IRRIGATION

and thrifty settlers. most of that now planted, awaiting the coming of industrious thousands of acres of land as well adapted to fruit culture as is There are yet left unoccupied, or but partly occupied, are always found there. halls, together with all the concomitants of a high civilization, in the world, Schools, churches and lecture most intelligent, cultured and happy families

Still a Young predominate may be found communities of the In the neighborhoods where small holdings and economically, will pay equally as well as other industries. orchards planted with good judgment, worked intelligently the past, it is equally true that in properly selected localities, such large returns from this industry as have been realized in While it is doubtless true that there will never again be thing more than a comfortable living. income being thus mostly net, and from which they make somelarge share of the work is done by members of the family, the small holdings, from ten to twenty-hve acres, upon which a paratively large part of the product comes from those who have many large ranches, producing quantities of fruit, yet a comrequired for our fruit output, could it be shown in figures, would making to be considered. The number of cans and boxes

t is to be sorted, boxed, cured or canned for the markets of proper stage of ripeness. It is then taken to the points where or cured, it must be carefully gathered, and gathered at the n the crop. Whether the fruit is to be shipped fresh, canned insparingly thinned, all to insure the highest state of perfection must be pruned with skill, and the fruit must be vigorously and The orchards must be cultivated again and again, the trees

There are the adjunct industries of can making and box

crop for market, all receiving a reasonably good compensation sands of busy hands are required to produce and prepare the broader, and in many respects more important. Many thou-State. The industrial aspect is much to Laboring Classes aspect of the fruit products of the good showing of the commercial What it Means The foregoing figures make a fairly

səlqqA
A pricots I
Peaches 2
Raisins7
Prunes12
d

The output of cured (dried) fruit is given in pounds, for

tins, (estimated) 2,800,000.

Shipments of canned fruits—cases of two dozen 21/2-pound carloads, and for 1900-01, 22,654.6 carloads. tons); for 1898-99, 10,875 carloads; for 1899-1900, 13,191.7 Shipments of citrus fruits for 1897-98, 15,400 carloads (12

		882	Cherries
-	Persimmons	191	Appricots
	Figs	0911	PlumsRull
-	MixedbəxiM	964	Grapes
*	Quinces	1361	Peaches
•	ApplessəlqqA	2130	Pears
Car		speotre	

tree, a very low estimate, and the entire product reaches a ing. Estimating the yield at 100 pounds to a Fruit Trees more than 35,000,000 fruit trees, mostly in bear-35,000,000 several varieties, but in round numbers there are

The number of trees to the acre differs with the Grand total.. 27,423 Miscellaneous... "bnomlA

15,764 Orange CITRUS FRUIT. 54,068 Nectarine.. Cherry.

9,993 Plum and Prune47,737 Peach. Apricots.. STONE FRUIT. 5,402 Quincesrs Pears...

SEED FRUIT. ing acreage of fruit in the State:

According to the best available statistics there is the followexpected to promote the profit of the industry. learned, and the hand of the diligent and the intelligent may be nandling and marketing fruit, there is, however, much yet to be each variety. In these directions, as well as in the matters of elevation necessary to develop the best iruit of a Science mining the vital questions of soil, exposure and Becoming of varieties, and better judgment used in deter-In late years more care has been given to selection make little difference what was planted if it was only reasonably upon from \$100 to \$1000 per acre for his product. It seemed to the first years were sometimes fabulous. A grower could count Owing to scarcity of all fruit, the prices realized during

tinuous orchards, well kept and productive. many parts of the State one may ride for hours through conand orchards and vineyards were set out in all sections. In satisfactory that thousands were induced to enter the business skill or judgment, the returns were so were made in a haphazard way, with little diwoni) nomenal, and although the early plantings its Phenomenal Since that time its growth has been phecommercial factor

that fruit growing became well enough established to become a attracted no outside attention, and it was not until about 1870 1701 to 1792, but these being under the control of the Missions Many vineyards and some fruit trees were planted from culture became firmly established as a business. reasonably be expected, a hundred years elapsed before horti-Missions, and although these clearly foretold what might development. The first experiments were made in the early And yet industries along this line were very slow in their

cured state, is now known throughout the civilized world. has not been so brilliant. California fruit, either in its fresh or wide attention as it did in its gold product, even if the record In its horticultural development California has attracted as

HORTICULTURE

65,000 by rail, mostly to other countries. more than 28,000 tons were shipped out of the State by sea and increasing toreign demand for them. During the year 1900 The best proof of the acceptability of our wines is the istic of the California product. be used, they should be pure, and purity is a strong character-State upon an exceedingly satisfactory basis. It wines are to acquired and skill attained in blending, place the product of the remove the temptations to adulterate, and the knowledge The small cost of pure grape juice and its abundance

tricts have taught, and all that applied science can do to secure have been added all that the experiences of the old wine disboth potent factors in producing an acceptable product, there of them. To every conceivable variety of soil and exposure, equal to the best wines of the old world, and superior to most quality, wine making has reached a stage where wines are made From the first crude attempts, resulting in wine of an inferior There is a very large capital invested in wine making.

2,700,000 .000,000.6 000,000,8%. Dry wines. .000.000.31.

Gallons.

Valued at

remaining part of the crop there were made during the shipments; raisins are given in another place, and from the cannot be segregated. Table grapes are included in fresh fruit grapes, and as many varieties are used interchangeably they acres planted to grapes. This covers raisin, table and wine According to the best available statistics there are 188,400

ducing more than sixty per cent of all the wine made in this

As a wine-producing State California ranks first, pro-VITICULTURE

the income from this industry. realized from seeds of this kind, an estimate may be made of vegetable seeds. Judging by the price per pound usually the year ending June 30, 1898, 1,816,670 lbs. of flower and line. There was shipped as through freight to the East during inviting door to new and more extensive enterprises in that vated, and the propagation is simple. The future opens an to foreign countries. Large numbers of bulbs may be cultia large part of the bulbs for which so much money is now sent for growing bulbs, and the State can easily be made to furnish There are many localities where conditions are favorable

seeds now sold in the market are produced in California. return. It may safely be said that a large portion of the garden tor fully ripening the seeds, and the industry makes a good vegetable and flower gardens. The long seasons are favorable have been devoted to the production of seeds for SEEDS For many years large tracts of land in the State their production growers are sure of large returns. to 60,000,000 pounds. In localities adapted to BEANS annual shipment of beans out of the State amounted For the five years ending December 31, 1899, the

growers is encouraging. planted, but prices have become better and the outlook for hop realized for several years have limited the amount HOPS 7,220,000 pounds were produced. The low prices The hop industry is a promising one, and in 1900

Crockett, Contra Costa Co. Oxnard, Ventura Co. Santa Maria, Santa Barbara Co... Alamitos, Orange Co.... » » » « 00Z Salinas, Monterey Co... Alvarado, Alameda Co... 31 11 31 008 " " " " 000I. Watsonville, Santa Cruz Co... Chino, San Bernardino Co.. 1000 tons per day

and their capacities. Below is given a list of the factories already established, as the coming industry. profitable and sure return. By many this is looked forward to ready to invest in an industry that makes a requires a large capital, but capital is usually

Beet Sugar

factories. The establishment of such a factory

There are already in the State eight beet sugar

grown beets, it will be at once seen that the industry is a prom-As the market price is about four dollars per ton for well now paid annually to foreign countries. sugar for the whole United States, saving to us the \$100,000,000 lished in convenient localities, California could well supply cent. Were our beet land all well utilized, with factories estabtons per acre, and the saccharine matter reaches a higher per above conditions. The yield is often much more than twelve well cared for, it has been found that the crop exceeds the In most cases whe e land has been sown to beets and purpose, the only limitation being the distance from the factory. matter, eighty per cent fine, can be profitably used for this duce about twelve tons per acre of fifteen per cent saccharine of the sugar beet. Any land that will pro-BEET SUGAR of land in California adapted to the culture There are, perhaps, a million or more acres vated meadows and table lands, in which the State abounds. dry are moved up, spending the summer months on the elerainy season in the valleys, and as the valley pastures begin to of cattle, horses, sheep and goats are pastured during the

104 00201 40	dt ai vainan aignatifa	J jo cantooj acilioca A
196'779	922,012	Hogs
998'49	44,782	Goats
2,465,620		Sheep
1,411,129	129,64	MulessəluM
848,151,8	315,076	Horses
842,846,8	088,728	Cattle
ssessed Value,		

A peculiar leature of California grazing is that large bands

taken, showing the extent of our grazing interests. From the assessors' returns (1900) the following figures are cattle, horses and sheep are bred, and find their way to market. nowever, many large cattle ranges, and on these DNIZAAD growing every year less and less. There are, The amount of "free pasturage" in California is the State now exceeds \$12,000,000.

dairy interests is very promising. The annual dairy output of been issued by the State Dairy Bureau. The outlook for the cheese produced. More than two hundred cheese brands have "Skimmed Cheese" it has greatly improved the quality of the cheese branded as "Full Cream," "Half-skimmed" and trathe in butter imitations, and by its provisions for having all Wise legislation has restricted, or entirely stopped, the more satisfactory, adding materially to the prosperity of the for dairy purposes, and the product is becoming more and There are something more than 300,000 cows kept solely

the surrounding farmers, as well as to the creameries themalmost every case the results have been highly satisfactory to Nearly three hundred creameries have been established, and in has given a wonderful stimulus to California dairy interests. butter can be made, even when the cows are fed on alfalfa, that by the new creamery processes excellent be grown in large and continuous crops, and The discovery that under irrigation alfalfa can

various industries. Great care has been exercised to prevent

.ud 188, 914, 18..... .2,620,790 acres taken from an average year: The acreage and output of the leading grains are as follows, largely to the prosperity of the State. ing industries, and, as will be hereafter shown, contribute grain growing became less prominent; yet to-day all are thrivthe continuous wheat crops began to reduce the yield per acre, taken up the grazing industry became more restricted, and when out interruption, and although when lands began to be widely supplant, but rather reinforced the old. Mining continued with-It will, of course, be understood that a new industry did not

960'911

,, 000°099°T

Barley...

Abundance

3, 250,780

310,128,82.

dustry would rise. never foresaw to what magnitude this inorchards were planted, although the wisest Vineyard and been imported produced so well that making began. The few fruit trees that had superior grapes were planted, soon in great numbers, and wine gave rich promise of desirable results in viticulture. Other and fore. The wonderful productiveness of the old Mission grape During this period a new industry was slowly coming to the and wheat reached almost fabulous figures. year, netted more than \$10,000,000, while the product of beef

wonderful results were attained. The wool product alone, one From 1860 to 1875 these became the leading pursuits, and would make a good return. ing, cattle raising, and the production of wool as industries that A large number of persons began to look toward grain growwas before them, but very little of it having been appropriated. This, however, caused little trouble, for the whole State often had to be sought. entire year, but during the long summers new pasture grounds ity and enormous in size. Animals throve with little care the ously supplied, all vegetables were produced abundant in qualtell. Also that it water could be gener-

with a generous yield, even if during a Lap Came Out of Nature's in at the proper time the soil responded It was found that when the crop was put everything was a field to be explored. of putting in crops, the care necessary for animals—in short, ittle value. All had to be learned anew. The time and manner to make all that had been learned by previous experiences of They found a virgin soil, a peculiar climate, so strange as

large part of the growing season no rain

necessaries of life washing, and to try their hand at producing from the soil the venturesome persons to leave the more inviting fields of gold its extravagant cost after arrival, led a few ingenious and necessary subsistence over the long journey from the East, and little faith in ultimate results, but the expense of bringing the made along agricultural lines. These were made at first with its gold output, and yet during this time many attempts were For a period of twelve years the State was known solely for have, even so tar, been attained in the different branches of regions there was little to indicate the great possibilities that State during the height of the mining period. In the mining

prise to all, and to none more so than to those who were in the The agricultural development of California has been a sur-**VERICULTURE**

may be formed of what California is, and what it must yet interest to all, and from a careful perusal of which a judgment will be found matter and figures that it is believed will prove of divisions), Horticulture, Viticulture, Mining and Miscellaneous Under the various headings of Agriculture (with its subexaggeration, and what is here given will be found reliable. AINAOHLAS

the large school and the smaller one is fairly well made up by the fact that in the smaller school the teacher can give to his pupils a greater amount of personal attention.

It is in the direction of these rural schools that the State claims preeminence. No teacher can be employed and paid who is not well qualified for the work, and the test of qualifications is, perhaps, quite sufficiently severe. In addition to this the close supervision of all the schools by the County Superintendents, and frequent examinations by a County Board of Education, are sure to secure good work.

To supply qualified and expert teachers there are four normal schools in full and successful Normal and operation, and excellent pedagogical depart-High Schools ments in the two great universities. The work done in these to prepare teachers for their duties will compare favorably with that of any normal school or university in our country. With a small surplus of teachers the problem of the "survival of the fittest" is being gradually and rapidly worked out.

High schools have been established in all of the cities and in many of the larger hamlets. These provide secondary education not only for residents of the district in which they are, but to residents of outlying districts. Numerous denominational and other preparatory schools are in successful operation. Not a few of the denominational schools are doing collegiate work.

The State has kept fully abreast with the most progressive public opinion on educational mat-Up=to=Date in Methods ters. Kindergartens abound in many localities and Facilities as a part of the public school system. There are industrial and trade schools, while manual training is receiving much attention all through the State. Summer schools for vacation study are conducted on the coast and in other localities, doing most excellent work. The large Chautauqua Circle that meets annually at Pacific Grove, has done a most wonderful work of culture for our people, as have also

the several courses of University Extension Lectures. Without minimizing the work of other collegiate institutions and universities, it may Two Great Universities truly be said that educationally the crowning glory of California is the two great universities. The University of California, situated at Berkeley, upon a campus as beautiful as heart could wish, is, through the recent munificence of Mrs. Phœbe A. Hearst, to be placed, in regard to buildings and surroundings, far ahead of any other university in our country by the construction of buildings to the prepara-

tion of the plans of which the competition of the architects of The people of the State await with the keenest and most pleasurable anticipation the splendid results that must follow, and they all feel sure that the educational work of the institution will be made worthy of the home that is being prepared for it. With the Lick Observatory at Mount Hamilton and its other

accessories the University has a future of great promise. The Leland Stanford Junior University at Palo Alto, established, erected and munificently endowed by the late Leland Stanford and his wife, Mrs. Jane L. Stanford, is the wonder of the educational world. It sprang into existence as if by magic, almost grown at its birth, and is accomplishing what

was fully expected—a wonderful work. With its one thousand students, drawn not alone from California, but from almost every State in the Union, as well as from many other countries, it is, by the intelligent and vigorous work of its faculty of splendid professors, winning a recognition never before given to an institution of its age.

A Bright an excellent system of elementary and secondary schools, looking far into the future, realizing what experience and growth must surely bring, one may ask almost breathlessly, "What shall the harvest be?" It can but be a California in the near future known not chiefly by the rude caricatures of the "wild and woolly" ways incident to its first occupation, but better and more widely known

for the intelligence and culture of its noble men and women.

With these two great universities at the head, and

MINING

Since the discovery of gold in California in 1848, the State has given to the world \$1,425,512,689 in gold. The greatest output was in 1852, when more than eighty-one and a quarter millions of dollars' worth was mined. Then there began a gradual decline until 1865, the amount that year being only For the last twenty years the average annual product has

between seventeen and eighteen million. been about sixteen and one-quarter millions. The indications are that this amount will be increased, for succeeding years, to nearly or quite twenty millions. Improved mining machinery, more scientific methods in handling the raw material, and more capital intelligently invested, should largely increase the product, as according to the best mineralogists, there is enough gold-bearing earth "in sight" to last for scores of years. These improvements in working gold-bearing rocks and earth have been of immense value to the mining industries. Ores and mineral ground that a few years ago were abandoned because they could not be worked with profit are now paying good dividends, and much of the ground once worked over by the former wasteful methods is being worked again, in some cases giving nearly as good returns as those given by the first working. With the greatl/ improved concentrators, An Awakened the chlorinating process and the cyanide process, there has been a remarkable increase Industry in the returns from nearly all mining sections. While under the old regime it was known that much of the gold

that will, by methods yet to be discovered, become of great While gold stands preeminently at the head of the mining interests, other minerals cut a very important figure in the industries and the income of the State. Quicksilver, copper and lead, of the metallic, and petroleum, borax, asphalt and lime are found in inexhaustible quantities, and their mining, preparation and transportation give remunerative employment to

was lost, it is now certain that nearly, or quite all of it, is saved.

refractory ores, ores almost impossible to work with profit,

Nor has science yet completed her work. There are yet

thousands of laborers. The lottery period of mining has fortunately No Longer well-nigh passed, and it has become a regular a Gamble systematic business. A large portion of it is carried on by large companies and corporations, as it must necessarily be, on account of the amount of capital necessary for its successful prosecution. Yet all through the mining counties there are found small holdings, worked by individuals, that are paying fine incomes to the operators. Far up the canyons on the spurs of the Sierras, along the mountain streams, are to be found thousands of men, who with a pick and a shovel, a wheelbarrow and a mining pan, are, during the mining season, earning enough not only to keep them well through the year, but to enable them to lay something by for a rainy day, or

for future investment. This kind of work, though it seemingly cuts no very important figure in the entire output, is, in an economical sense, of much importance. These men are the advance guard, the prospectors, and to the efforts of such men the State owes much of its mineral prosperity. Nor is the ground yet fully occupied. The important discoveries of mineral wealth during the past year abundantly demonstrate the fact that there are large bodies of rich mineral awaiting the fortunate finder. The whole Sierra range, extending through the State, contains gulches, canyons and quartz leads, gold bearing, many of which in the future will pay for careful, intelligent working. With a total annual output of \$30,000,-Annual Mineral 000, no small portion of which must Output \$25,000,000 go for labor and its subsistence, for

machinery built almost entirely in the State, for timber used in and about the mines, it will readily be seen that mining enhances greatly the prosperity of California. The wage earner receives a generous compensation for his labor, and a large home market is made for the products of other industries. It is worthy of note that nearly \$2,000,000 of the annual output of the mines comes from those that are classed as "small," mines unnamed and unregistered. The

income from these does not go to great corporations, but is in many cases apportioned among the workers, going at once into general circulation. These mines give employment to three or four thousand persons, and subsistence to several times that number. Hundreds more excellent properties are held, only awaiting the necessary capital to develop them into richly paying

PETROLEUM IN CALIFORNIA [Prof. EDMUND O'NEIL, in "Sunset."]

A little more than fifty years ago gold was discovered in California, and almost immediately the State was filled with gold-seekers. With his pick and shovel and gold pan, the

miner exploited every section of the country. Fifty years later he goes over the same ground, but no longer does he prospect the surface; he digs deep into the earth. His simple hand tools no longer suffice. With derricks and drills and steam engines he penetrates hundreds of feet into the crust. He is seeking for petroleum. The quest has covered the entire State and has extended beyond it. From Mexico to Washington, the oil digger has followed the same paths as did the gold digger, and, like the miner of '49, he has found colors everywhere. In some places but a mere trace, in others gushers spouting a thousand barrels a day.

The knowledge that petroleum existed in California is no new thing. From the earliest times the deposits of asphaltum and natural gas suggested what was beneath the surface. In some places seepages would fill crevices with oil. Some of these seepages were exploited and quantities of oil obtained. In 1852 a small amount was distilled by Pico, and in 1855 a larger plant was erected by Morrell in Santa Barbara. Various attempts were made to develop the oil supply of the southern counties, but with little success until 1875. A company began operating in Pico canyon, in what is now known as the Newhall district. This company, with others, was merged into the Pacific Coast Oil Company, which began work on a large scale, dug many wells, constructed pipe lines and built a refinery. The Union Oil Company, also formed by the combining of several companies, operated in Ventura County, and also built pipe lines and a refinery. In addition to these, two or three small companies worked on a small scale, and this was the condition of the oil industry in California at the end of

the eighties. The discovery of oil in Los Angeles in 1892 gave an impetus to the business. With an increasing supply came an increasing demand. Other districts were developed, and it was shown that a large supply existed.

The work done so far shows that prac-The Whole State tically the whole of California contains Contains petroleum. From Shasta to San Diego Petroleum wells have been bored, and in many districts oil has been found. But, except in the San Joaquin Valley and south of Tehachapi, the yield has been small. The chief fields have been in Los Angeles, Ventura, Santa Barbara, Kern and Fresno counties, About equal amounts have been obtained from south of Tehachapi and in the San Joaquin Valley. Further north, except in the Coalinga district, but a small amount has been produced. At the present time Kern County, especially the Kern River district, gives promise of being the greatest source of supply and will probably be the longest lived. In the north considerable work has been done in Humboldt County, in the Mattole district, and later in the Sacramento Valley, in the neighborhood of Tehama and Colusa counties, and they have very bright prospects. But as vet little oil has been obtained. One of the vital questions for the practical man is, How much oil is there in a given district? How long will the wells last? The answer is simple enough in theory. It is possible to fairly predict the amount of oil in a given district if the area limits and depth of oil sand are known, and this can

be ascertained by systematic boring. It is all a question of area

of field and depth of oil sand, and degree of saturation of the sand with oil. In California the per cent of oil in sand is variously estimated to be from ten to twenty-five per cent. If we take fifteen per cent as an average, there would be about 550 barrels of oil in every acre of oil sand one foot deep. Based on such figures as these, some ex-

Some Startling travagant estimates have been made as to the amount of oil in California. One enthusiast says there are 40,000 square miles of territory that almost certainly contain oil, and that the average thickness of the oil sand is 400 feet. On the above assumption there would be stored up in our State 4,608,000,-000,000 barrels of oil. The production last year was about 3,000,000 barrels. If this were increased tenfold the supply would not be exhausted for 150,000 years. As a matter of fact, the entire amount of petroleum produced in California up to

the end of 1900 is a little over 15,000,000 barrels. With the increased area of oil lands in the San Ioaquin and the large number of wells, production has gone ahead of the demand, and the result has been a fall in the price of oil. But this will be temporary. The production of oil at present is not near what is needed to supply the demand for fuel in this State alone. California consumes over a million and a half tons of coal annually, equivalent to nearly 11,000,000 barrels of oil. Nor will the demand for oil be limited to its coal equivalent. For oil is cheaper than coal for steammaking purposes. Oil at the present prices can compete with coal at from four to five dollars a ton.

But it is not as fuel that petroleum will be most valuable. Converted into an Its Ultimate Value illuminating or lubricating oil, the value Not Alone for Fuel is greatly increased. True, as yet the kerosene and lubricants from California oils are not very large in quantity or good in quality, but it will be perfectly possible to convert the distillate into satisfactory products. It is a chemists' problem, and chemists will be found to solve it. Again, the products that are present in California oil may be converted into compounds of great commercial value. There will come a time when a large part, if not all, of our oil will, by chemical treatment, be made to yield dyes and perfumes and drugs and solvents, and possibly foods, that will be worth far more than the crude material. California petroleum is valuable as a raw material for making chemical products; too valuable to be annihilated in boiler furnaces.

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100,000,000 acres of the richest land in the United States is practically foreign territory because there is no water on it. The cheapest way for the Government to add to its wealth and afford the greatest benefit to its citizens is to reclaim the 100,000,000 acres of arid land in the West. As a part proprietor are you not interested?

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BRIEF DESCRIPTION OF ITS PUBLISHED BY THE PASSENGER DEPARTMENT SOUTHERN PACIFIC COMPANY T. H. GOODMAN, E. O. MCCORMICK, General Passenger Agent Passenger Traffic Manager

rural schools. The difference of a couple of months between It thus happens that all through the State there are excellent and, therefore good reading matter is within the reach of all. A part of the same fund is set apart for library purposes, at least six school months each year, enough to ensure a school, taught by a well-qualified teacher, for organized school district receives, from a general fund, money

a wise and generous provision of the school law the most remote

there. No such places exist in California. By

advantages to the children growing to manhood school districts, unable to afford educational An Excellent happens that in many localities there are weak in new and sparsely settled States it often a system of public schools of which it is justly proud. peculiar circumstances of a community like ours, it has built up visions of the laws of the older States, happily adapted to the to many States. Under a school law made up of the best prostands in the very front rank, equal to the best and far superior

Nothing contributes more strongly to the healthful and per-EDUCATIONAL

affords in the way of public education. Along this line the State

manent prosperity of any community than the opportunities it

without danger, work diligently. head of health. He who, without excess, plays wisely, may, And all this may be properly presented under the general are the sportsman's paradise." are many locations of which it is no misnomer to say, "they doves and pigeon—are in plentiful and enticing numbers. There add zest to the sport, while smaller game-hare, grouse, quail, Deer are abundant in the wilderness, with bear enough to strength of the tackle and skill of the angler. streams he reaches a size that often tests to the extreme the

game. The mountain trout takes the fly with dame in Most of these regions abound in fish and to the sportsman the call is yet stronger give rest unto your bodies, and a glorious uplifting unto your weary sons and daughters of men, come unto us, and we will less pretentious canyon, are perpetually crying out "Come, ye of California, from grand old Yosemite to many a smaller and mother earth to renew their strength and vigor, the mountains profitable," to those who, like Antæus, need but to touch old too complex civilization become, at last, ''stale, flat and unbusiness, to those who have learned that the delights of a

shames his Eastern congener, and in the lakes and larger

an avidity and fights with a gameness that

To weary workers, worn down by too close attention to remembered for many a day. looked torward to with Joyous anticipations, and to be pleasantly points and a bivouac under the soughing pines is a thing to be entirely in the open air. Excursions may be taken to distant can always be counted on makes it possible to live almost The fact that for eight months of the year good weather live a homelike, quiet life. company of only friends, and where he can, if he so desires, men," one can secure a small cottage wherein he can enjoy the

great caravansary, mixing with "all sorts and conditions of At most of these, instead of being compelled to live in a ranged, in many cases, to supplement the work of nature. abounds in health and pleasure resorts, ar-Everywhere man, But man is doing his part. The State done, unaided by the, often, bungling hand of Resorts

Health springs already discussed, are what nature has These things, together with the mineral investigation and enjoyment. observer, and to one already interested afford a new world of The lesser flora almost compel attention, even from a careless the winds make a low, sweet music, winning a willing ear. dark forests of firs and pines through whose evergreen branches imposing than anything that man has ever created. There are There are redwood cathedrals grander, more lofty and

her varied forms, must be the mind that does not waken to an active interest in may be seen and studied in all her moods, and dull indeed had in the foothills and mountains of California? Here she than in communion with nature such as may be of feeling; and where can these be better secured There must be a change of thought and a change of climate alone will not secure the best results, Intelligent physicians well understand that a change

they pass, the climate is all that the most exacting health seeker tragrant by the torests of hrs, pines and redwoods over which On the Coast range the ocean winds, tempered and made or where excessive irrigation is used, with no adequate dramage. is free from malaria, except along some of the sluggish rivers, in summer for effluvia to be taken up and distributed, the State Too cold in winter for much vegetable decay, and too dry one immense natural sanitarium, this part of the State with much of the Coast range constitutes all lung diseases are wonderfully ameliorated. The whole of bronchitis and kindred diseases disappear as it by magic, and

Sanitarium that roses, fuchsias and callas may be gathered

months in the vear where it is so summer-like As to temperature one may live for twelve desirable. It is for the physician to determine what conditions both directions, there is little difficulty in finding the conditions most of the nights are dewless, with all intermediate grades in to the dry climate of many of the inland sections, so dry that from the very damp climate of the west side of the coast range level to about 7000 feet above; a choice in humidity ranging a choice in the matter of elevation of from 300 feet below sea tion of locality, all that these can do can be secured here. With cure everything, but it is safe to say that by an intelligent selec-

at all times, in the high Sierras, asthma,

It can hardly be expected that climate and surroundings can berhaps incurable, increases somewhat the death rate of the run away from death when it is too late, or when the disease is advantages here offered. The fact that many come, trying to tavored localities, availing themselves of the climatic and other abounds in health resorts, and large numbers come from less abundantly established by practical demonstration. The State What is here stated theoretically has been, and is being, tested by adequate scientific research." the truth of this statement, in all necessary details, must be developed and "While our present knowledge warrants this assumption, yet practically every form of wasting disease should find the means of temporary, if not peresorts and sanitariums in the United States. Within her borders almost

This topic cannot be better introduced than by the following HEALTH AND HEALTH RESORTS

report of Lieut. John P. Findley, of the Weather Bureau, made

some years ago, after a careful study of California:

"Theoretically, California should furnish the best and most varied health

most majestic and symmetrical trees in the world. are the groves of Big Trees (sequon gigantia) perhaps the from year to year. Here, too, above the great glacial action range, carries upon its lofty summits a crest of snow, often This range, of considerably greater altitude than the Coast great central valley. the south, making an almost entire mountain surrounding of the little north of Mt. Shasta, and again at the Tehachapi Pass in eastern trend of the Coast range, unites with it at a point a The Sierra range, swinging toward the west to meet an the old world. valleys, rivaling in grandeur the most impressive scenery of Yosemite, and here are, also, many other partially enclosed the canyons are vaster and deeper. Here lies the great The slopes upon this side, however, are more abrupt and

inter-valley land, available for culture, as on the western side.

eastern side of the valley has the same variety of foothill and

sufficiently discussed, but it must not be lost sight of that the matic conditions of these valleys have been whose magnitude can hardly be realized. The clialthough they are seemingly dwarfed by the one smaller valleys, that are in themselves immense, We come next to the great inland valley, with the our semi-tropical fruits and winter vegetables are produced. Pacific. All this region is also fruitful, and from it the most of plains, all deriving the advantages arising from proximity to the On the ocean side there are also somewhat extensive

are all productive, and very destrable as places for home of the ocean. They have greater extremes in temperature, but opening inland are not so fully under the equalizing influence togs supplying abundant moisture for plant life. The valleys from frost, where itrigation is rarely necessary, the ocean climate moist and equable; comparatively free are in what is designated as the coast climate, a mland plains. The valleys opening to the west Herrile Large and lose the appearance of valleys, and seem vast Some of these valleys are so extensive that they

which, with their adjacent foothills, constitute a very productive overlapping of the many spurs makes a multitude of valleys, almost parallel to the coast the entire length of the State. The for the spurs overlap each other through the whole extent, run The Coast Range mountains, or rather the Coast ranges,

TOPOGRAPHY

built up a comfortable, self-sustaining home. cultural industry, where, with industry and economy, can be abundance of land adapted to any kind of agricultural or hortihome making. By carefully selecting the location, one can find Another result is that nearly the entire State is desirable for

July and August he can choose between snow banks or flower most delightful and healthful climate during the entire year. In on the Sierras, with a little change of elevation, will secure a any period of the year. A winter at Monterey and a summer who is in search of health or pleasure to select his climate at These climatic peculiarities make it possible for a tourist usually require to be rooted in hot beds, and other cuttings without difficulty, even those things that the earth. It is this bottom heat that enables us to root grapes undoubtedly a small amount of heat constantly radiated from with sap as in the East, and partly from the fact that there is comparatively dry climate plants are not so plentitully supplied be cut in a rose garden. This is doubtless partly because in a There is no day in the year in which fresh rosebuds cannot stands on the streets, well supplied, are never closed.

in the open air during ten months of the year, and fresh fruit-Over a considerable portion of the State strawberries ripen of leaves and fruit, extends from lune to the succeeding March thus blending with winter, and the fall, if it refers to the falling spring occur during the early part of a rainy season, defined spring, for all the phenomena of an Eastern Only Two seasons—the wet and the dry. There is no well-As a general proposition the State has but two rainfall is determined largely by the trend of the mountain snow lies from eight to twelve months of the year. There the and genial both summer and winter, upon the upper ranges

tion. While to the height of 3000 feet the temperature is warm The climate of the sierra zone depends largely upon elevahve inches during the year. There are large areas where the rainfall is from sixty to seventywhere the clouds seem to be massed by the entering winds. with abundant rain, especially on the northern end of the valley, October. During the winter it is colder than on the Coast, warm during the summer, with scarcely any rain from May to parallel to the Coast range, is, as has already been shown, quite The valley zone, extending about six hundred miles

south, from twenty to fitty inches. is almost frostless, and the rainfall is, except in the extreme ure and an equable temperature. During the winter this zone the summits of the Coast range, giving an abundance of moistlow fog near the ocean. This fog during the day floats up to cool during the summer, with considerable zone. Along the entire coast the climate is

Three Climatic coast zone, the valley zone, and the sierra

There are three distinct climatic zones: the

to Mount Shasta, the sides extending south to about the latiform of an inverted capital letter U, the curve reaching almost thermal lines 1ar north, so that the summer isotherm takes the north of northwest by the Sierra Kange. This forces the 150course inland. Passing in a northerly direction they are turned larger nivers reach the ocean, the warm winds continue their ing down of the coast range, which must occur wherever the State, coming from the southwest. Wherever there is a breakpanying winds, hows up against almost the entire coast of the rationally explained. The Japan current, with its warm accomknowledge of oceanic currents, this apparent anomaly may be By a careful study of the topography of the State, and a from four to six weeks earlier than in the southern counties. while the orange and lemon reach their perfection, ripening northern valleys the palm, fig and olive find a congenial home, not much more severe than in these cities. In many of the north of San Diego, the summers are warmer and the winters Four hundred miles north of Los Angeles, and five hundred ever, very lar from being the case.

of lows or Nebraska on the upper Mississippi. This is, howmust have the rigorous winters of the North Atlantic States or of the palm and of citrus fruits, the northern part of the State ern California has a sub-tropical climate, adapted to the growth From these facts it might be thought that, although Southsame parallel with Boston, Mass. phis, Tenn. The northern line of California is on nearly the 5. C., while Los Angeles lies a little tarther south than Mem-Diego, the southern city of the State, is about that of Charleston, tions between latitude and temperature. The latitude of San sidered, upset completely all preconceived notions of the rela-The climatic conditions of California, when closely con-

CALIFORNIA CLIMATE

ogical report will show that sixteen counties report sales to the gallons were marketed last year. A reference to the mineralthey are becoming more widely known. Nearly 2,000,000 importance. The demand for them is rapidly increasing, as waters are shipped for market in quantities to be of commercial There is a large number of mineral springs from which which they are deemed a specific readily to these baths, and there are many other ailments for and simple basis. Most forms of chronic rheumatism yield some of them, and mud-bathing has been reduced to a practical Modern bathing facilities have been now constructed over to secure the benefits to be derived from such

have been used as remedial agents by the Remedial Wonderful lets are the hot mud springs. For ages these Amongst the most striking of these natural outmind, need the soothing influence of Nature's kindly hand. veritable meccas to those who, diseased in body or disturbed in and health resorts have been established all of which become At the springs that have been most widely tested summer ature is sometimes found in springs but a few feet apart. 40° to 212° F. And singularly enough this variation of temper-In temperature these springs run the full gamut from say such springs, iodine and bromine also abound. often found, and, in addition to the minerals usually found in hydrogen. Free sulphuric, hydrochloric and nitric acid are The gaseous matter is largely carbonic acid and sulphureted

Indians, who often traveled hundreds of miles

tion can be made of their remedial value. matter contained in each, and upon these analyses a safe predicwaters have been analyzed, showing the mineral and gaseous great medicinal value. Probably more than two hundred of the for health or pleasure, and of these many are known to be of but there are several hundred that have become resorts, either thousands. Comparatively few of them have been exploited, Mineral Springs in California may be numbered by the

MINERAL SPRINGS

be a very large one, and would comprise many most valuable value. A catalogue of new fruits produced in California would new irmis are being constantly produced, many of them of great ported from Japan, and, led by our world-renowned Burbank, little waiting. A large number of new fruits have been imbears so young that tests are possible with NEW FRUITS of new fruits. Hybridizing is easy and fruit California is an ideal place for the production large number of laborers. The gathering and preparation of them for market employ a composition of some of the most valuable remedial agents. consumed here, large quantities are exported and enter into the native medicinal herbs the State abounds, and, besides those as insect powder, there is a ready market. In of buhach are grown for which, when prepared But little is done in this line, though large fields

the immediate future, as the industry is growing rapidly day. Much more extensive shipments may be counted upon in \$600,000 to the growers, 25 to 30 carloads being shipped per in Orange County this season's celety crop represents at least solid helds may be found containing six or seven hundred acres. exactly adapted to the growth of celety, and in some places unexcelled. The rich peat soils seem to be leared, as the yield is abundant and the quality in the production of celety no competition is demand the California product, the same as they do now Cali-

gradually creeping farther eastward and it is only a question of loads. Most of these go to the mountain states, but they are Of these there were shipped out of the State in 1900, 5140 carground fresh all through the winter and until late in the spring. beets, carrots, parsnips and the like may be taken from the gardening. Cabbage, cauliflower, sprouts, celery, makes California an ideal place for market GARDEN hardier vegetables grow through the winter The fact that in a large part of the State the produced. The judicious investment of a little capital seems all there seems to be no reason why all the finer wares cannot be

short time when consumers of garden truck everywhere will

ties. The Roblin pottery in San Francisco is turning out most possibility of a largely paying industry in working the finer qualinow being made in a humble way to call public attention to the quantities of the coarser clays are now utilized, and an effort is An examination of the mineral report will show that large and other fine clays. POTTERY pottery, but there are large deposits of kaolin large beds of blue clay, for brick and coarse The State is rich in clays. Not only are there but it will come.

beautiful products, artistic in form and elegantly decorated;

nation's new tobacco possessions may possibly delay the time, distant future tobacco will become a profitable industry. The scale in San Diego County. It is safe to say that in no very year steps were taken to raise leaf tobacco on a commercial made with varying results, and during the past TOBACCO are found in California. Experiments have been Almost perfect conditions for tobacco culture

there is no reason why this industry may not be widely

As the demand for honey is a constantly increasing one,

will prove most interesting and instructive. to these rural apiaries and an hour's talk with those in charge proprietors have become wonderfully wise in bee lore. A visit At many of these ranches separators are used, and the mated at 2,000,000 pounds. most excellent quality. The yield of honey for 1900 is estistreams the busy workers store up large quantities of honey of producing plants. In hundreds of hives up and down these pure orange honey—abounds, as also multitudes of other honey-There the white sage, from which the best honey is made—the streamlet comes trickling down, there are bee ranches located

especially in the southern part of the State, wherever a little

points and finds its way to market. Far up the canyons,

these the strained honey is packed out on donkeys to snipping

them located in far-off and almost maccessible places. From

tion with other pursuits there are large numbers of

quality unrivaled. Besides the apiaries in connec-

The product of honey in the State is large and the MISCELL ANEOUS INDUSTRIES

ma's production more fully demonstrated. amount now running to waste, and the potentialities of Califorpriated. At no distant day there will be a wiser use of the vast But a small portion of the water in the State is yet approthe cost of purchased water. to products by mopportune rains will nearly, if not quite, equal takes in an irrigated section to apply the water; and the injury waiting for the rain to dry off so as to resume work, than it mer rains, in postponing necessary work because of rain, of in loubtless true that more time is lost in a country having sumto his crop. It may come at most inopportune times. It is comes, not when it is wanted, or when it will be of most benefit rainfall, one must take and use water when it there is abundant rainfall. Dependent upon rrigation

over non-irrigated, even though in the latter To sms of Irrigated districts have many advantages Advantages of being provided for—and the end is not yet. rrigation are decoming more widely known, larger areas are onditions. As the great benefits arising from these plans of able price, making the owners almost independent of climatic California are supplied with all the water they need, at a reason-Under these three systems many millions of acres of land in done to secure an abundant supply of water. and with the proceeds of these the necessary work has been have been formed, bonds issued covering the irrigable land, irnishing water at a stated price per acre; or irrigation districts the control of water and put in the necessary plant and ditches, combined capital. In some cases private enterprise has secured But by far the greatest amount of irrigation is done through make its crop even without more irrigation.

taken up from twenty to thirty inches of water in winter will

the immense denefits that have accrued from it. Land that has

large quantities of water. This has led to winter irrigation and although many of them are dry in summer, in winter they supply Streams running through or near the land are utilized, for are more than 5000 artesian wells in the State, furnishing large necessary to secure fall enough to do the work rapidly. There land to be irrigated. Usually a pumping plant is Employed artesian, and conducting water from them to the

by sinking wells, a large number of which are Irrigation in its simplest form is accomplished he size of the fruit and adds to its excellence. that a limited amount of water applied at the right time increases While this is not so imperative with deciduous fruits, it is found able, paying crop without the artificial application of water. the citrus fruits, it being hardly possible to secure a merchantequires the aid of irrigation. This is especially true of all Successful fruit growing in most of the interior valleys

very great depth, there seems little danger of impoverishing the from five to eight times a year, and, as the roots penetrate to a

Wonderful to bus 1 by the waters of the Pacific.

folder to present in a condensed form a statistical resumé of its magnitude of its productions. An attempt is made in this peculiarities of surface and climate are the variety and Far more striking than the great area of the State and its

'easonable care, may never be exhausted.

"the desert blossom as the rose."

benign influence of ocean currents, coast

To the peculiarities of climate due to the

presents a coast line of more than twelve hundred miles bathed

great Sierra range. California has abundant cause to thank God

Yosemite Valley, are among the most attractive features of the

nountain meadows, the beautiful lakes, the natural parks, like

shown under the further discussion of climate. The great

determines the matters of temperature and humidity, as will be

nfluence upon the climate of the State. Indeed, this largely

rainy season, then the waste places shall be made glad, and

that now runs wildly and wastefully to the ocean during the

capital guided by intelligence shall thus conserve the water

impounded for subsequent use upon the arid plains. When

within which the waters from the winter rains can be easily

ranges are great watersheds, gashed by immense canyons,

could have been attained through no other agency. These

These erosions have given a variety and tertility to the soil that

the State into notice, and which has done so much to enrich it.

erosions, made accessible the mineral wealth that first brought

ficent. Their upheaval, and the attendant and subsequent

Geography necessarily present much land unsuitable for

its Peculiar almost the entire length of the State, while they

become one of the greatest factors in this great commonwealth.

occupied by an intelligent, industrious, thrifty people, it must

ts million of acres of arable land shall be brought under culture,

a population as dense as that on the Eastern Coast, and when

uture, When its fertile hills and broad valleys shall teem with

any correct judgment can be formed of its possible or probable

and it is only by considering these and its climatic leatures that

State and its peculiar advantages of location can be appreciated,

Vermont, Massachusetts, Rhode Island, Connecticut and the

oaquin Valley there is abundant room for New Hampshire,

whole of Arkansas, Missouri and lowa. In the great San

the river, it takes a small strip from Louisiana and embraces the

ersey, Delaware, Maryland, Virginia, North and South Carolina

States there must be added to Connecticut, Rhode Island, New

chusetts. To make up its area from corresponding Atlantic

southern line of South Carolina to the southern line of Massa-

two hundred miles wide, extending in latitude from near the

California occupies on the Pacific Slope a belt of land about

about 40,000 square miles from New York and Pennsylvania.

Laid off in the Mississippi Valley, on the western shore of

It is only by such comparisons that the size of the

The peculiar trend of the mountains has a wonderful

building timber in the world and the supply, with

firs and cedars. Among them are found the best

groves of giant sequoias, sugar and other pines,

Here, too, are the great timber belts, the immense

home making, are in many respects widely dene-

The two ranges of mountains that traverse

The State being nearly eight hundred miles in length

Ocartography Associates, David Rumsey Collection

tropical fruits over an area extending in latitude nearly six that makes it possible to produce semi-Productiveness wonderful productiveness, and this it is and mountain ranges, the State owes its

from five to eight times a year, and, as the roots penetrate to a very great depth, there seems little danger of impoverishing the

Successful fruit growing in most of the interior valleys requires the aid of irrigation. This is especially true of all the citrus fruits, it being hardly possible to secure a merchantable, paving crop without the artificial application of water. While this is not so imperative with deciduous fruits, it is found that a limited amount of water applied at the right time increases the size of the fruit and adds to its excellence. Irrigation in its simplest form is accomplished by sinking wells, a large number of which are artesian, and conducting water from them to the Employed land to be irrigated. Usually a pumping plant is

necessary to secure fall enough to do the work rapidly. There are more than 5000 artesian wells in the State, furnishing large quantities of water. Streams running through or near the land are utilized, for although many of them are dry in summer, in winter they supply large quantities of water. This has led to winter irrigation and the immense benefits that have accrued from it. Land that has taken up from twenty to thirty inches of water in winter will

make its crop even without more irrigation. But by far the greatest amount of irrigation is done through combined capital. In some cases private enterprise has secured the control of water and put in the necessary plant and ditches, furnishing water at a stated price per acre; or irrigation districts have been formed, bonds issued covering the irrigable land, and with the proceeds of these the necessary work has been done to secure an abundant supply of water.

Under these three systems many millions of acres of land in California are supplied with all the water they need, at a reasonable price, making the owners almost independent of climatic conditions. As the great benefits arising from these plans of irrigation are becoming more widely known, larger areas are being provided for-and the end is not yet. Irrigated districts have many advantages Advantages of over non-irrigated, even though in the latter Systems of there is abundant rainfall. Dependent upon Irrigation

rainfall, one must take and use water when it comes, not when it is wanted, or when it will be of most benefit to his crop. It may come at most inopportune times. It is doubtless true that more time is lost in a country having summer rains, in postponing necessary work because of rain, or in waiting for the rain to dry off so as to resume work, than it takes in an irrigated section to apply the water; and the injury to products by inopportune rains will nearly, if not quite, equal the cost of purchased water.

But a small portion of the water in the State is yet appropriated. At no distant day there will be a wiser use of the vast amount now running to waste, and the potentialities of California's production more fully demonstrated.

MISCELLANEOUS INDUSTRIES

The product of honey in the State is large and the quality unrivaled. Besides the apiaries in connection with other pursuits there are large numbers of them located in far-off and almost inaccessible places. From these the strained honey is packed out on donkeys to shipping points and finds its way to market. Far up the canyons, especially in the southern part of the State, wherever a little streamlet comes trickling down, there are bee ranches located. There the white sage, from which the best honey is made—the pure orange honey—abounds, as also multitudes of other honeyproducing plants. In hundreds of hives up and down these streams the busy workers store up large quantities of honey of most excellent quality. The yield of honey for 1900 is estimated at 2,000,000 pounds

At many of these ranches separators are used, and the proprietors have become wonderfully wise in bee lore. A visit to these rural apiaries and an hour's talk with those in charge will prove most interesting and instructive.

As the demand for honey is a constantly increasing one, there is no reason why this industry may not be widely

Almost perfect conditions for tobacco culture are found in California. Experiments have been made with varying results, and during the past year steps were taken to raise leaf tobacco on a commercial scale in San Diego County. It is safe to say that in no very distant future tobacco will become a profitable industry. The nation's new tobacco possessions may possibly delay the time, but it will come

The State is rich in clays. Not only are there large beds of blue clay, for brick and coarse POTTERY pottery, but there are large deposits of kaolin and other fine clays. An examination of the mineral report will show that large quantities of the coarser clays are now utilized, and an effort is now being made in a humble way to call public attention to the

possibility of a largely paying industry in working the finer qualities. The Roblin pottery in San Francisco is turning out most beautiful products, artistic in form and elegantly decorated; there seems to be no reason why all the finer wares cannot be produced. The judicious investment of a little capital seems all that is necessary. GARDEN TRUCK

The fact that in a large part of the State the hardier vegetables grow through the winter makes California an ideal place for market gardening. Cabbage, cauliflower, sprouts, celery, beets, carrots, parsnips and the like may be taken from the ground fresh all through the winter and until late in the spring. Of these there were shipped out of the State in 1900, 5140 carloads. Most of these go to the mountain states, but they are gradually creeping farther eastward and it is only a question of short time when consumers of garden truck everywhere will demand the California product, the same as they do now Cali-

fornia fruit. In the production of celery no competition is CELERY feared, as the yield is abundant and the quality unexcelled. The rich peat soils seem to be exactly adapted to the growth of celery, and in some places solid fields may be found containing six or seven hundred acres. In Orange County this season's celery crop represents at least \$600,000 to the growers, 25 to 30 carloads being shipped per day. Much more extensive shipments may be counted upon in But little is done in this line, though large fields

the immediate future, as the industry is growing rapidly. of buhach are grown for which, when prepared as insect powder, there is a ready market. In native medicinal herbs the State abounds, and, besides those consumed here, large quantities are exported and enter into the composition of some of the most valuable remedial agents. The gathering and preparation of them for market employ a large number of laborers.

California is an ideal place for the production NEW FRUITS of new fruits. Hybridizing is easy and fruit bears so young that tests are possible with little waiting. A large number of new fruits have been imported from Japan, and, led by our world-renowned Burbank new fruits are being constantly produced, many of them of great value. A catalogue of new fruits produced in California would be a very large one, and would comprise many most valuable

MINERAL SPRINGS

Mineral Springs in California may be numbered by the thousands. Comparatively few of them have been exploited, but there are several hundred that have become resorts, either for health or pleasure, and of these many are known to be of great medicinal value. Probably more than two hundred of the waters have been analyzed, showing the mineral and gaseous matter contained in each, and upon these analyses a safe prediction can be made of their remedial value.

The gaseous matter is largely carbonic acid and sulphureted hydrogen. Free sulphuric, hydrochloric and nitric acid are often found, and, in addition to the minerals usually found in such springs, iodine and bromine also abound. In temperature these springs run the full gamut from say 40° to 212° F. And singularly enough this variation of temper-

ature is sometimes found in springs but a few feet apart. At the springs that have been most widely tested summer and health resorts have been established all of which become veritable meccas to those who, diseased in body or disturbed in mind, need the soothing influence of Nature's kindly hand. Amongst the most striking of these natural out-

lets are the hot mud springs. For ages these have been used as remedial agents by the Indians, who often traveled hundreds of miles to secure the benefits to be derived from such baths. Modern bathing facilities have been now constructed over

some of them, and mud-bathing has been reduced to a practical and simple basis. Most forms of chronic rheumatism yield readily to these baths, and there are many other ailments for which they are deemed a specific. There is a large number of mineral springs from which waters are shipped for market in quantities to be of commercial importance. The demand for them is rapidly increasing, as they are becoming more widely known. Nearly 2,000,000 gallons were marketed last year. A reference to the mineral ogical report will show that sixteen counties report sales to the

CALIFORNIA CLIMATE

mineral bureau.

The climatic conditions of California, when closely considered, upset completely all preconceived notions of the relations between latitude and temperature. The latitude of San Diego, the southern city of the State, is about that of Charleston, S. C., while Los Angeles lies a little farther south than Memphis, Tenn. The northern line of California is on nearly the same parallel with Boston, Mass.

From these facts it might be thought that, although South ern California has a sub-tropical climate, adapted to the growth of the palm and of citrus fruits, the northern part of the State must have the rigorous winters of the North Atlantic States or of Iowa or Nebraska on the upper Mississippi. This is, however, very far from being the case.

Four hundred miles north of Los Angeles, and five hundred north of San Diego, the summers are warmer and the winters not much more severe than in these cities. In many of the northern valleys the palm, fig and olive find a congenial home, while the orange and lemon reach their perfection, ripening from four to six weeks earlier than in the southern counties. By a careful study of the topography of the State, and a knowledge of oceanic currents, this apparent anomaly may be rationally explained. The Japan current, with its warm accompanying winds, flows up against almost the entire coast of the State, coming from the southwest. Wherever there is a breaking down of the coast range, which must occur wherever the larger rivers reach the ocean, the warm winds continue their course inland. Passing in a northerly direction they are turned north or northwest by the Sierra Range. This forces the isothermal lines far north, so that the summer isotherm takes the form of an inverted capital letter U, the curve reaching almost to Mount Shasta, the sides extending south to about the latitude of Monterey.

There are three distinct climatic zones: the Three Climatic coast zone, the valley zone, and the sierra zone. Along the entire coast the climate is cool during the summer, with considerable low fog near the ocean. This fog during the day floats up to the summits of the Coast range, giving an abundance of moisture and an equable temperature. During the winter this zone is almost frostless, and the rainfall is, except in the extreme south, from twenty to fifty inches.

The valley zone, extending about six hundred miles parallel to the Coast range, is, as has already been shown, quite warm during the summer, with scarcely any rain from May to October. During the winter it is colder than on the Coast, with abundant rain, especially on the northern end of the valley, where the clouds seem to be massed by the entering winds. There are large areas where the rainfall is from sixty to seventy-

five inches during the year. The climate of the sierra zone depends largely upon elevation. While to the height of 3000 feet the temperature is warm and genial both summer and winter, upon the upper ranges snow lies from eight to twelve months of the year. There the rainfall is determined largely by the trend of the mountain

As a general proposition the State has but two Only Two seasons—the wet and the dry. There is no welldefined spring, for all the phenomena of an Eastern spring occur during the early part of a rainy season, thus blending with winter, and the fall, if it refers to the falling of leaves and fruit, extends from June to the succeeding March. Over a considerable portion of the State strawberries ripen in the open air during ten months of the year, and fresh fruitstands on the streets, well supplied, are never closed.

There is no day in the year in which fresh rosebuds cannot be cut in a rose garden. This is doubtless partly because in a comparatively dry climate plants are not so plentifully supplied with sap as in the East, and partly from the fact that there is undoubtedly a small amount of heat constantly radiated from the earth. It is this bottom heat that enables us to root grapes and other cuttings without difficulty, even those things that usually require to be rooted in hot beds.

These climatic peculiarities make it possible for a tourist who is in search of health or pleasure to select his climate at any period of the year. A winter at Monterey and a summer on the Sierras, with a little change of elevation, will secure a most delightful and healthful climate during the entire year. In July and August he can choose between snow banks or flower

Another result is that nearly the entire State is desirable for home making. By carefully selecting the location, one can find abundance of land adapted to any kind of agricultural or horticultural industry, where, with industry and economy, can be built up a comfortable, self-sustaining home.

TOPOGRAPHY

The Coast Range mountains, or rather the Coast ranges, for the spurs overlap each other through the whole extent, run almost parallel to the coast the entire length of the State. The overlapping of the many spurs makes a multitude of valleys, which, with their adjacent foothills, constitute a very productive

portion of the State Some of these valleys are so extensive that they lose the appearance of valleys, and seem vast Fertile inland plains. The valleys opening to the west are in what is designated as the coast climate, a climate moist and equable; comparatively free from frost, where irrigation is rarely necessary, the ocean fogs supplying abundant moisture for plant life. The valleys opening inland are not so fully under the equalizing influence of the ocean. They have greater extremes in temperature, but are all productive, and very desirable as places for home making.

On the ocean side there are also somewhat extensive plains, all deriving the advantages arising from proximity to the Pacific. All this region is also fruitful, and from it the most of our semi-tropical fruits and winter vegetables are produced. We come next to the great inland valley, with the smaller valleys, that are in themselves immense, although they are seemingly dwarfed by the one whose magnitude can hardly be realized. The climatic conditions of these valleys have been sufficiently discussed, but it must not be lost sight of that the eastern side of the valley has the same variety of foothill and inter-valley land, available for culture, as on the western side. The slopes upon this side, however, are more abrupt and the canyons are vaster and deeper. Here lies the great Yosemite, and here are, also, many other partially enclosed valleys, rivaling in grandeur the most impressive scenery of the old world.

The Sierra range, swinging toward the west to meet an eastern trend of the Coast range, unites with it at a point a little north of Mt. Shasta, and again at the Tehachapi Pass in the south, making an almost entire mountain surrounding of the

great central valley. This range, of considerably greater altitude than the Coast range, carries upon its lofty summits a crest of snow, often from year to year. Here, too, above the great glacial action are the groves of Big Trees (sequoia gigantia) perhaps the most majestic and symmetrical trees in the world.

HEALTH AND HEALTH RESORTS

This topic cannot be better introduced than by the following report of Lieut. John P. Findley, of the Weather Bureau, made some years ago, after a careful study of California:

"Theoretically, California should furnish the best and most varied health resorts and sanitariums in the United States. Within her borders almost every form of wasting disease should find the means of temporary, if not per-"While our present knowledge warrants this assumption, yet practically the truth of this statement, in all necessary details, must be developed and tested by adequate scientific research."

What is here stated theoretically has been, and is being abundantly established by practical demonstration. The State abounds in health resorts, and large numbers come from less favored localities, availing themselves of the climatic and other advantages here offered. The fact that many come, trying to run away from death when it is too late, or when the disease is perhaps incurable, increases somewhat the death rate of the

It can hardly be expected that climate and surroundings can cure everything, but it is safe to say that by an intelligent selection of locality, all that these can do can be secured here. With a choice in the matter of elevation of from 300 feet below sea level to about 7000 feet above; a choice in humidity ranging from the very damp climate of the west side of the coast range to the dry climate of many of the inland sections, so dry that most of the nights are dewless, with all intermediate grades in both directions, there is little difficulty in finding the conditions desirable. It is for the physician to determine what conditions

are best. As to temperature one may live for twelve A Natural months in the year where it is so summer-like Sanitarium that roses, fuchsias and callas may be gathered at all times. In the high Sierras, asthma, bronchitis and kindred diseases disappear as if by magic, and all lung diseases are wonderfully ameliorated. The whole of this part of the State with much of the Coast range constitutes one immense natural sanitarium.

Too cold in winter for much vegetable decay, and too dry in summer for effluvia to be taken up and distributed, the State is free from malaria, except along some of the sluggish rivers, or where excessive irrigation is used, with no adequate drainage On the Coast range the ocean winds, tempered and made fragrant by the forests of firs, pines and redwoods over which they pass, the climate is all that the most exacting health seeker

Intelligent physicians well understand that a change of climate alone will not secure the best results **Demands** There must be a change of thought and a change of feeling; and where can these be better secured than in communion with nature such as may be had in the foothills and mountains of California? Here she may be seen and studied in all her moods, and dull indeed must be the mind that does not waken to an active interest in her varied forms.

There are redwood cathedrals grander, more lofty and imposing than anything that man has ever created. There are dark forests of firs and pines through whose evergreen branches the winds make a low, sweet music, winning a willing ear. The lesser flora almost compel attention, even from a careless observer, and to one already interested afford a new world of investigation and enjoyment

These things, together with the mineral springs already discussed, are what nature has done, unaided by the, often, bungling hand of Resorts Everywhere man. But man is doing his part. The State abounds in health and pleasure resorts, arranged, in many cases, to supplement the work of nature. At most of these, instead of being compelled to live in a great caravansary, mixing with "all sorts and conditions of men," one can secure a small cottage wherein he can enjoy the company of only friends, and where he can, if he so desires,

live a homelike, quiet life. The fact that for eight months of the year good weather can always be counted on makes it possible to live almost entirely in the open air. Excursions may be taken to distant points and a bivouac under the soughing pines is a thing to be looked forward to with joyous anticipations, and to be pleasantly remembered for many a day.

To weary workers, worn down by too close attention to business, to those who have learned that the delights of a too complex civilization become, at last, "stale, flat and unprofitable," to those who, like Antæus, need but to touch old mother earth to renew their strength and vigor, the mountains of California, from grand old Yosemite to many a smaller and less pretentious canyon, are perpetually crying out "Come, ye weary sons and daughters of men, come unto us, and we will give rest unto your bodies, and a glorious uplifting unto your

To the sportsman the call is yet stronger Game in Most of these regions abound in fish and game. The mountain trout takes the fly with an avidity and fights with a gameness that shames his Eastern congener, and in the lakes and larger streams he reaches a size that often tests to the extreme the

strength of the tackle and skill of the angler. Deer are abundant in the wilderness, with bear enough to add zest to the sport, while smaller game—hare, grouse, quail,

doves and pigeon—are in plentiful and enticing numbers. There

are many locations of which it is no misnomer to say, "they are the sportsman's paradise." And all this may be properly presented under the general head of health. He who, without excess, plays wisely, may, without danger, work diligently.

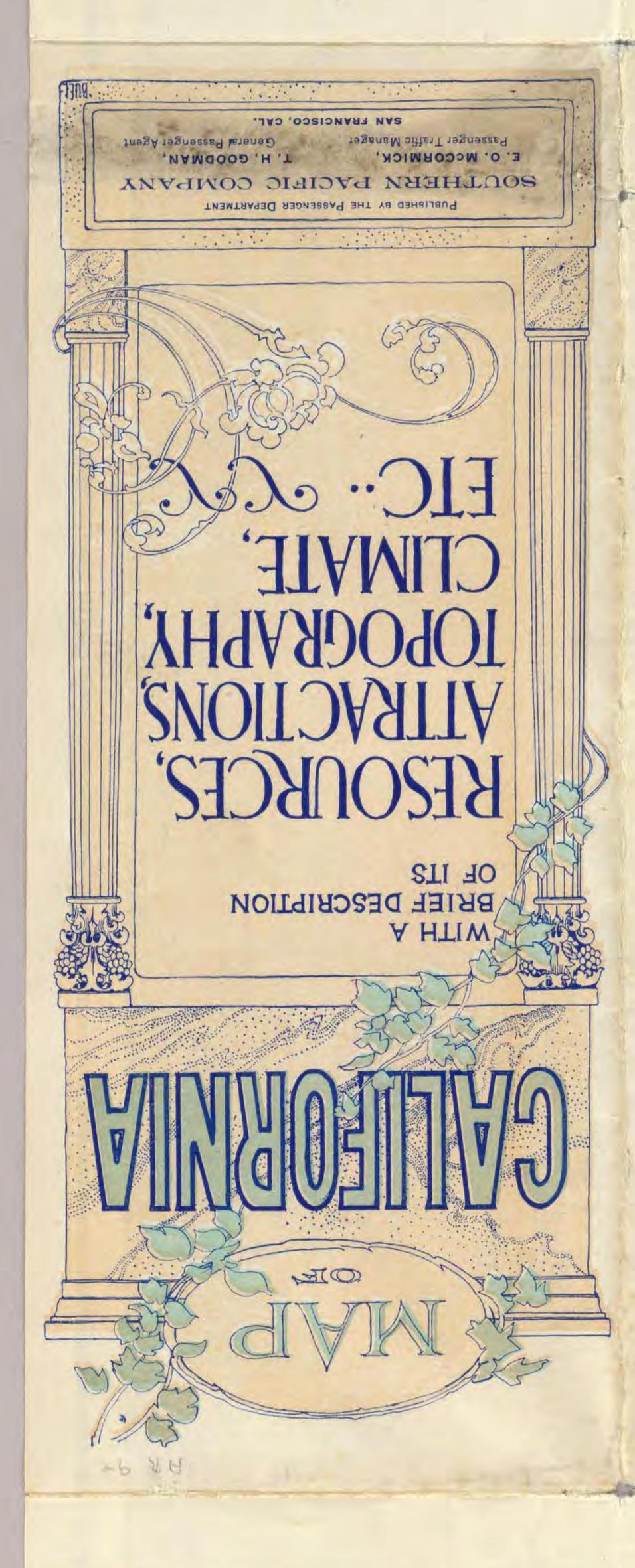
EDUCATIONAL

Nothing contributes more strongly to the healthful and permanent prosperity of any community than the opportunities it affords in the way of public education. Along this line the State stands in the very front rank, equal to the best and far superior to many States. Under a school law made up of the best provisions of the laws of the older States, happily adapted to the peculiar circumstances of a community like ours, it has built up a system of public schools of which it is justly proud.

In new and sparsely settled States it often happens that in many localities there are weak School school districts, unable to afford educational advantages to the children growing to manhood there. No such places exist in California. By a wise and generous provision of the school law the most remote organized school district receives, from a general fund, money enough to ensure a school, taught by a well-qualified teacher, for

at least six school months each year. A part of the same fund is set apart for library purposes, and, therefore good reading matter is within the reach of all.

It thus happens that all through the State there are excellent rural schools. The difference of a couple of months between



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> UNITED STATES A NEW CONQUEST FOR THE

Southern Pacific agent will accept subscriptions. Southern Pacific Co., San Francisco, Cal.; or any subscription, to SUNSET, Passenger Department, Send ten cents for sample copy, or \$1.00 for a year's ment of Pacific Coast resorts and industrial resources. zine in the West, is devoted entirely to the develop-SUNSET, the most beautiful illustrated maga-

products; too valuable to be annihilated in boiler furnaces. troleum is valuable as a raw material for making chemical be worth far more than the crude material. California pebertumes and drugs and solvents, and possibly foods, that will our oil will, by chemical treatment, be made to yield dyes and value. There will come a time when a large part, it not all, of oil may be converted into compounds of great commercial o solve it. Again, the products that are present in California products. It is a chemists' problem, and chemists will be found be perfectly possible to convert the distillate into satisfactory oils are not very large in quantity or good in quality, but it will kerosene and lubricants from California is greatly increased. True, as yet the for Fuel

be most valuable. Converted into an But it is not as fuel that petroleum will coal at from four to five dollars a ton, making purposes. Oil at the present prices can compete with equivalent. For oil is cheaper than coal for steamof oil. Nor will the demand for oil be limited to its coal tons of coal annually, equivalent to nearly 11,000,000 barrels this State alone. California consumes over a million and a half is not near what is needed to supply the demand for fuel in But this will be temporary. The production of oil at present demand, and the result has been a fall in the price of oil. the large number of wells, production has gone ahead of the With the increased area of oil lands in the San Joaquin and

the entire amount of petroleum produced in California up to

would not be exhausted for 150,000 years. As a matter of fact,

the end of 1900 is a little over 15,000,000 barrels

Sholf Jone

illuminating or lubricating oil, the value

3,000,000 barrels. If this were increased tentold the supply 000,000 barrels of oil. The production last year was about assumption there would be stored up in our State 4,608,000,average thickness of the oil sand is 400 feet. On the above of territory that almost certainly contain oil, and that the chusiast says there are 40,000 square miles the amount of oil in California, One en-Some Startling travagant estimates have been made as to Based on such figures as these, some exbarrels of oil in every acre of oil sand one foot deep. take fifteen per cent as an average, there would be about 550 ously estimated to be from ten to twenty-hve per cent. If we sand with oil. In California the per cent of oil in sand is variof field and depth of oil sand, and degree of saturation of the

be ascertained by systematic boring. It is all a question of area the area limits and depth of oil sand are known, and this can ble to tairly predict the amount of oil in a given district last? The answer is simple enough in theory. It is possimuch oil is there in a given district! How long will the wells One of the vital questions for the practical man is, How prospects. But as yet little oil has been obtained of Tehama and Colusa counties, and they have very bright trict, and later in the Sacramento Valley, in the neighborhood work has been done in Humboldt County, in the Mattole diswill probably be the longest lived. In the north considerable trict, gives promise of being the greatest source of supply and the present time Kern County, especially the Kern River dis-Coalinga district, but a small amount has been produced. At and in the San loaduin Valley. Further north, except in the equal amounts have been obtained from south of Tehachapi Ventura, Santa Barbara, Kern and Fresno counties. About been small. The chief fields have been in Los Angeles, the San loaquin Valley and south of Tehachapi, the yield has tricts oil has been tound. But, except in

wells have been bored, and in many dis-

petroleum, From Shasta to San Diego The Whole State tically the whole of California contains The work done so far shows that pracincreasing demand. Other districts were developed, and it was impetus to the business. With an increasing supply came an The discovery of oil in Los Angeles in 1892 gave an was the condition of the oil industry in California at the end of two or three small companies worked on a small scale, and this and also built pipe lines and a refinery. In addition to these, combining of several companies, operated in Ventura County, built a refinery. The Union Oil Company, also formed by the on a large scale, dug many wells, constructed pipe lines and merged into the Pacific Coast Oil Company, which began work as the Newhall district. This company, with others, was company degan operating in Pico canyon, in what is now known the southern counties, but with little success until 1875. Various aftempts were made to develop the oil supply of larger plant was erected by Morrell in Santa Barbara. In 1852 a small amount was distilled by Pico, and in 1855 a

and natural gas suggested what was beneath the surface. In new thing. From the earliest times the deposits of asphaltum The knowledge that petroleum existed in California is no places but a mere trace, in others gushers spouting a thousand like the miner of '49, he has found colors everywhere, In some digger has followed the same paths as did the gold digger, and, extended beyond it. From Mexico to Washington, the oil tor petroleum. The quest has covered the entire State and has he penetrates hundreds of feet into the crust. He is seeking no longer suffice. With derricks and drills and steam engines the surface; he digs deep into the earth. His simple hand tools he goes over the same ground, but no longer does he prospect miner exploited every section of the country. Fifty years later gold-seekers. With his pick and shovel and gold pan, the

these seepages were exploited and quantities of oil obtained.

some places seepages would fill crevices with oil. Some of

[Prof. EDMUND O'NEIL, in "Sunset."] PETROLEUM IN CALIFORNIA

California, and almost immediately the State was filled with

A little more than fifty years ago gold was discovered in

the necessary capital to develop them into nichly paying Hundreds more excellent properties are held, only awaiting three or four thousand persons, and subsistence to several times into general circulation. These mines give employment to many cases apportioned among the workers, going at once income from these does not go to great corporations, but is in

classed as "small," mines unnamed and unregistered. The the annual output of the mines comes from those that are other industries. It is worthy of note that nearly \$2,000,000 of labor, and a large home market is made for the products of The wage earner receives a generous compensation for his seen that mining enhances greatly the prosperity of California. State, for timber used in and about the mines, it will readily be machinery built almost entirely in the Output \$25,000,000 go for labor and its subsistence, for 000, no small portion of which must Annual Mineral With a total annual output of \$30,000,-

n the tuture will pay for careful, intelligent working guiches, canyons and quartz leads, gold bearing, many of which whole Sierra range, extending through the State, contains large bodies of rich mineral awaiting the fortunate finder. The the past year abundantly demonstrate the fact that there are occupied. The important discoveries of mineral wealth during much of its mineral prosperity. Nor is the ground yet fully prospectors, and to the efforts of such men the State owes much importance. These men are the advance guard, the portant figure in the entire output, is, in an economical sense, of This kind of work, though it seemingly cuts no very im-

year, but to enable them to lay something by for a rainy day, or season, earming enough not only to keep them well through the Shovel, a wheelbarrow and a mining pan, are, during the mining streams, are to be found thousands of men, who with a pick and a up the canyons on the spurs of the Sierras, along the mountain ndividuals, that are paying fine incomes to the operators. Far mining counties there are found small holdings, worked by necessary for its successful prosecution. Yet all through the as it must necessarily be, on account of the amount of capital carried on by large companies and corporations, damble systematic business. A large portion of it is No Longer well-nigh passed, and it has become a regular

The lottery period of mining has fortunately tion and transportation give remunerative employment to are found in inexhaustible quantities, and their mining, preparaead, of the metallic, and petroleum, borax, asphalt and lime ndustries and the income of the State. Quicksilver, copper and interests, other minerals cut a very important figure in the While gold stands preeminently at the head of the mining

that will, by methods yet to be discovered, become of great refractory ores, ores almost impossible to work with profit, Nor has science yet completed her work. There are yet was lost, it is now certain that nearly, or quite all of it, is saved, While under the old regime it was known that much of the gold in the returns from nearly all mining sections. process, there has been a remarkable increase An Awakened the chlorinating process and the cyanide With the greatly improved concentrators, giving nearly as good returns as those given by the first working. former wasteful methods is being worked again, in some cases dends, and much of the ground once worked over by the they could not be worked with profit are now paying good divimineral ground that a few years ago were abandoned because been of immense value to the mining industries. Ores and improvements in working gold-bearing rocks and earth have gold-bearing earth " in sight" to last for scores of years. These duct, as according to the best mineralogists, there is enough capital intelligently invested, should largely increase the promore scientific methods in handling the raw material, and more to nearly or quite twenty millions. Improved mining machinery, are that this amount will be increased, for succeeding years, been about sixteen and one-quarter millions. The indications For the last twenty years the average annual product has between seventeen and eighteen million. gradual decline until 1865, the amount that year being only millions of dollars' worth was mined. Then there began a

Since the discovery of gold in California in 1848, the State MINING

output was in 1852, when more than eighty-one and a quarter

has given to the world \$1,425,512,689 in gold. The greatest

for the intelligence and culture of its noble men and women. incident to its first occupation, but better and more widely known chiefly by the rude caricatures of the "wild and woolly" ways It can but be a California in the near future known not ask almost breathlessly, "What shall the harvest be?" experience and growth must surely bring, one may schools, looking far into the future, realizing what A Bright an excellent system of elementary and secondary With these two great universities at the head, and

before given to an institution of its age. of its faculty of splendid professors, winning a recognition never many other countries, it is, by the intelligent and vigorous work formia, but from almost every State in the Union, as well as from With its one thousand students, drawn not alone from Caliwas fully expected—a wonderful work. by magic, almost grown at its birth, and is accomplishing what wonder of the educational world. It sprang into existence as if Leland Stanford and his wife, Mrs. lane L. Stanford, is the established, erected and munificently endowed by the late The Leland Stanford Junior University at Palo Alto, accessories the University has a future of great promise. With the Lick Observatory at Mount Hamilton and its other

will be made worthy of the home that is being prepared for it. and they all feel sure that the educational work of the institution pleasurable anticipation the splendid results that must follow, The people of the State await with the keenest and most tion of the plans of which the competition of the architects of in our country by the construction of buildings to the preparato buildings and surroundings, far ahead of any other university numificence of Mrs. Phoebe A. Hearst, to be placed, in regard

a campus as beautiful as heart could wish, is, through the recent sities. The University of California, situated at Berkeley, upon glory of California is the two great univer-Universities truly be said that educationally the crowning legiste institutions and universities, it may Without minimizing the work of other col-

the several courses of University Extension Lectures. a most wonderful work of culture for our people, as have also Chautauqua Circle that meets annually at Pacific Grove, has done and in other localities, doing most excellent work. The large Summer schools for vacation study are conducted on the coast training is receiving much attention all through the State.

are industrial and trade schools, while manual and Hacilities as a part of the public school system. There ters, Kindergartens abound in many localities progressive public opinion on educational mat-The State has kept fully abreast with the most Not a few of the denominational schools are doing collegiate

fional and other preparatory schools are in successful operation. but to residents of outlying districts. Numerous denominacation not only for residents of the district in which they are, in many of the larger hamlets. These provide secondary edu-High schools have been established in all of the cities and

of the "survival of the fittest" is being gradually and rapidly in our country. With a small surplus of teachers the problem compare favorably with that of any normal school or university work done in these to prepare teachers for their duties will ments in the two great universities. The operation, and excellent pedagogical depart-Normal and are four normal schools in full and successful

To supply qualified and expert teachers there cation, are sure to secure good work. tendents, and frequent examinations by a County Board of Eduthe close supervision of all the schools by the County Superinfrom is, perhaps, quite sufficiently severe. In addition to this who is not well qualified for the work, and the test of qualificaclaims preeminence. No teacher can be employed and paid It is in the direction of these rural schools that the State pupils a greater amount of personal attention. the fact that in the smaller school the teacher can give to his

the large school and the smaller one is fairly well made up by

CALIFORNIA

California occupies on the Pacific Slope a belt of land about two hundred miles wide, extending in latitude from near the southern line of South Carolina to the southern line of Massachusetts. To make up its area from corresponding Atlantic States there must be added to Connecticut, Rhode Island, New Jersey, Delaware, Maryland, Virginia, North and South Carolina about 40,000 square miles from New York and Pennsylvania. Laid off in the Mississippi Valley, on the western shore of the river, it takes a small strip from Louisiana and embraces the whole of Arkansas, Missouri and Iowa. In the great San Joaquin Valley there is abundant room for New Hampshire,

Vermont, Massachusetts, Rhode Island, Connecticut and the

half of Maine. It is only by such comparisons that the size of the State and its peculiar advantages of location can be appreciated, and it is only by considering these and its climatic features that any correct judgment can be formed of its possible or probable future. When its fertile hills and broad valleys shall teem with a population as dense as that on the Eastern Coast, and when its million of acres of arable land shall be brought under culture, occupied by an intelligent, industrious, thrifty people, it must become one of the greatest factors in this great commonwealth. The two ranges of mountains that traverse Its Peculiar almost the entire length of the State, while they Geography necessarily present much land unsuitable for home making, are in many respects widely beneficent. Their upheaval, and the attendant and subsequent erosions, made accessible the mineral wealth that first brought the State into notice, and which has done so much to enrich it. These erosions have given a variety and fertility to the soil that

could have been attained through no other agency. These

ranges are great watersheds, gashed by immense canyons,

within which the waters from the winter rains can be easily

impounded for subsequent use upon the arid plains. When

capital guided by intelligence shall thus conserve the water

that now runs wildly and wastefully to the ocean during the

rainy season, then the waste places shall be made glad, and "the desert blossom as the rose. Here, too, are the great timber belts, the immense Immense groves of giant sequoias, sugar and other pines, firs and cedars. Among them are found the best building timber in the world and the supply, with reasonable care, may never be exhausted. The peculiar trend of the mountains has a wonderful influence upon the climate of the State. Indeed, this largely determines the matters of temperature and humidity, as will be shown under the further discussion of climate. The great mountain meadows, the beautiful lakes, the natural parks, like Yosemite Valley, are among the most attractive features of the

for its mountains. The State being nearly eight hundred miles in length presents a coast line of more than twelve hundred miles bathed by the waters of the Pacific. To the peculiarities of climate due to the benign influence of ocean currents, coast A Land of and mountain ranges, the State owes its Wonderful

great Sierra range. California has abundant cause to thank God

Productiveness wonderful productiveness, and this it is that makes it possible to produce semitropical fruits over an area extending in latitude nearly six hundred miles. Far more striking than the great area of the State and its peculiarities of surface and climate are the variety and magnitude of its productions. An attempt is made in this solder to present in a condensed form a statistical resumé of its

various industries. Great care has been exercised to prevent exaggeration, and what is here given will be found reliable. Under the various headings of Agriculture (with its subdivisions), Horticulture, Viticulture, Mining and Miscellaneous will be found matter and figures that it is believed will prove of interest to all, and from a careful perusal of which a judgment may be formed of what California is, and what it must yet

AGRICULTURE

The agricultural development of California has been a surprise to all, and to none more so than to those who were in the State during the height of the mining period. In the mining regions there was little to indicate the great possibilities that have, even so far, been attained in the different branches of

agriculture. For a period of twelve years the State was known solely for its gold output, and yet during this time many attempts were made along agricultural lines. These were made at first with little faith in ultimate results, but the expense of bringing the necessary subsistence over the long journey from the East, and its extravagant cost after arrival, led a few ingenious and venturesome persons to leave the more inviting fields of gold washing, and to try their hand at producing from the soil the necessaries of life.

They found a virgin soil, a peculiar climate, so strange as to make all that had been learned by previous experiences of little value. All had to be learned anew. The time and manner of putting in crops, the care necessary for animals—in short, everything was a field to be explored. It was found that when the crop was put Out of Nature's in at the proper time the soil responded with a generous yield, even if during a Lap Came

large part of the growing season no rain

been imported produced so well that

orchards were planted, although the wisest

fell. Also that if water could be generously supplied, all vegetables were produced abundant in quality and enormous in size. Animals throve with little care the entire year, but during the long summers new pasture grounds often had to be sought This, however, caused little trouble, for the whole State was before them, but very little of it having been appropriated. A large number of persons began to look toward grain growing, cattle raising, and the production of wool as industries that

From 1860 to 1875 these became the leading pursuits, and wonderful results were attained. The wool product alone, one year, netted more than \$10,000,000, while the product of beef and wheat reached almost fabulous figures. During this period a new industry was slowly coming to the fore. The wonderful productiveness of the old Mission grape gave rich promise of desirable results in viticulture. Other and superior grapes were planted, soon in great numbers, and wine making began. The few fruit trees that had

would make a good return.

Vineyard and

Orchard

never foresaw to what magnitude this industry would rise. It will, of course, be understood that a new industry did not supplant, but rather reinforced the old. Mining continued without interruption, and although when lands began to be widely taken up the grazing industry became more restricted, and when the continuous wheat crops began to reduce the yield per acre, grain growing became less prominent; yet to-day all are thriving industries, and, as will be hereafter shown, contribute largely to the prosperity of the State. The acreage and output of the leading grains are as follows, taken from an average year:

Oats...... 116,096 " 3,250,780 "

The discovery that under irrigation alfalfa can be grown in large and continuous crops, and that by the new creamery processes excellent butter can be made, even when the cows are fed on alfalfa. has given a wonderful stimulus to California dairy interests. Nearly three hundred creameries have been established, and in almost every case the results have been highly satisfactory to the surrounding farmers, as well as to the creameries them-

There are something more than 300,000 cows kept solely

for dairy purposes, and the product is becoming more and

more satisfactory, adding materially to the prosperity of the Wise legislation has restricted, or entirely stopped, the traffic in butter imitations, and by its provisions for having all cheese branded as "Full Cream," "Half-skimmed" and "Skimmed Cheese" it has greatly improved the quality of the cheese produced. More than two hundred cheese brands have been issued by the State Dairy Bureau. The outlook for the

dairy interests is very promising. The annual dairy output of the State now exceeds \$12,000,000. The amount of "free pasturage" in California is GRAZING growing every year less and less. There are, however, many large cattle ranges, and on these cattle, horses and sheep are bred, and find their way to market. From the assessors' returns (1900) the following figures are taken, showing the extent of our grazing interests.

The second second second		
	Number.	Assessed Value
Cattle	827,380	\$9,946,278
Horses		
Mules		
Sheep1	,705,136	2,465,620
Goats	A Principal Control of the Control o	7. 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Hogs	The state of the s	

A peculiar feature of California grazing is that large bands of cattle, horses, sheep and goats are pastured during the rainy season in the valleys, and as the valley pastures begin to dry are moved up, spending the summer months on the elevated meadows and table lands, in which the State abounds. There are, perhaps, a million or more acres BEET SUGAR of land in California adapted to the culture of the sugar beet. Any land that will produce about twelve tons per acre of fifteen per cent saccharine matter, eighty per cent fine, can be profitably used for this purpose, the only limitation being the distance from the factory. In most cases whe e land has been sown to beets and well cared for, it has been found that the crop exceeds the above conditions. The yield is often much more than twelve tons per acre, and the saccharine matter reaches a higher per cent. Were our beet land all well utilized, with factories established in convenient localities, California could well supply sugar for the whole United States, saving to us the \$100,000,000 now paid annually to foreign countries. As the market price is about four dollars per ton for well grown beets, it will be at once seen that the industry is a prom-

ising one. There are already in the State eight beet sugar Beet Sugar factories. The establishment of such a factory requires a large capital, but capital is usually Factories ready to invest in an industry that makes a profitable and sure return. By many this is looked forward to as the coming industry.

Below is given a list of the factories already established, and their capacities.

Chino, San Bernardino Co.... ..1000 tons per day ..1000 " " " Watsonville, Santa Cruz Co... Alvarado, Alameda Co : 800 ** ** ** Salinas, Monterey Co..... ...3000 ** ** ** 700 " " " Alamitos, Orange Co...... ...1000 " " " Santa Maria, Santa Barbara Co.... ...2000 " " " Oxnard, Ventura Co.1200 Crockett, Contra Costa Co......

The hop industry is a promising one, and in 1900 7,220,000 pounds were produced. The low prices realized for several years have limited the amount planted, but prices have become better and the outlook for hop

growers is encouraging. For the five years ending December 31, 1899, the annual shipment of beans out of the State amounted to 60,000,000 pounds. In localities adapted to their production growers are sure of large returns. For many years large tracts of land in the State have been devoted to the production of seeds for vegetable and flower gardens. The long seasons are favorable for fully ripening the seeds, and the industry makes a good return. It may safely be said that a large portion of the garden

seeds now sold in the market are produced in California. There are many localities where conditions are favorable for growing bulbs, and the State can easily be made to furnish a large part of the bulbs for which so much money is now sent to foreign countries. Large numbers of bulbs may be cultivated, and the propagation is simple. The future opens an inviting door to new and more extensive enterprises in that line. There was shipped as through freight to the East during the year ending June 30, 1898, 1,816,670 lbs. of flower and vegetable seeds. Judging by the price per pound usually realized from seeds of this kind, an estimate may be made of the income from this industry.

VITICULTURE

As a wine-producing State California ranks first, producing more than sixty per cent of all the wine made in this According to the best available statistics there are 188,400 acres planted to grapes. This covers raisin, table and wine grapes, and as many varieties are used interchangeably they cannot be segregated. Table grapes are included in fresh fruit shipments; raisins are given in another place, and from the remaining part of the crop there were made during the

year 1900:

the best.

Valued at ..\$3,000,000 ..15.000.000. Dry wines... . 9,000,000... Sweet wines.....

There is a very large capital invested in wine making From the first crude attempts, resulting in wine of an inferior quality, wine making has reached a stage where wines are made equal to the best wines of the old world, and superior to most of them. To every conceivable variety of soil and exposure both potent factors in producing an acceptable product, there have been added all that the experiences of the old wine districts have taught, and all that applied science can do to secure

remove the temptations to adulterate, and the knowledge acquired and skill attained in blending, place the product of the State upon an exceedingly satisfactory basis. If wines are to be used, they should be pure, and purity is a strong characteristic of the California product. The best proof of the acceptability of our wines is the increasing foreign demand for them. During the year 1900 more than 28,000 tons were shipped out of the State by sea and 65,000 by rail, mostly to other countries.

The small cost of pure grape juice and its abundance

HORTICULTURE

In its horticultural development California has attracted as wide attention as it did in its gold product, even if the record has not been so brilliant. California fruit, either in its fresh or cured state, is now known throughout the civilized world.

And yet industries along this line were very slow in their development. The first experiments were made in the early Missions, and although these clearly foretold what might reasonably be expected, a hundred years elapsed before horticulture became firmly established as a business. Many vineyards and some fruit trees were planted from 1701 to 1792, but these being under the control of the Missions

commercial factor. Since that time its growth has been phe-Its Phenomenal nomenal, and although the early plantings were made in a haphazard way, with little skill or judgment, the returns were so satisfactory that thousands were induced to enter the business and orchards and vineyards were set out in all sections. In many parts of the State one may ride for hours through continuous orchards, well kept and productive Owing to scarcity of all fruit, the prices realized during

the first years were sometimes fabulous. A grower could count

attracted no outside attention, and it was not until about 1870 that fruit growing became well enough established to become a

upon from \$100 to \$1000 per acre for his product. It seemed to make little difference what was planted if it was only reasonably well cared for. In late years more care has been given to selection Becoming of varieties, and better judgment used in detera Science mining the vital questions of soil, exposure and elevation necessary to develop the best fruit of each variety. In these directions, as well as in the matters of handling and marketing fruit, there is, however, much yet to be

learned, and the hand of the diligent and the intelligent may be

According to the best available statistics there is the follow-

expected to promote the profit of the industry

ing acreage of fruit in the State:

Almond...

27,423 | Pears...... 26,434 5,402 Quince 63 STONE FRUIT. ..47,737 | Peach ... 9,993 | Plum and Prune 140,607 . 54,068 | Nectarine...... 276 CITRUS FRUIT. 15,764 | Orange Lime...... 4 | Pomelo...... 612

..542,703 acres Grand total.. The number of trees to the acre differs with the **35.000.000** several varieties, but in round numbers there are Fruit Trees more than 35,000,000 fruit trees, mostly in bearing. Estimating the yield at 100 pounds to a tree, a very low estimate, and the entire product reaches a

27,423

Miscellaneous...... 3,198

figure that is amazing. The shipments of fresh deciduous fruits eastward for the year 1900 were as follows:

1361 Quinces 10 796 Mixed...... 27 1160 Figs..... 151 Persimmons Apricots... Cherries ... Total ...

Shipments of citrus fruits for 1897-98, 15,400 carloads (12 tons); for 1898-99, 10,875 carloads; for 1899-1900, 13,191.7 carloads, and for 1900-01, 22,654.6 carloads. Shipments of canned fruits—cases of two dozen 2½-pound tins, (estimated) 2,800,000.

The output of cured (dried) fruit is given in pounds, for .120,000,000 | Pears... Peaches. 21,000,000 | Nectarines 400,000 17,000,000 | Dried Grapes...... 900,000

5,000,000 Figs..... 5,500,000 The foregoing figures make a fairly What it Means good showing of the commercial to Laboring Classes aspect of the fruit products of the State. The industrial aspect is much broader, and in many respects more important. Many thousands of busy hands are required to produce and prepare the crop for market, all receiving a reasonably good compensation

Apricots.

for their labor.

must be pruned with skill, and the fruit must be vigorously and unsparingly thinned, all to insure the highest state of perfection in the crop. Whether the fruit is to be shipped fresh, canned or cured, it must be carefully gathered, and gathered at the proper stage of ripeness. It is then taken to the points where it is to be sorted, boxed, cured or canned for the markets of the world. There are the adjunct industries of can making and box making to be considered. The number of cans and boxes

The orchards must be cultivated again and again, the trees

required for our fruit output, could it be shown in figures, would seem almost incredible It must furthermore be understood that while there are many large ranches, producing quantities of fruit, yet a comparatively large part of the product comes from those who have small holdings, from ten to twenty-five acres, upon which a large share of the work is done by members of the family, the income being thus mostly net, and from which they make some-

thing more than a comfortable living While it is doubtless true that there will never again be such large returns from this industry as have been realized in the past, it is equally true that in properly selected localities orchards planted with good judgment, worked intelligently and economically, will pay equally as well as other industries In the neighborhoods where small holdings Still a Young predominate may be found communities of the most intelligent, cultured and happy families in the world. Schools, churches and lecture

are always found there. There are yet left unoccupied, or but partly occupied, thousands of acres of land as well adapted to fruit culture as is most of that now planted, awaiting the coming of industrious and thrifty settlers.

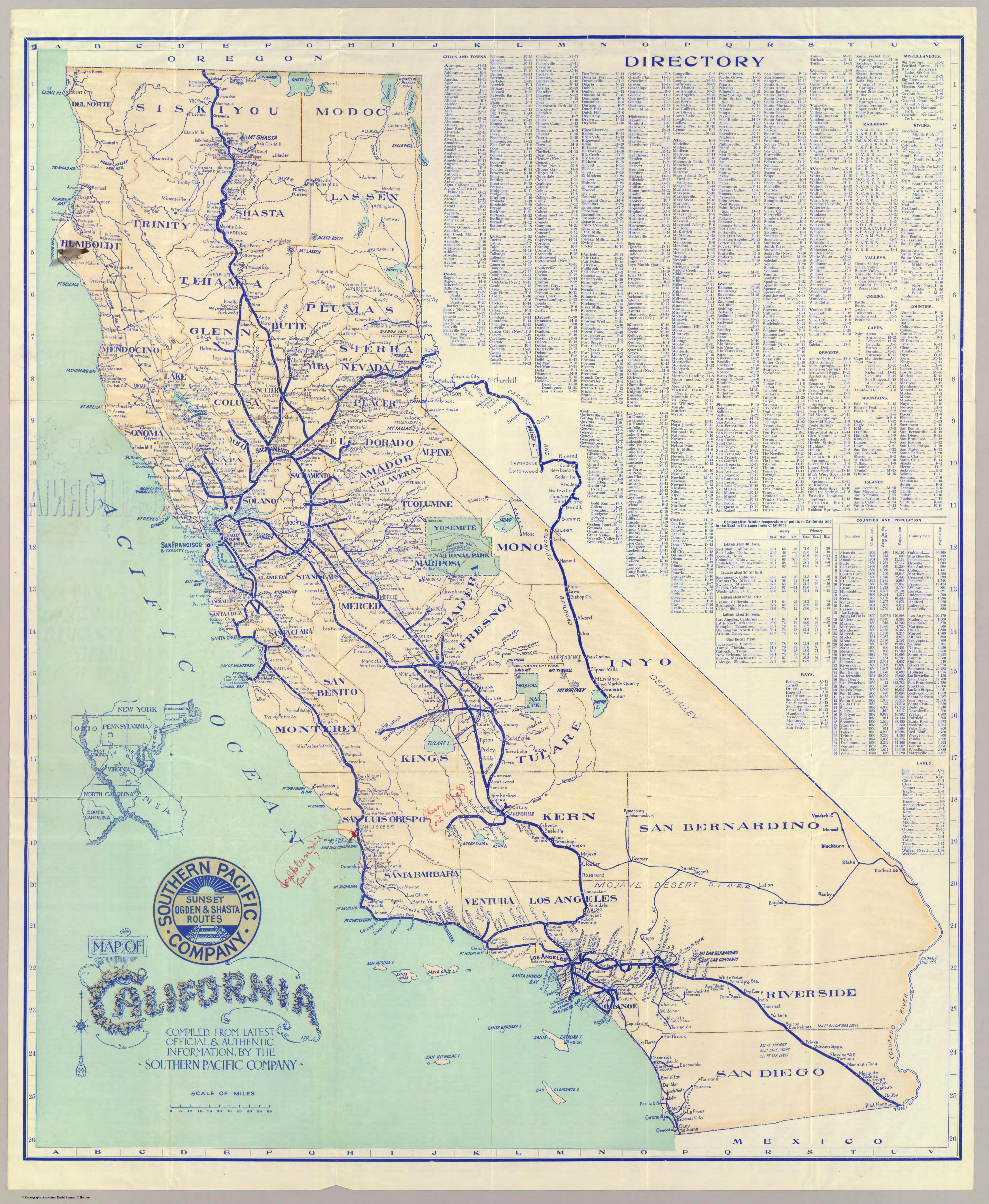
halls, together with all the concomitants of a high civilization,

IRRIGATION

While, as has been heretofore stated, irrigation is unnecessary in many portions of the State, there are large bodies of land where even grain, a winter growing crop, cannot be raised without this aid. Soil and sunshine are, of course, important agents in making a crop, but water is also vital, and where rainfall does not supply it in sufficient quantities, it must be secured by other means. Realizing this, large areas have been brought under systems

of irrigation, and upon these the crop is in many instances very profitable. The great alfalfa fields in some of the southern counties-the largest in the world-turn off a large crop

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Date 1901

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Publisher Southern Pacific Company

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State/Province California

Subject Railroad

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Publication Author Southern Pacific Company

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Pub Title Map of California compiled from latest official & authentic information, by the Southern Pacific Company. (verso) Map of California with a brief description of its resources, attractions, topography, climate, etc. Published by the Passenger Department, Southern Pacific Company ... San Francisco, Cal. 8th. edn. (1901)

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Author Southern Pacific Company

Date 1901

Short Title Map of California.

Publisher Southern Pacific Company

Publisher Location San Francisco

Type Separate Map

Obj Height cm 68

Obj Width cm 57

Scale 1 1,600,000

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State/Province California

Subject Railroad

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List No 5643.001

Series No 3

Publication Author Southern Pacific Company

Pub Date 1901

Pub Title Map of California compiled from latest official & authentic information, by the Southern Pacific Company. (verso) Map of California with a brief description of its resources, attractions, topography, climate, etc. Published by the Passenger Department, Southern Pacific Company ... San Francisco, Cal. 8th. edn. (1901)

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