacific that runs from Exeter to Alcalde and connects through Collis with the main western line to San Francisco. It is about midway in distance between Los Angeles and San Francisco. Good wagon roads lead out from the city in every direction.

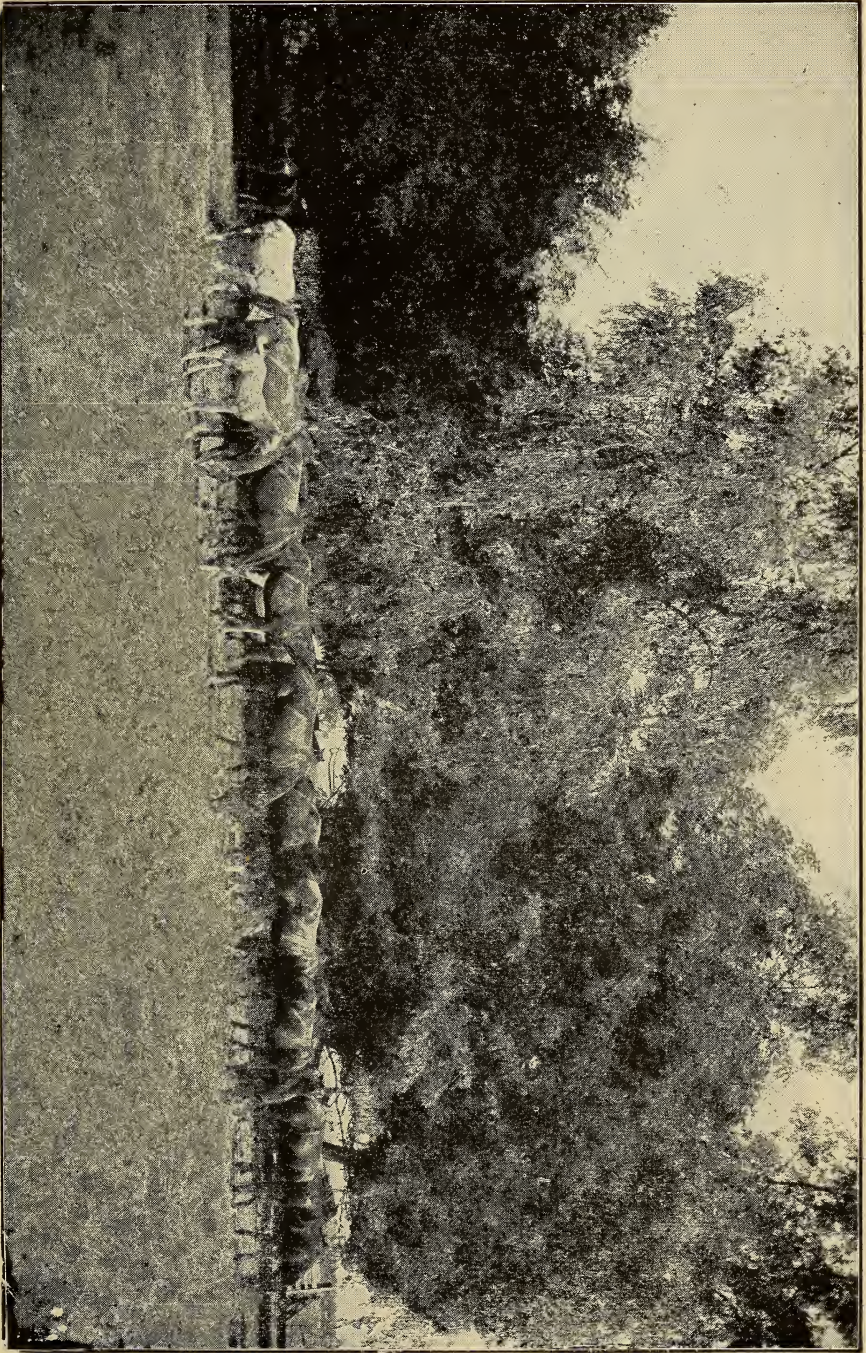
The city has a good fire department with a considerable force of water. The drinking water is supplied by deep artesian wells, the city having a system of its own. It is one of the healthiest places on the Pacific Coast, having an extraordinary low death rate. There are churches of all denominations, and societies of all kinds, including an active woman's club. The Opera House cost \$65,000, and there is a natatorium which is a great attraction. The city is surrounded with beautiful homes, few of them elegant, none of them palatial, but all comfortable, with well kept grounds. There is an active Chamber of Commerce, which is ready to give information



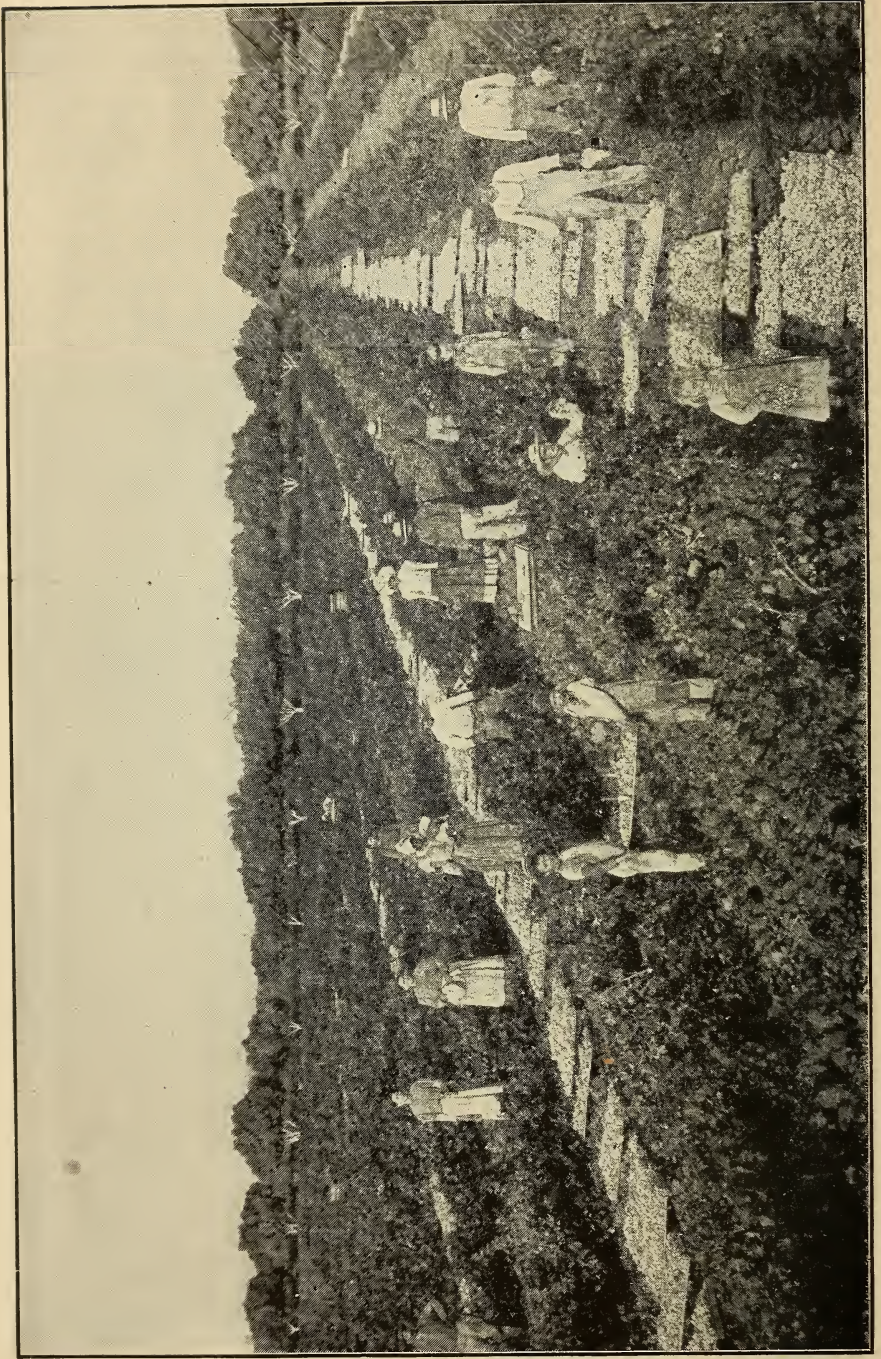
A FLOCK OF SHEEP.

about the city and county to all who ask it either by letter or in person.

There is plenty of good land to be had in Kings county at reasonable figures, and the demand for labor is so continuous that the settler with limited capital, especially if he has a good sized family of industrious boys and girls, will experience no difficulty in getting a fair start.



IDEAL CONDITIONS FOR STOCK.



PICKING GRAPES.

CHAPTER VII.

FRESNO COUNTY AND THE CITY OF FRESNO.

THE rich and beautiful county of Fresno extends clear across from the high Sierras to the mountains of the Coast Range, right in the center of the San Joaquin Valley, and it reproduces within its borders all that is best and most wonderful in the valley. Every form of agriculture and every industry that exists in any of the counties that make the watershed of the San Joaquin may be found in a greater or less degree in this one county, for its mountains contain lumber and minerals and fine scenery, and its level plains grow cereals and fruits and vines and vegetables; it raises cattle, and its western borders overflow with petroleum. But in addition to this fortunate diversity of interests, it has, as a great mainstay, a product which the other counties possess in a limited degree only. Raisins are grown almost everywhere in the San Joaquin Valley, but if the crop of all other counties in the valley be gathered together that of Fresno surpasses it nearly ten times over. And under normal conditions of market, raisins are one of the most profitable and reliable crops that can be grown on the rich soil of California.

The area of Fresno county is twice and a half that of the State of Delaware. It contains 5,606 square miles, or 3,587,840 acres, of which it is estimated 900,000 acres are readily arable. There is a population of 41,000 of whom between one-half and one-third reside in Fresno city. The great majority of them are, comparatively speaking, newcomers to the State, for the development of Fresno county is largely a matter of the last twenty years. They are from the middle-western and southern sections of the Union, with the exception of a sprinkling of Armenians, who fled from Turkey to escape persecution, and settled in Fresno county, because they found in that location climatic conditions similar to those of the Orient.

Fresno has an average rainfall of about ten inches, and hence can grow the cereals successfully without irrigation. It has ample water to irrigate thoroughly all the arable land in the county. The San Joaquin river forms the northern and eastern

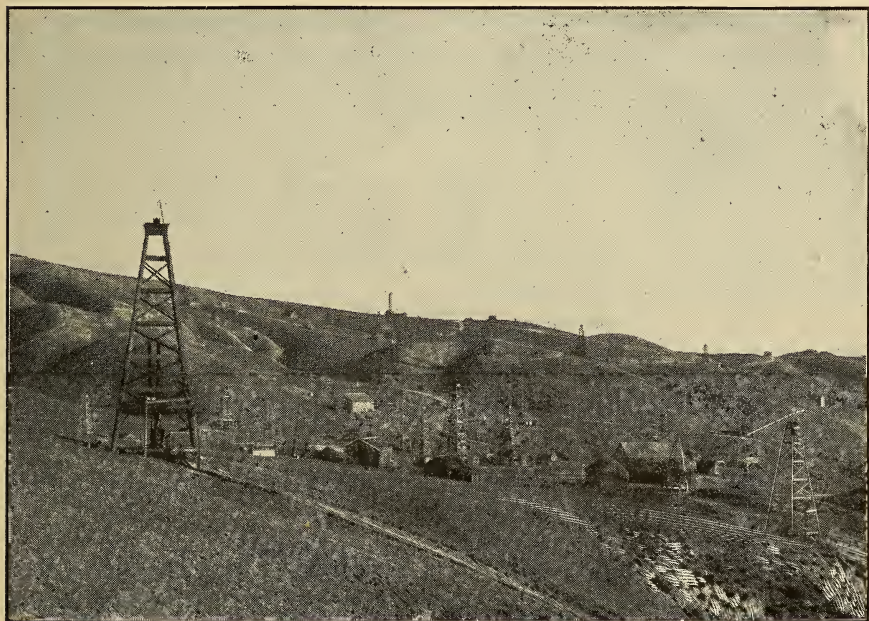
boundary line of the county, but it is not so favorably located for purposes of irrigation as is the Kings river, which rises in the Sierras, and passes south, and then west and then north, in a wide curve, right through the center of the county's farming district, carrying, through the summer months, a volume of water equal to 8,500 cubic feet per second. A flow of one cubic foot per second will irrigate from 160 to 200 acres. There are constructed through the country 300 miles of main canals, 1,000 miles of branch canals, and 5,000 miles of distributing ditches. The whole region is a net-work of streams of clear water, full to the brim and waiting to be drawn off on the vineyards, deciduous or citrus fruit orchards, or alfalfa fields, as moisture may be needed to promote growth. The cost of water is low, the annual charge being about 65 cents an acre. The perpetual water-right included with the purchase price of the land is about \$6.25 per acre.

In spite of the great volume of Fresno's fruit and raisin industry, wheat is still grown over vast areas, particularly in the western section of the county, where there are individual ranches of 10,000, 20,000 and 30,000 acres. In good years the product runs to between two and three million bushels. Of this a considerable portion is worked up into flour in Fresno, one mill having a capacity of 140,000 barrels per annum. Barley is grown in large quantities, and some corn and oats. Alfalfa is raised and shipped for hay to limited extent, but the greater part is fed to stock, of which hundreds of carloads are exported every year. There are six creameries and many skimming stations in the county, and butter and cheese are exported. One creamery in Fresno city is now producing six thousand pounds of butter daily. An unlimited market for dairy products, together with the fact that one acre of alfalfa will support one cow in green feed, offers the farmer of limited means openings for immediate and profitable returns. Great numbers of sheep roam over the foothills, the wool clip in some seasons amounting to about fifteen million pounds.

The deciduous fruits flourish in Fresno county, turning out a crop that fills several hundred cars shipped green or dried, as the condition of the market demands. The value of this crop exceeds a million dollars a year. A large cannery handles a

part of this product. There are apricots, peaches and pears, and many figs. Some prunes are grown. The citrus fruits do well, and the total product is estimated to be worth about \$100,000. Many vegetables are grown profitably ; watermelons are exported in hundreds of carloads.

The vineyards of the county cover about 40,000 acres, of which about 32,000 are in raisin grapes, and the remainder in wine or table varieties. There are over a dozen large wineries in the county, one of which, for example, ships 250,000 gallons a year. Excellent port, brandy, sherry, and angelica are made,



OIL WELLS AT COALINGA.

as well as some other varieties. This product is valued at over a million dollars.

At the head of the long list of valuable products of Fresno county stands the raisin, with a tonnage of nearly 4,000 carloads. When a vineyard is in full bearing it produces about 4,000 pounds of green fruit to the acre, which will dry to over a ton of raisins. The average product of five-year-old vineyards is a ton of raisins to the acre. The price of raisins has in the past been subject to serious fluctuations, caused partly

by changes in the tariff, and partly by the demoralized condition of the market, which resulted from irregular shipping methods. The California raisin now has possession of the American market, on a reasonable tariff, which keeps out the cheap foreign product, without allowing an exorbitant price to be charged for the home-grown article. An organization has been formed, which contains about ninety per cent of the growers, and which delivers the product gradually, as the market can absorb it, and enables all to secure a fair price. Through this plan the vineyards which a few years ago, under the old system, were deeply mortgaged are now a source of steady and substantial profit to the growers, who are all free from debt, happy and prosperous. The average gross earnings of raisin vineyards last year was about \$100 an acre, but the price was higher than usual. Probably a fair average under normal conditions would be \$80 an acre, of which a good deal more than half is clear profit. Some good raisin land with plenty of water may be had for from \$100 to \$200 an acre on favorable terms, and as a man with a family to help him can easily support himself while his vines are coming into bearing, it will be seen that the raisin is a good business opportunity.

The growing of nursery stock is a favorite occupation in Fresno county. Honey is produced to a considerable extent and is increasing with the increased product of alfalfa. Alfalfa honey is equal in quality to clover honey of the East. Much gold is mined in the mountains, and 50,000,000 feet of lumber are cut annually, most of which is floated down in long flumes. There are several large planing mills and many lumber yards in the city of Fresno.

When the railroad entered this region in 1872, the county seat was at Millerton, a small mining town, and the agricultural interests of the town were chiefly stock-raising. The town of Fresno was laid out on the railroad, and a site was offered for a court-house and other public buildings. The change was easily effected, and by 1880 Fresno had 1200 people. It has now over fourteen times that number. The city assessment roll aggregates nearly \$7,000,000.

Four railway lines enter Fresno from the south, and four lead out to the north. The Santa Fe enters in two branches,



I.—WINTER CULTIVATION OF THE VINEYARD.



II.—FIRST GROWTH IN THE SPRING.

one from Visalia and Tulare and the other from Hanford. It continues to the north with one line. The main line of the Southern Pacific runs through Fresno, as does also the west side line, which enters on the south from Porterville, and goes out to the northwest, passing through Collis and Mendota and Tracy. There is also a branch line running north to Pollasky. With the exception of San Francisco and Los Angeles, no city in the State is so well provided with railroad facilities and does so large a shipping business. It is a busy city, especially during the summer and fall months when the fruit and raisin packing and seeding establishments, of which there are fifty in the county, are in full operation, and all the crops are moving. The demand for labor at such times is lively.

Fresno is plentifully supplied with electricity for lighting and power, generated in the San Joaquin river and delivered at cheap rates. The public buildings are very creditable, especially those devoted to purposes of education. Most of the streets are paved with bituminous rock, and there is a complete sewer system. There are swimming baths, an opera house that cost \$100,000, a \$60,000 high school, and many solid blocks of large business structures.

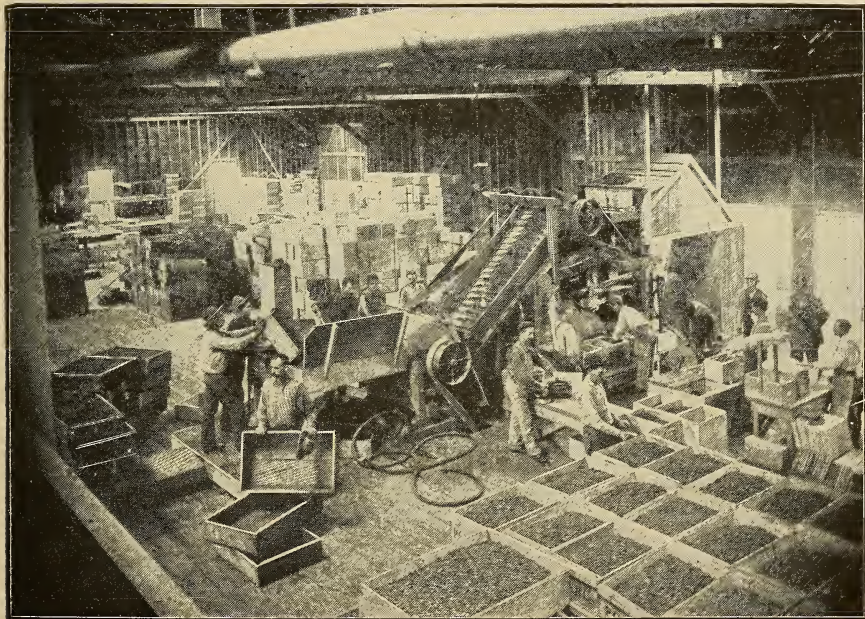
Oil development in Fresno county is chiefly in the vicinity of Coalinga, which is on the Alcalde branch of the railroad, about 40 miles west of Hanford. This is one of the most successful oil districts of the State, producing large quantities of a high grade article. Some of the wells yield an oil which can be used for illuminating without refining. The wells have a capacity of about 1,000 carloads a month, and are rapidly increasing in number.

Other towns of importance in Fresno county are Selma, with a flouring mill, three packing-houses, a creamery, and many well equipped stores; Clovis, a lumber town of about 500 inhabitants; Sanger, 1200 population, a shipping point for lumber, grain fruit and stock; Reedley, a flourishing town of rapid growth, with a considerable trade; Kingsburg, Fowler and Pollasky, all important railroad towns.

The station on the Santa Fe named Laton contains the head offices of the great Laguna de Tache Ranch, which covers over 60,000 acres of fine farming land in Fresno and Kings counties.



III.—PICKING THE RAISIN GRAPES.



IV.—IN THE RAISIN PACKING-HOUSE.

This region is now being colonized in small farms. The land is to be had at from \$35 to \$45 an acre with ample water-right, and the terms are made to suit the purchaser. It is particularly adapted to alfalfa, as the soil is rich and the water is abundant. It will grow raisins, fruit, wheat, corn and vegetables, in fact anything that can be grown in Fresno county. There are plenty of good opportunities in this county for a settler to secure land exactly to his liking. The Laguna de Tache Ranch is mentioned merely as a sample of what may be found in many different localities throughout the entire San Joaquin Valley.



A FRESNO STREET.

CHAPTER VIII.

MADERA AND MERCED COUNTIES.

MADERA is one of the new counties of the State, having been recently carved out of Fresno. It is bounded on the south and west by the San Joaquin river, and on the north by the counties of Mariposa and Merced. Covering as it does, the area from the middle of the valley clear to the top of the high Sierras, it includes a large percentage of mountain land. Its area is 2,140 square miles, or 1,369,600 acres, of which about half is on the assessment roll. The property of the county is assessed at \$6,000,000, and the population is about 8,000.

The mountains above Madera city contain much valuable timber land, and there is always a lively demand for labor in this vicinity. A portion of the National Yosemite Park lies in Madera county, where there are groves of big trees and beautiful scenery. Gold and silver are mined in these mountains, as well as copper; and a large smelter for the last named mineral is in operation in Madera. Near Richmond there is a large granite quarry, the product of which is in use all over the State.

About one-half the county of Madera is good arable land, and as two streams of considerable size, the Fresno and the Cottonwood, and many others that are smaller, flow directly across the county, it is possible to put all of this half under the ditch. A large part of the acreage of the plains is, however, still devoted to wheat and stock-raising, for the original great ranches have not yet been subdivided and thrown open to settlers who will practice intensified farming. Some fruit is raised, and alfalfa is grown for dairy stock. Raisins do well. Wine grapes grow in considerable quantities. Near the town of Madera are 1,000 acres surrounding a winery with a capacity of 2,000,000 gallons. Grapes are shipped into this winery in tank cars from all the neighboring country. It is a thoroughly equipped concern, having modern machinery capable of handling 300 to 400 tons of grapes a day, and a distillery that manufactures 200,000 gallons of brandy per year.

The main lines of the Santa Fe and the Southern Pacific

pass directly through the county of Madera, and there is also a branch line which runs from Berenda to the station of Raymond, whence many passengers leave by stage for the Yosemite.

Merced county lies a little to the north of the middle of the San Joaquin Valley, but it is just in the center of the State of California, on either a north or a south, or an east and west measurement. It is parallelogram in shape, measuring sixty miles from the Sierras to the Coast Range, and forty miles from the counties of Madera and Fresno on the south to the county of Stanislaus on the north. It has a total area of 2,600 square miles, or 1,664,000 acres. The population is about 11,000.

The western edge of the county is mountainous, but nearly the whole of the remainder is good, level land, much of it already under the ditch, and nearly all of it adapted to the higher forms of agriculture that go with irrigation. A very considerable area of the county is taken up by a few large ranches, whose size runs into the tens of thousands of acres. These are used chiefly for the production of grain and for stock-raising. One by one, however, they are being subdivided and placed on the market, and new districts are opened up for settlement. There is plenty of good land, with water, to be had in Merced county, at fair prices, and in the next decade its farming population is likely to increase to two or three times the present figures.

The San Joaquin river flows through the eastern part of Merced county in a stream which, in the rainy season, is large enough to admit of some navigation. Into it flow on the west a series of small creeks, Los Banos, Sycamore, San Luis and others; and on the east there are the Merced river, a large volume of water, the Chowchilla river, Bear creek and the Mariposa. There is an abundance of water for present use, and enough is flowing to waste in the San Joaquin to water a vast area which is now only used for wheat. One irrigation system in the county has water enough to take care of 400,000 acres, and that area in fruit would easily support ten times the county's present population. The soil varies in different sections of the county, but the greater part of it is a sandy



LUMBER MILL IN THE MOUNTAINS.

loam of great depth. The lands that lie close to the San Joaquin river are too damp for ordinary uses of agriculture, but as the country develops they will be drained and rendered valuable.

Wheat is still the largest single crop of the county. Its production is carried on in the wholesale manner that usually prevails in the San Joaquin Valley. Barley, oats and corn are also grown in quantities; the first of them is exported chiefly for brewing purposes, and the product raised in Merced county is particularly bright and free from rust, and hence valuable for that use. Large areas are now in alfalfa, of which four or five crops are cut annually for hay, and it is used also for the pasturing of cattle that are kept for dairy purposes. There is a successful creamery in operation near the town of Merced, and the butter which is shipped from there to San Francisco commands a price above the market average for its superiority. The sums paid to the farmers who bring milk to the creamery show that the average yield of the cow in Merced county is over five dollars worth of milk a month. The man with twenty acres in alfalfa, and cows to go with it, can afford to wait without impatience until his fruit trees bear. All varieties of fruit trees are grown, beginning with the peach and apricot and prune, of which there is a large acreage, and continuing with the plum, fig, cherry and apple. All of these are as profitable as they are in other parts of the great valley. Oranges and lemons are grown to a limited extent. There are large vineyards in which raisins and wine grapes are grown with success.

A unique agricultural feature of Merced county is the growing of sweet potatoes. The district northwest of the town of Merced, near the stations of Atwater and Batata, produces about 200 carloads of this vegetable annually, and the "Merced Sweets" are the standard of the San Francisco market. The soil of the region seems to be particularly adapted to them, and the product averages 15,000 pounds to the acre, bringing about a cent a pound. Plenty of instances could be quoted where they have yielded the grower \$200 an acre, although the average is, of course, much lower.

Another unique product of Merced county is buhach, from

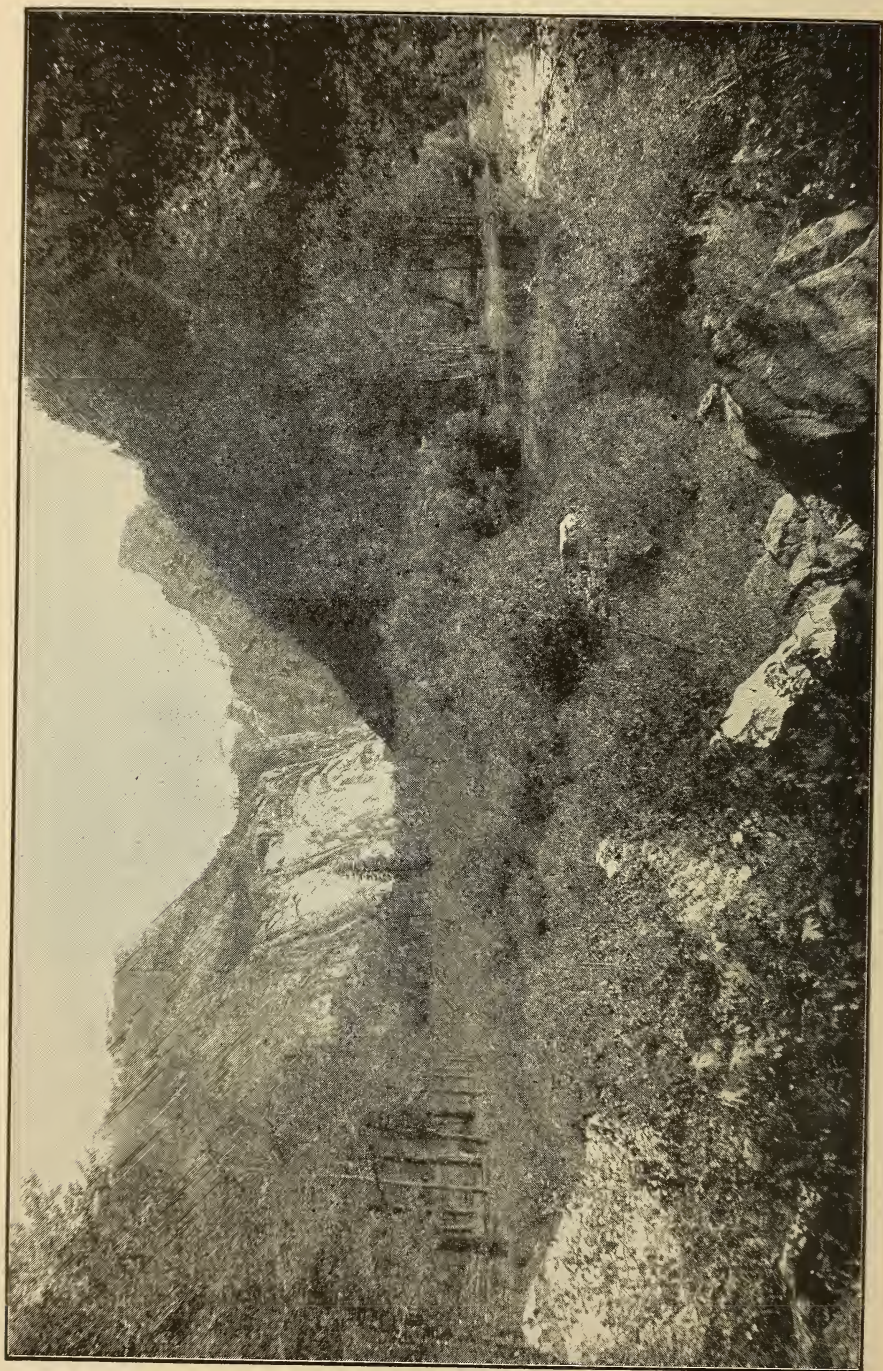
which insect powder is manufactured and sent all over the United States. Over 300 acres are devoted to the pyrethrum plant, as it is called, and the business is said to be very profitable.

The town of Merced, which is the seat of government for the county, contains about 3,000 population, and is an incorporated city of the sixth class. It is 143 miles from San Francisco. It is a shipping and trading point of considerable importance, and the center of a large staging business to the Yosemite and the mountain mining towns. There is a flouring



IN THE MARIPOSA GROVE.

mill with a capacity of 100 barrels a day, two electric light plants, and a number of shops and prosperous stores. The people are wide-awake and enterprising, and have a Board of Trade, which is at work, making the merits of the county widely known. Other towns in the county are Le Grand, Snelling, Dos Palos, Los Banos and Batata.



THE FLOOR OF THE YOSEMITE VALLEY.

CHAPTER IX.

THE YOSEMITE AND THE BIG TREES. MARIPOSA COUNTY.

IN any list of the natural wonders of the modern world, two must be included which are to be found in the San Joaquin Valley, to wit, the Big Trees and the Yosemite Valley. The Big Trees are absolutely unique; nothing like them is to be found anywhere else on the globe. The case with regard to the Yosemite is not so easily stated. There are many localities that are visited by reason of the fine scenery they offer; comparisons are difficult to make, and tastes differ. Of the Yosemite, however, it may be said that the great majority of artists and scenery lovers who have beheld it and the other great landscape wonders of the world, and hence are entitled to be considered expert on that subject, have declared the Yosemite to be the most beautiful and artistic grouping of mountains, valleys, water courses and accompanying vegetation that exists anywhere. Magnificent scenery all over the world is compared with the Yosemite, as though that were admittedly the unit of esthetic measurement by which such things are to be tried.

The Big Trees of California are two species of sequoias, the sequoia gigantea and the sequoia sempervirens. The latter, which is commonly called the redwood, and is much the smaller in size, grows only in the Coast Range of mountains; the gigantea grow only in the Sierras. Fossil specimens of these trees are to be found in other parts of the world, but nowhere else are they alive, which shows the marvelous geological age of California.

There are a number of groves of the sequoia gigantea in the mountains of the San Joaquin Valley, the principal ones being in Calaveras county, in Mariposa county near the Yosemite, and in Tulare county. Nearly all of them are included in the National parks, and are protected from the woodman's ax.

One gains but a faint conception of the size of these monsters by reading over the figures that tell of their dimensions. Their diameter at base is 25 to 30 feet, which is about the size of an average ten-room house. Their height exceeds that of

the highest sky-scrappers of the great cities. Many of them have a circumference of over 100 feet when measured far enough up from the base to be clear of the masses of root that stand out from the ground. It takes a man of average height forty-five steps to walk around one of them. One specimen yielded over half a million feet of lumber.

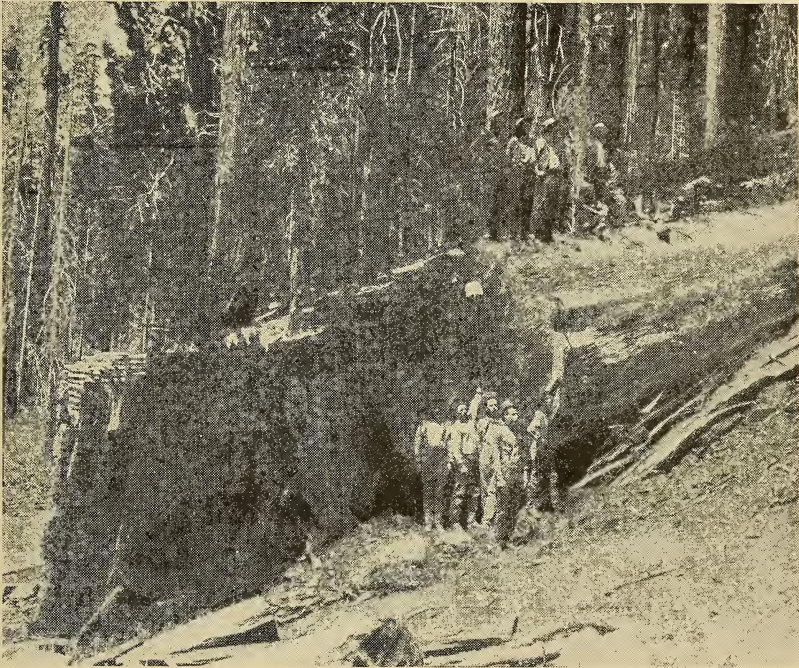
The age of these trees has been figured from the rings in a transverse cutting, and it shows that they were in existence when Moses led the children of Israel out of the land of bondage. They are remnants of a previous geological era, the mastodons of the forest.

The Yosemite Valley was named from a tribe of Indians who formerly occupied that region. The word, which many prefer to divide thus, Yo Semite, means a full-grown grizzly bear. It is a small and distinct valley in the midst of the Sierras, seven miles in length by about three-quarters of a mile in average width. In May, 1851, a troop of horsemen from the mining camp of Mariposa went far into the mountains in pursuit of a band of hostile Indians, and came upon this wondrous valley, which up to that time had never been entered by white men. A reference in their report to a waterfall which they had seen, which they "guessed was 1000 feet high" (a conservative guess, by the way, for the Yosemite Fall measures 2,600 feet), started Mr. J. M. Hutchins, the editor of the first illustrated magazine published in California, on an exploring tour in that direction. The articles which he published attracted attention all over the world, and artists and lovers of scenery began to visit California for the purpose of seeing the Yosemite. Since that time the stream of visitors has steadily increased until it averages 4,000 to the season. A total of something like 100,000 people have seen this wonder, and have felt—if they had souls to feel—the tremendous uplifting that comes with the sight. Except the climate of California, with its soft health-giving air, no other one feature of the State has attracted so many visitors within its borders as the Yosemite, and a surprisingly large percentage of these are from foreign countries.

Descriptions of the scenery of the Yosemite are not only inadequate and unsatisfactory, but they seem almost frivolous. Its curious and striking features may be explained, their

dimensions may be stated, and their form outlined in words, but the sensation aroused by the beauty and grandeur of the grouping of the whole can be communicated to the mind only through the eye. To have seen the Yosemite is to have taken a post-graduate course in the study of the beautiful.

The floor of the valley is almost perfectly level, and through the center of it flows the Merced river, a swift stream of clear, cold water. The walls of the gorge rise to an average height of about 3,000 feet above the valley, and they are for the most



A FALLEN GIANT.

part perpendicular, and are free from any considerable deposit of talus at the base; every inch of this enormous height is made effective to the eye. There is enough vegetation in the valley and on the summit of the cliffs to soften, but not to obscure, the views. Thus is attained a harmonious combination of beauty with grandeur. The most perfect exponents of this combination are the waterfalls, of which there are half a dozen. Their enormous height contributes the grandeur, and

the play of the sunlight on the water, as it falls so far through space, the beauty. The Yosemite fall is 2,600 feet in all, but the upper, unbroken section is nearly ten times as high as Niagara, and six times the height of the tallest city building. Bridal Veil fall is 940 feet, and Vernal fall, where the drop is 350 feet is 80 feet in width. But these figures mean very little to one who has not actually seen the wonderful valley.

The trip to the Yosemite involves no serious hardships, but is, on the contrary, a delightful experience in itself. There are four principal routes, two of which start from Merced, one from Stockton, and one from Raymond. All these routes lead through groves of big trees, and the time consumed on all is about the same, to-wit, two days from the railroad to the Yosemite. Each of the various routes has certain points of advantage.

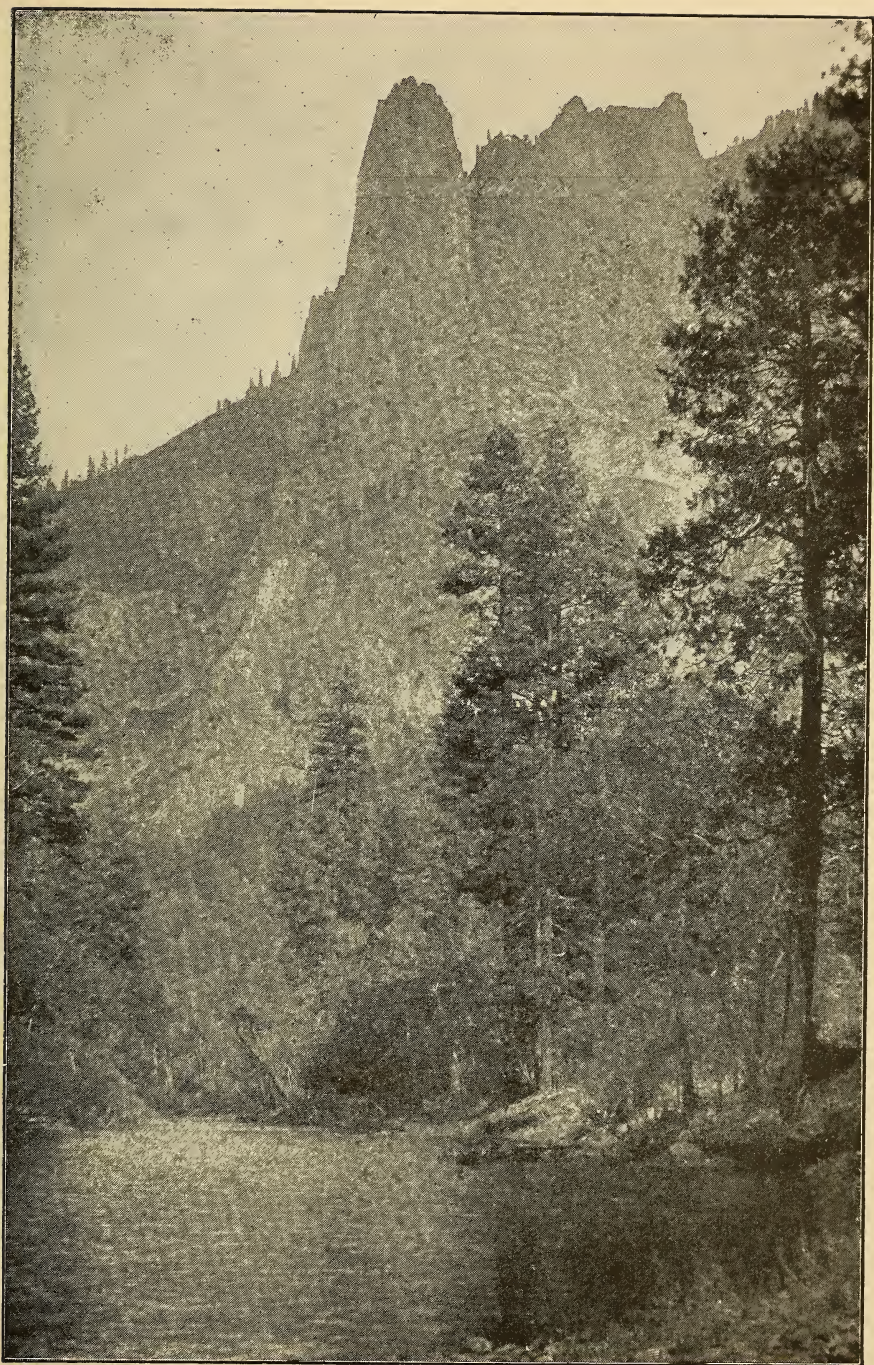
The route from Stockton takes the visitor by rail to Oakdale and Jamestown, thence by stage through Big Oak Flat and the Tuolumne grove of big trees. There are sixty-two miles of staging on this route. One line from Merced is by way of Coulterville, visiting the Merced big trees ; and the other is by way of Mariposa and Wawona, passing through the Mariposa big tree grove. The former has ninety miles of staging and the latter ninety-five.

The route by way of Raymond and Wawona passes through Grub Gulch and Ahwahnee, and measures sixty-six miles, to which should be added the eight-mile drive to the Mariposa big trees.

Of the Merced route it may be said that, while the staging distance is somewhat greater than the others, a considerable part of the road is on level grade where quick time can be made.

The roads leading into the valley are surprisingly good, and the accommodations en route first-class. The vehicles are models of comfort and safety. The fact that no accident of any kind has occurred on these stage lines shows that this form of traveling is less hazardous than to go on foot in the streets of a city.

The cost of the Yosemite trip varies with the route and the accommodations obtained. The round trip stage fare by the Raymond-Wawona route is \$32.50, as against \$20 by the Merced



“ THE SENTINEL,” YOSEMITE VALLEY.

route. A ten days' camping trip is arranged from Merced at a cost of \$41.50—this sum covering every expense. In round numbers it may be said that one who desires to see the Yosemite with as little expenditure as possible may accomplish it for about \$40, starting from some railroad point. On the other hand, if he has \$75, or even \$100, to spare, he can use it to decided advantage. It cannot be said that the rates to the valley are exorbitant, when cost of road construction and operation is considered; nor are the hotel rates unreasonable, for the accommodations that are offered and the difficulties under which those establishments are conducted. The hotels in the valley are owned by the government, and are leased. The rates are fixed by the Yosemite commissioners, who have charge of this great park.

The best time to visit the Yosemite is in the spring of the year. The season opens about the middle of April. Considerable snow is to be met with at that time, and travel does not begin in numbers until about the middle of May. The water-courses are full at that time, and the flowers in bloom. The variation of temperature from the San Joaquin to the Yosemite makes it necessary that the visitor should prepare for both warm and cold weather. He should, however, take as little baggage as possible.

The county of Mariposa, in which the greater part of the Yosemite Park is located, is one of the mountain counties of the San Joaquin Valley, lying between Madera and Tuolumne. It has no railway connections, but is threaded with a good system of stage lines, most of which have their beginning at Merced. It contains about a million acres of land, of which only one-third is on the assessment roll, and that is largely timber land. There is a population of about 5,000, who are engaged in mining, lumbering, and in agriculture to a limited extent. The mines are chiefly gold and silver. The famous old town of Mariposa is the county seat; that and Coulterville are the only places of any size. The latter has about 1,000 population, and for a town without a railroad is remarkably prosperous.

CHAPTER X.

THE COUNTIES OF STANISLAUS, TUOLUMNE, CALAVERAS AND AMADOR.

STANISLAUS County, with an area of 1,486 miles, or a little less than a million acres, lies between Merced and San Joaquin on the western side of the valley. It is about 60 miles long by 30 wide, and the San Joaquin river crosses it from south to north very nearly at the center. Some mountain land is to be found on the northern edge, but ninety per cent of the county is arable, and nearly all of it can be brought under irrigation.

The Tuolumne river flows across the eastern part of the county and joins the San Joaquin near Modesto. Out of this river there is constructed one of the most remarkable irrigation systems to be found in the State. It is known as the Turlock District, and covers an area of 176,000 acres, bounded on three sides by the Merced, San Joaquin and Tuolumne rivers. It was organized under the Wright Irrigation Law in 1887, the district containing 2,000 population.

The Tuolumne river, from which the water for the system is taken, has a flow that is never less than 5,000 cubic feet per second and frequently rises to 10,000 cubic feet per second. Estimates made by government surveyors show that this river contains water enough to irrigate 2,000,000 acres of land. Fifteen hundred cubic feet are used in the Turlock system, or 75,000 miner's inches. This flow will irrigate 375,000 acres, which is more than twice the area of the district, so that when these lands are all taken up, the farmers who occupy them will then have water to sell.

Bonds to the amount of \$1,000,000 were issued by the district, which was equivalent to placing a mortgage of \$7 an acre on the property of the district. This sum, however, represents only a small part of the difference in value of irrigated land as against land without water.

A stone dam was laid in cement across the Tuolumne river near La Grange, spanning a rocky cañon 336 feet wide to a height of 129 feet. This dam is 90 feet thick at the base, with a crest

of 11 feet. It arches up stream with a radius of 300 feet, and contains 40,000 cubic yards of material. The Modesto irrigation district, which lies on the northern side of the river, and consists of 87,000 acres, joined with the Turlock in the expense of constructing the dam, a total of about \$600,000.

The water which is thus raised and diverted, which is only a part of the entire stream, passes out through a tunnel cut in the solid rock for a distance of 600 feet, and through a substantial headgate, by which the flow can be accurately measured. The main canal then runs parallel to the Tuolumne river for a distance of 18 miles, through a series of deep cuts in the hills, over half a dozen flumes (one of them 560 feet long, 60 feet up in the air, 14 feet wide, by 10 feet deep), through basins and reservoirs and three large tunnels, finally emerging into the district, in a channel 70 feet wide by 8 feet deep.

From this main cannal a series of laterals are drawn, two miles apart, with a total length of 115 miles, and these are cut into at frequent intervals by irrigating ditches. The surplus water is discharged into the San Joaquin river.

The county of Stanislaus is blessed with a fertile soil, and its nearness to the San Francisco market makes it a favorite locality for growing vegetables. Sweet and Irish potatoes, alfalfa for hay, market and dairy stock, and all the fruits are grown. Although this county is a little later than some of the others in coming to its development, the essentials of soil, climate and water are all at hand, and the population will not long be lacking.

The county has a population of about 12,000, of whom 3,000 or more reside at the county seat, Modesto, a prosperous, active town, and the shipping point for the vast quantities of grain that are produced on the big ranches. The assessed valuation of the property of the county is about \$13,000,000.

Tuolumne county lies to the east of Stanislaus, running back into the Sierras. To the south is Mariposa, and the north is Calaveras. It has 2,232 square miles of area, or 1,428,480 acres. Of this about 850,000 acres are included in the Yosemite National Park. Of the remaining 600,000 acres, about 370,000 are on the assessment roll.

Although largely a mountain country, it nevertheless has a

railroad line, and possesses a considerable quantity of good agricultural land. A branch of the Southern Pacific runs from Oakdale, which is on the Stockton-Merced line in Stanislaus county, up through Jamestown and Sonora into the heart of the famous mining country, where the great "Mother Lode" is tapped by a number of deep mines, and over a million of gold taken out every year.

This part of the section of California made famous by the Argonauts of 1849, for the streams of these mountains were full of gold, from the greatest nugget ever found in California, with



WATERMELONS.

a valuation of \$43,000, down to the fine dust that merely colored the pan. Scientific mining, however, has now succeeded to the primitive methods of the '49ers, and although the picturesque element is lacking, much larger sums of money are realized. Placer, or surface mining, is about at an end in this locality, but deep mining along the great "Mother Lode," which, it is believed, yet contains within accessible distances more gold than has ever been mined in the world's history, is only at its beginning.

The towns of Tuolumne county are, Sonora, which is the county seat, and has about 4,000 population, good stores and public buildings and excellent schools; Jamestown, anciently known as "Jintown," a favorite mountain resort with a popular hotel; Columbia, a mining town of 1000 people; Tutletown, the former home of Bret Harte and Mark Twain; Summerville, a lumber town; Stent, Soulsbyville, Groveland and Big Oak Flat.

The counties of Calaveras and Amador extend from San Joaquin county back to the Sierras, and are almost entirely mountain and timber land. Their mineral product is large, Amador ranking third in the list of counties of the State for value of annual output, and Calaveras ninth. Gold, silver and copper are found in both counties, and Amador produces also coal and marble. The mineral output of the latter county amounts to nearly two millions a year.

Calaveras has an area of 633,600 acres, of which 405,000 are on the assessment roll. The total assessment of the county is four and a half millions. The county seat is at San Andreas, a mining town of small population.

Amador contains 363,000 acres of which 260,000 are assessed. The value of the property of the county is put at four millions. The county seat is Jackson, which has about 1100 population. Amador has a short branch line of the Southern Pacific which runs up to Ione. Calaveras has a line which runs to Valley Springs.

The revival of mining in the last few years has greatly increased the business activity of these counties.

CHAPTER XI.

SAN JOAQUIN COUNTY AND THE CITY OF STOCKTON.

THE county of San Joaquin is situated at the northwest corner of the great valley, just where the river San Joaquin flows out to tide-water. It is flanked on the west by Alameda and Contra Costa counties which lie across the bay from San Francisco. To the north is Sacramento county, and the great valley of that name. East of San Joaquin lie the two mountain counties of Amador and Calaveras.

San Joaquin county contains 1370 square miles or 876,800 acres. It is practically all level land. There is a small area in the delta of the San Joaquin river that is swampy, and under present conditions is not suitable for agriculture. This can all be reclaimed by drainage, and the lands already secured by that means have been found very rich and profitable. The reclaimed lands which are located all along the line of the Santa Fe, between Stockton and San Francisco, are especially adapted to the growing of vegetables, and thousands of carloads are shipped every year to the San Francisco market. The carrying charges are light, for there is water as well as rail transportation, and the wagon roads are good. This is a region of small farms, twenty, ten, and even five acres furnishing support to an entire family of industrious people. A feature of this line of agriculture which will commend it to the man of small means is that the returns are prompt. It is not necessary to wait several years for fruit trees or grape vines to come into bearing. In some places land can be rented or worked on shares, although the thrifty farmer, who proposes to get ahead, will prefer, as soon as possible, to acquire his own land, and divide his profits with no one.

Irrigation is not as necessary in San Joaquin county as it is in other sections of the valley, for, as the bay is approached, the annual rainfall increases. The customary allowance for Stockton is nearly fourteen inches. This is ample for wheat, and for vegetables grown on the moist bottom lands.

The wheat crop of San Joaquin county can be depended upon, with practical certainty, year after year, and has been a

source of enormous wealth to that section. It is not only an agricultural proposition of vast dimensions; it is a manufacturing one as well, for a considerable part of the crop is made into flour in the great mills at the city of Stockton. These mills have a capacity for turning out 9,000 barrels of flour a day, which is shipped to China and Japan, and even to Siberia. Although the wheat ranches are usually of great extent, their area running into thousands of acres, it is by no means impossible for a man of moderate means to make a living at wheat farming practiced on a smaller scale. Many of the most prosperous farmers in the county began with little or no capital, and worked their way to success in the grain field. Barley and oats are grown and hay is raised.

For the lines of agriculture that require irrigation, plenty of water is to be had. The San Joaquin spreads out into a delta with three principal channels, which again subdivide as the outlet is approached. The Calaveras river rises in the Sierras and flows across the county, reaching the San Joaquin at Stockton. There are several other streams of minor importance. The two principal irrigation systems cover many thousands of acres, in fact, nearly half of the county. A large part of the remainder is bottom land that seldom needs water. Fruits and grapes are grown usually without irrigation.

The cities of San Francisco and Oakland and their environs have a population of over 400,000 people. A stream of vessels leave the Golden Gate, carrying food-stuffs to the Orient, to Alaska, to the Islands of the Pacific, and to the Central American coast. San Joaquin county is part of the garden that supplies this enormous demand. An almost unlimited market is at hand for the product, and a rich soil and a favoring climate offer to the industrious farmer such an opportunity as he can find in few other places in the world.

The list of products which are raised in commercial proportions, and from which good profits can be earned, is a long one. Stock for the market is of course always in demand, and the beef raised on alfalfa and corn and pumpkins grown in these rich lands is fat, juicy and tender, and brings a price that is a reward for the care and skill which the farmer puts into it. A dairy cow can be kept on an acre of irrigated land,

and the butter and milk will pay \$50 to \$60 a year. There are two large creameries in the county, and a number of skimming stations, but the business is far from being overdone. The struggle of the creameries—and this applies, by the way, to almost every station of the San Joaquin Valley—is to get milk enough to supply their orders for butter and cheese. There is always a demand for chickens and eggs, and many have found the business profitable; but whether it be undertaken on a large scale or not, the farmer's wife and daughters can always make good pin money with poultry.



PROFITABLE PIGS.

The business of market or truck gardening in the sections near the large cities of California was for a long period abandoned to the Chinaman, but of late years it has dawned upon the white farmer that if the Chinaman could get rich and establish an astonishing bank account in this line of agriculture it might be worth while to look into it. Although a good peddler of vegetables from house to house, the Chinaman is, as a rule, a very poor market gardener. He buys the cheapest varieties of seeds, over-waters his gardens, and, as he lacks

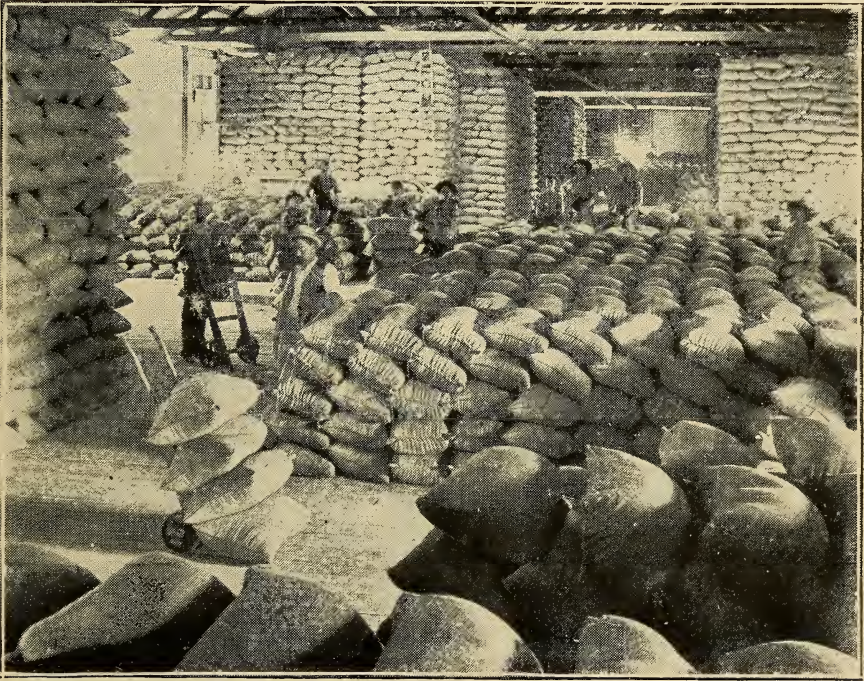
experience, and is not ingenious by nature, he frequently makes a sad botch of the business. He has improved wonderfully in the twenty or more years he has followed this pursuit, but he will probably never be able to compete with the intelligent, industrious white farmer on high-grade vegetables. The county of San Joaquin is one place, fortunately, where the American farmer has taken hold of the vegetable business in earnest, and has made a success of it. He raises onions which bring him as much as \$70 an acre, strawberries for which he gets \$200 an acre, potatoes at \$60 an acre, and asparagus at \$150 an acre. There is one farm of 5,000 acres planted to potatoes. The product of a single asparagus farm when canned ready for export filled 250 freight cars. All sorts of extraordinary yields are reported, and have been actually verified, by dozens of instances; but one hesitates to offer these lest they may be misunderstood. It is true that certain skillful individuals in favorable years have cleared \$200, \$300, and even \$400 an acre from cauliflower, peas, eggplant, artichokes and sweet potatoes, but that is not a true commercial basis for an estimate of the possibilities of such products. The real test may be applied when one drives for days in and about these farms, and sees comfortable houses, well kept grounds, big barns, good roads lined with shade trees, pretty school-houses, and every evidence of prosperity. Things of that description do not come to pass by accident. They constitute an argument more eloquent than words and more convincing than figures.

Sugar beets are grown with great success in the rich, moist lands of the county, and yield a sure profit. They are sold to the sugar factories at Alvarado and Watsonville, in the adjoining counties. A remarkably fine opportunity is presented in San Joaquin county for the establishment of a beet-sugar factory, and one will undoubtedly locate there in the near future.

The cost of land in San Joaquin county is very low, when its marvelous possibilities are considered. It may be had at from \$20 to \$100 per acre, the price depending on its nearness to the railroad and on its irrigation, soil and other conditions.

San Joaquin county is well supplied with transportation facilities, both rail and water. The main line of the Santa Fe enters near the southeast corner of the county, and crosses it

diagonally on its way to San Francisco, passing through Stockton, which is just in the center. Two main lines of the Southern Pacific pass through the county, and three branch lines lead out from Stockton, one to Peters, Merced and Milton, and one north to Sacramento and Ione and Valley Springs. A line which is known as the Alameda and San Joaquin railroad runs southwest from Stockton to the coalfields at Tesla. No county in the State has so great a railway mileage. The city of Stockton is, moreover, a terminal of the transcontinental systems, that is, it ships goods from the East on the same



STORING WHEAT.

terms as San Francisco, Los Angeles, Sacramento and the other places that are not called upon to pay local charges. This has an important bearing on the commercial possibilities of that city.

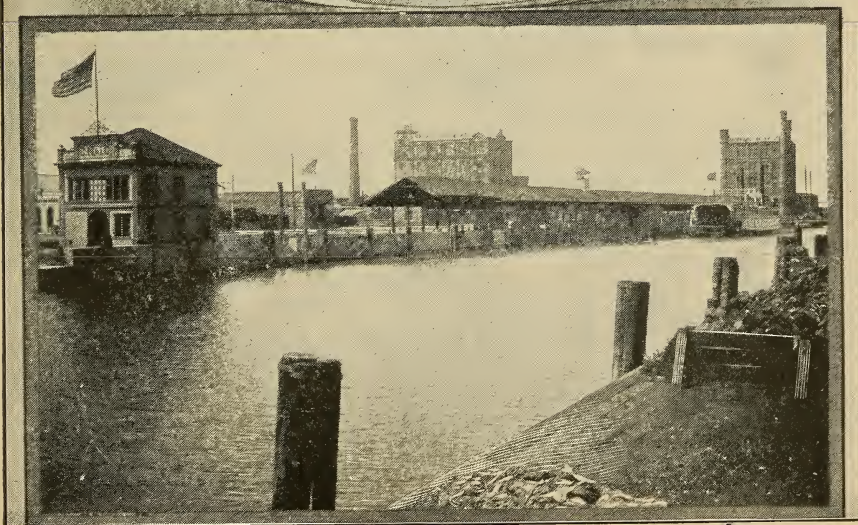
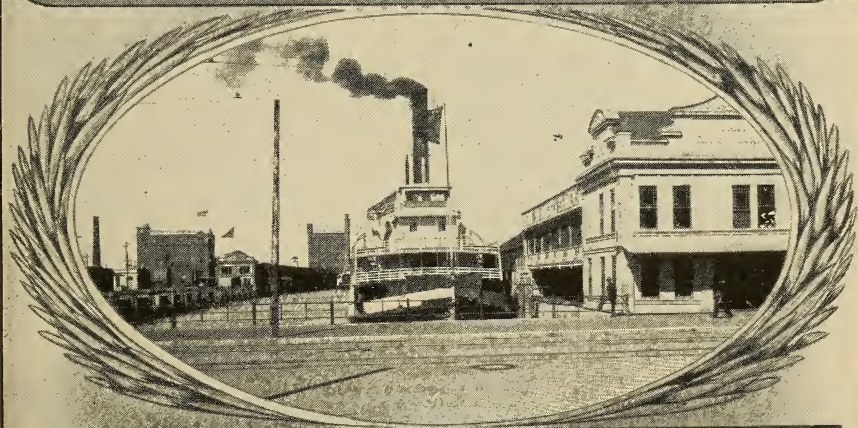
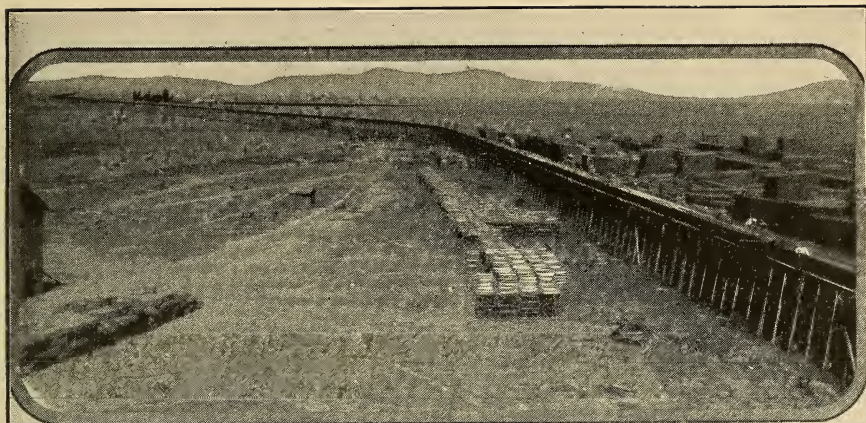
The San Joaquin river is navigable throughout its course in San Joaquin county, and a considerable amount of traffic passes over it. A report printed by order of the U. S. Senate Committee on Commerce shows that the total traffic on the river in 1898 averaged 5,000 tons daily, and in that year 144,000

passengers were carried. Sixteen steamers, twenty-five barges, and a hundred sailing vessels ply between Stockton and other ports. That city has a mile and a quarter of warehouses on its water-front. Only the Mississippi, Hudson and Ohio rivers exceed the San Joaquin in the amount of commerce carried over their waters. As transportation to markets at low rates is essential to successful agriculture, the San Joaquin county farmer is in a most enviable position.

The county seat and principal city of San Joaquin is Stockton, one of the oldest and best known cities in California. It is located on the San Joaquin river at the head of tide-water navigation. It has a population of about 20,000, and is a city of beautiful homes.

Stockton is fortunate in the great variety as well as the solidity of interests upon which its prosperity is based. It is the retail center of a large and well developed agricultural territory; it is the exporting point for the numerous products of the county, chief of which, grain, is of enormous proportions; it has large mining interests in the mountains above the city; it is an active railway center; it is the outlet to the East and San Francisco for a large part of the business of the San Joaquin Valley; it is one of the leading manufacturing cities of the Pacific Coast; it is a desirable place to live, as respects climate, healthfulness, and social and educational opportunity; it is a city with a future. Under these circumstances, it is not surprising that the people of Stockton are energetic and public spirited, and that they believe in their city and are proud of it.

The secret of Stockton's success as a manufacturing city lies in the cheapness of its fuel. It is near the coal fields of Tesla, the product of which seeks tide-water through Stockton. No other city in the State can procure coal at so low a figure. But this is not all. Stockton alone, of all the cities in the State, has natural gas, in quantities that seemingly have no limit. It is supplied at so low a rate that manufactories in Stockton have a great advantage over similar plants elsewhere on the Coast. It is distributed not only for fuel for factories, but also to private houses for heat, and, after refining, for light. Nor, again, is that all. Stockton also enjoys the advantage of almost unlimited electric power, generated in the



CLOVIS FLUME.

WATER FRONT AT STOCKTON.

mountains, and served at low cost. The plant, which is located forty-five miles from Stockton on the Mokelumne river, begins with 15,000 horse-power, and that amount can be increased as rapidly as the demand arises. The principal manufacturing interests are flour, woolen mills, harvesters, pottery, street-cars, railway-cars, mining machinery, agricultural implements, bridgettes, fruit canning and packing, leather goods, etc. More than \$1,250,000 is paid annually to factory employes, and that they are well paid shows in the fact that the average annual wage is \$782. The annual output is over \$14,000,000.

Stockton is a city of good appearances, having many fine business blocks and notable public buildings. Among the latter may be mentioned the court-house of California granite, costing \$350,000; public school buildings costing \$350,000; State Hospital for the Insane, \$1,000,000; and public library, \$100,000. The sum of \$200,000 has been appropriated for a federal building. It is a well lighted city, its streets are paved, and there are several lines of electric street-cars. The water system and sewer system are wholesome and complete.

The educational and social opportunities of Stockton are excellent. Its schools are maintained at the standard required by the State University. The public library contains 30,000 volumes.

There are many beautiful church structures of all denominations. Active and energetic trade organizations exist, and there is a sentiment for progress and continual improvement among the people.

Other towns of San Joaquin county are Lodi, an agricultural center, having about 1,700 people; Linden, Lockeford, Clements, Waterloo, Woodbridge, Tracy, Lathrop, Elliott and Escalon.

Stockton is the natural starting point from which to take in the Calveras Big Trees, the rich mining regions of Tuolumne, Calaveras and Amador counties, and the grand scenery of the high Sierras. A favorite route to the Yosemite Valley from San Francisco is to Stockton via the Santa Fe, then to Oakdale on the branch of the Southern Pacific, to Chinese on the Sierra Road, and then by stage into the Valley, passing the Tuolumne Big Trees and some of the grandest scenery in all America.

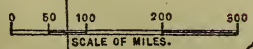


STOCKTON PUBLIC LIBRARY.

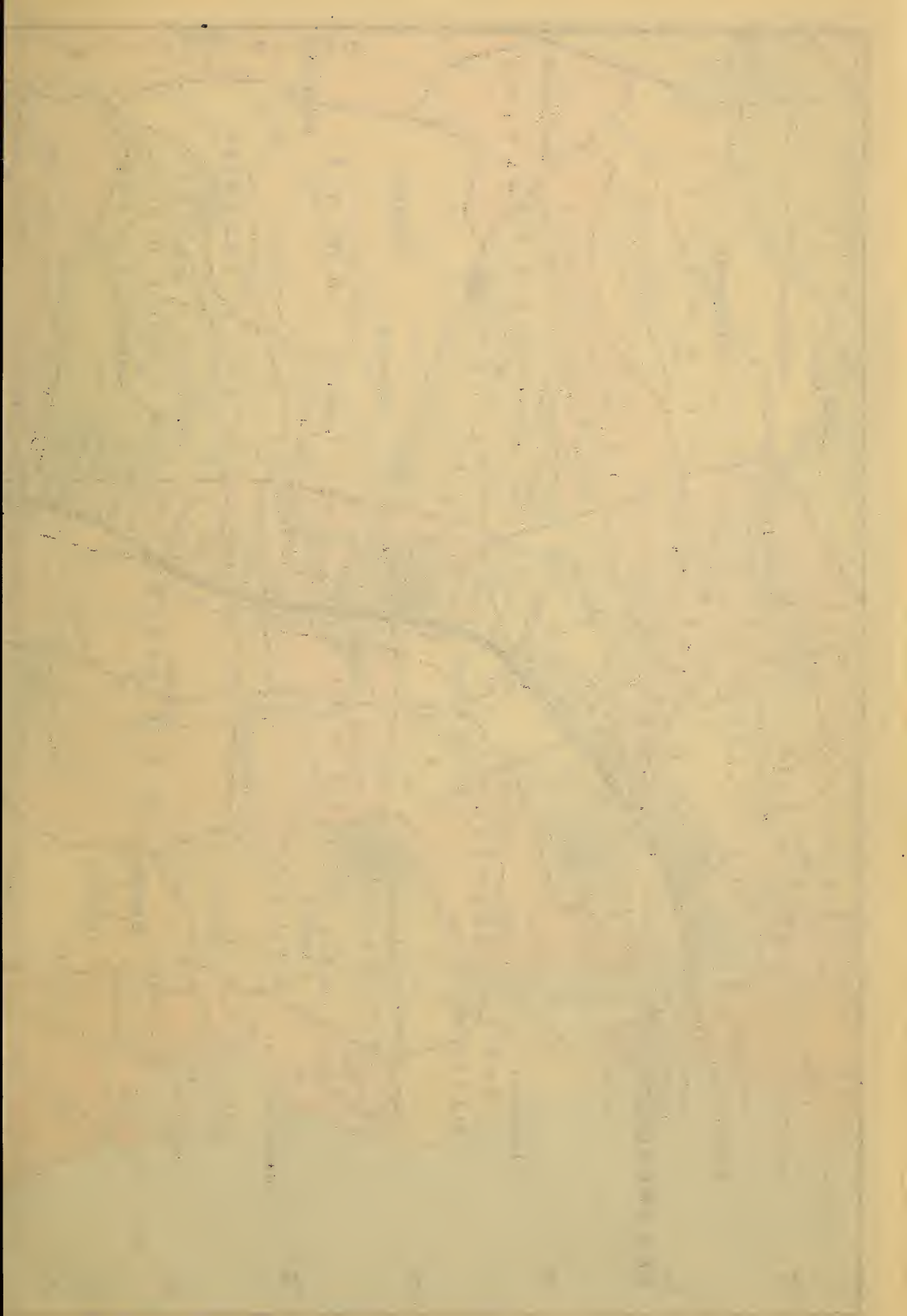


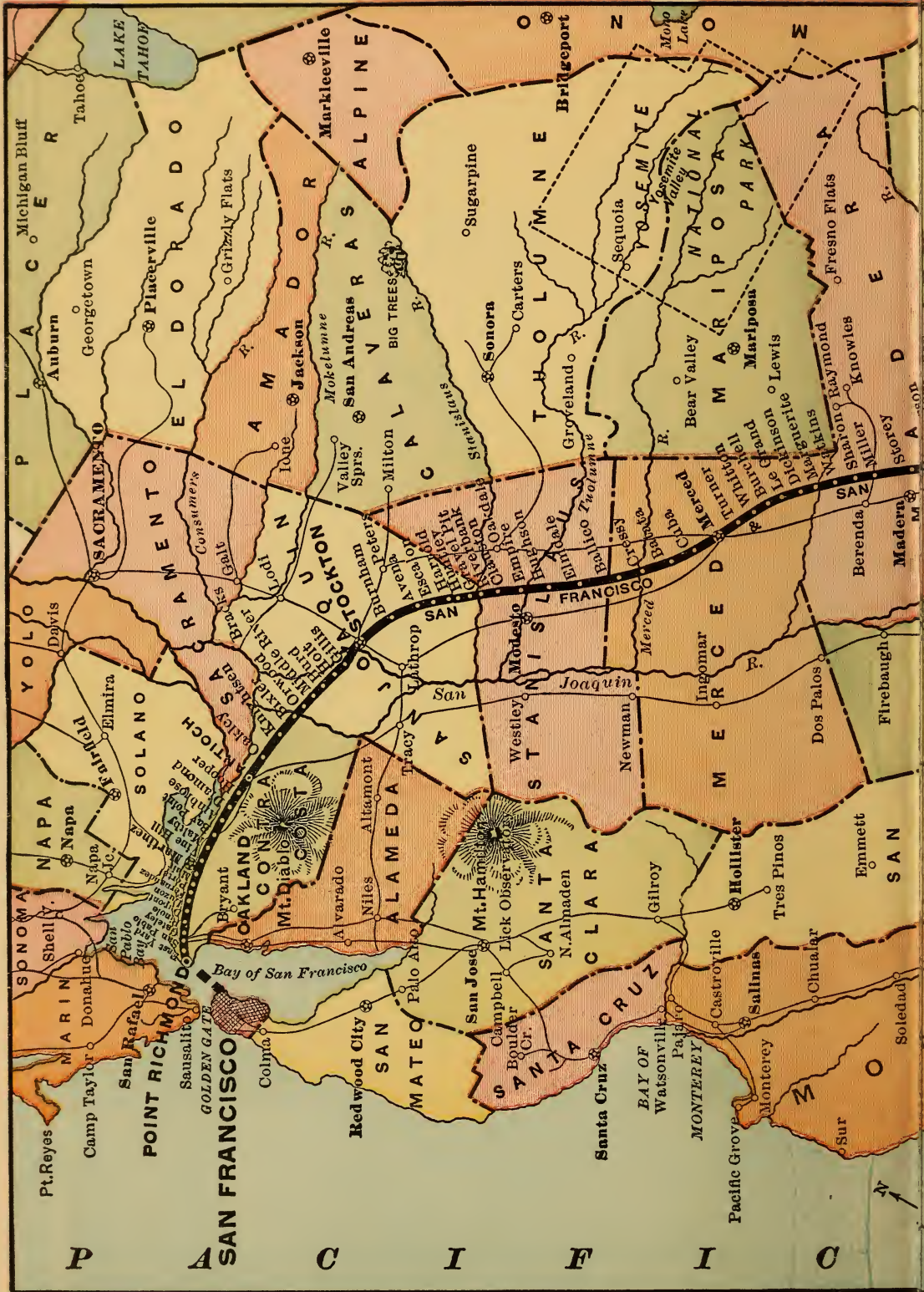
PAMPAS GRASS.



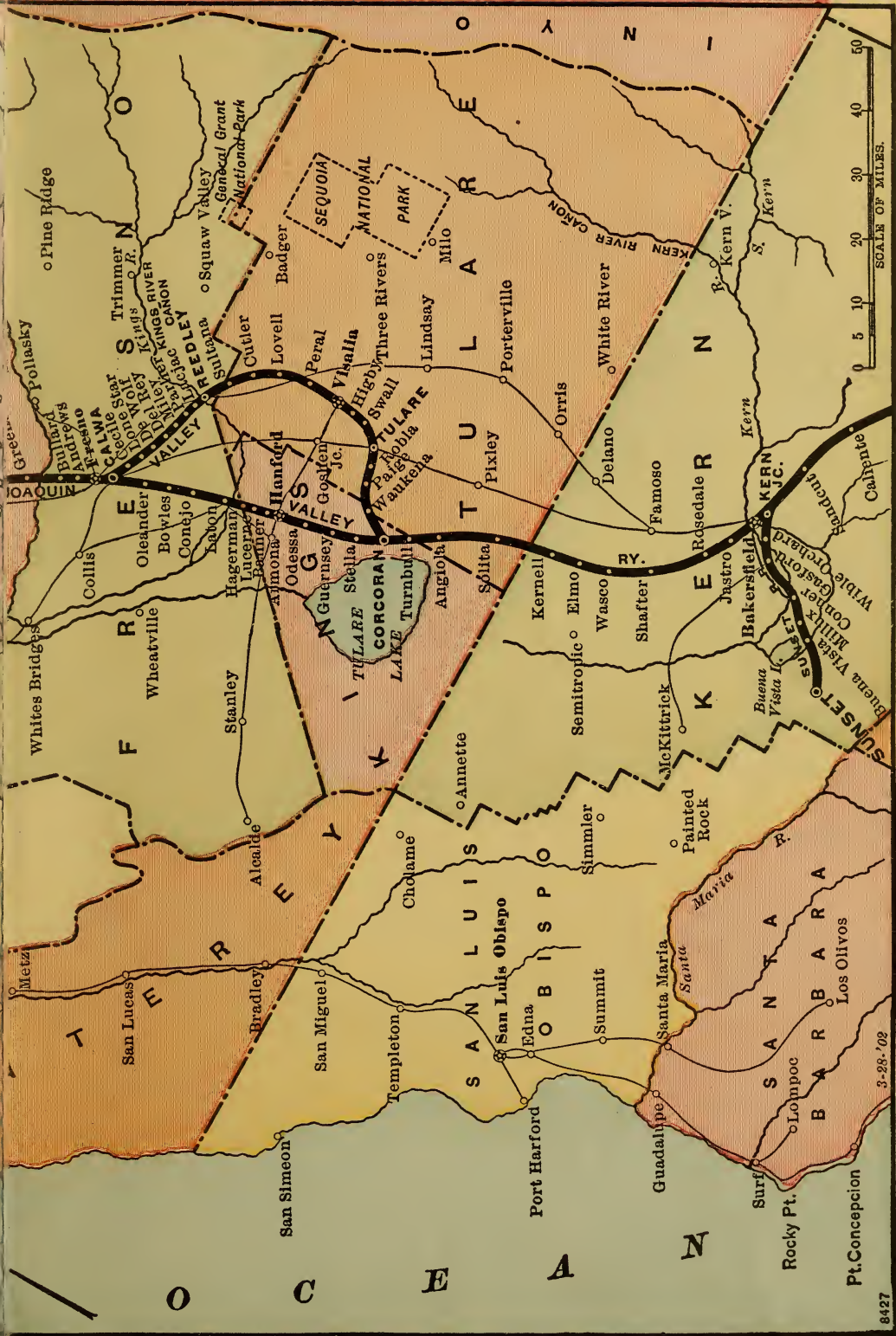


TO CALIFORNIA.





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