

Maricopa County.

Descriptive.

MARICOPA COUNTY occupies an L-shaped expanse of 9354 square miles in the south-central portion of the Territory. In wealth Maricopa leads, having taxable property to the amount of \$9,500,000. Of this \$3,322,967 is assessed upon an acreage of 251,729, upon land improvements to the amount of \$506,663, with city property and improvements valued at \$3,669,216, and live stock at \$518,394.50.

The history of the county dates from its settlement in 1868. In that year Jack Swilling, a famous frontiersman of the time, left the Weaver placer mines and headed a small party in locating farms a few miles east of where Phoenix now stands and in excavating a ditch to bring water from the Salt river for the irrigation of their small claims. This nucleus grew rapidly, necessitating the organization of the county of Maricopa a few years later from the southern portion of Yavapai county. Since then the counties of Pinal and Gila have been formed largely from Maricopa, leaving it in its present form.

In its topography the county is, for much of its area, mapped out as a plain, sloping toward the Salt and Gila rivers. This great plain is broken by numbers of short mountain ranges and detached buttes. On the north the beginning of the high plateau of Northern Arizona is marked by the outlying mountains of the Bradshaw range and by the Cave Creek hills. On the east, beyond the line of the Verde river, rise the rugged Superstition mountains and the lofty Mazatzals. The mountain area covers about one-fourth of the surface of the county.

Through the center of the county flows the Salt river, mingling its flood with that of the Gila about twenty-five miles southwest of Phoenix. The two valleys are continu-

ous, and in them, watered by the two streams, lies nearly all the agricultural land of the county.

Agriculture.

The paramount industry of the county is agriculture and horticulture, and before describing its resources in these particulars it should be stated that this is one of the very few favored sections of the United States which possesses an all-the-year-round growing climate. There is no month in the year when some crop cannot be profitably produced; for instance, in ordinary staple crops farmers in this county sow their grain during December, harvest it in May, then put in a crop of corn, which they gather in September, and follow this with potatoes, which are ready for market in November. This routine is profitably followed by many, and can be varied with several other crops equally remunerative, thus showing there is no enforced idleness during the entire twelve months. There exist a wide variety of soils in the county, all of which are not favorable to all crops, but there is no soil upon which some profitable crop may not be most successfully produced.

Intensive culture, except in few instances, has not yet obtained, yet in the natural sequence, arising from observation and comparison, its adoption is beyond question. It will then be found that twenty acres is as much land as one family can possibly do justice to, and the commercial value of the product will be in excess of that realized under present methods of culture from 200 acres. This gives room for ten times the present population upon the lands now occupied, say 80,000 additional people. In California many thousand families make a good living upon ten acres and have a larger surplus than the people of the East can upon the average show from the use of 100 acres. The conditions in Maricopa county are equal, if not more favorable, for the achievement of like results. Upon this basis there is ample opportunity for one hundred and sixty thousand more persons than are at present occupying these valleys. These calculations are based upon the present available surface water supply. When, however, the subterranean sources are drawn upon, the existence of which has been fully demonstrated, the area of cultivation will be extended so that a half a million of people will find ample room for profitable and desirable homes in Maricopa county.

All the cereals, wheat, rye, barley and oats, will bear favorable comparison with any other section of the United States, both as to quality and quantity, while the home prices have always been such as to prevent exportation; in

point of fact, there has never yet been a surplus over the home market. Upon some of the soils the conditions are favorable for the profitable growth of corn, with yields equalling the famed Kansas plains. It is estimated that there were fully 100,000 acres of grain raised in the Salt River valley this year. Thirty bushels per acre is the minimum yield reported, while care and attention are frequently rewarded with forty five bushels per acre.

Of forage crops alfalfa, or Chilean clover, takes the lead, exceeding by 40 per cent the grain area. The results, taking the average of forty ranches that make this crop a specialty, for the last two years, are shown to be \$18 per acre over and above all expenses. This crop is the leading export of the Salt River valley. Three, four and even five cuttings per year are made. With proper attention and irrigation, seedings last indefinitely. It responds generously to cultivation, and instances are extant where four tons to the acre from a single cutting have been made. Much of this crop is profitably fed off the ground to cattle, one acre being sufficient to sustain and fatten two head. This is, however, a wasteful system, as by stall feeding the product of one acre, when duly proportioned with other forage, is ample to bring to perfection five head of cattle. Next in order of forage productions are the sorghums, which are here perennial, bearing many cuttings. While many of the grasses that are relied upon in East for hay will succeed here, they are not cultivated as heavier tonnage is secured by the cutting of the grain producers green. Kaffir corn and millet are both successfully raised, seeming well adapted to this section, and will form a large per cent of the future forage crops. Cow peas and vetches flourish as if indigenous.

All root crops give prodigious yields. When stall feeding supercedes, grazing will largely augment forage rations. The sugar beet has been thoroughly tested under the supervision of the United States experiment stations in several classes of soils, giving far higher results than have been attained in any other state or territory, both as to sugar content and tonnage per acre. This, coupled with the fact that two crops per year can be successfully grown, will add a very profitable line to general agriculture, as soon as sugar factories are established, which must take place at an early day in view of the large profits indicated.

Vegetables of all kinds attain the same acme of perfection, though some varieties, such as cabbage, cauliflower, peas, turnips, radishes, spinach, onions, asparagus and celery, thrive best in the winter months. When the acreage devoted to these crops exceeds the requirements of the home market, it will be found that all of these products will be in

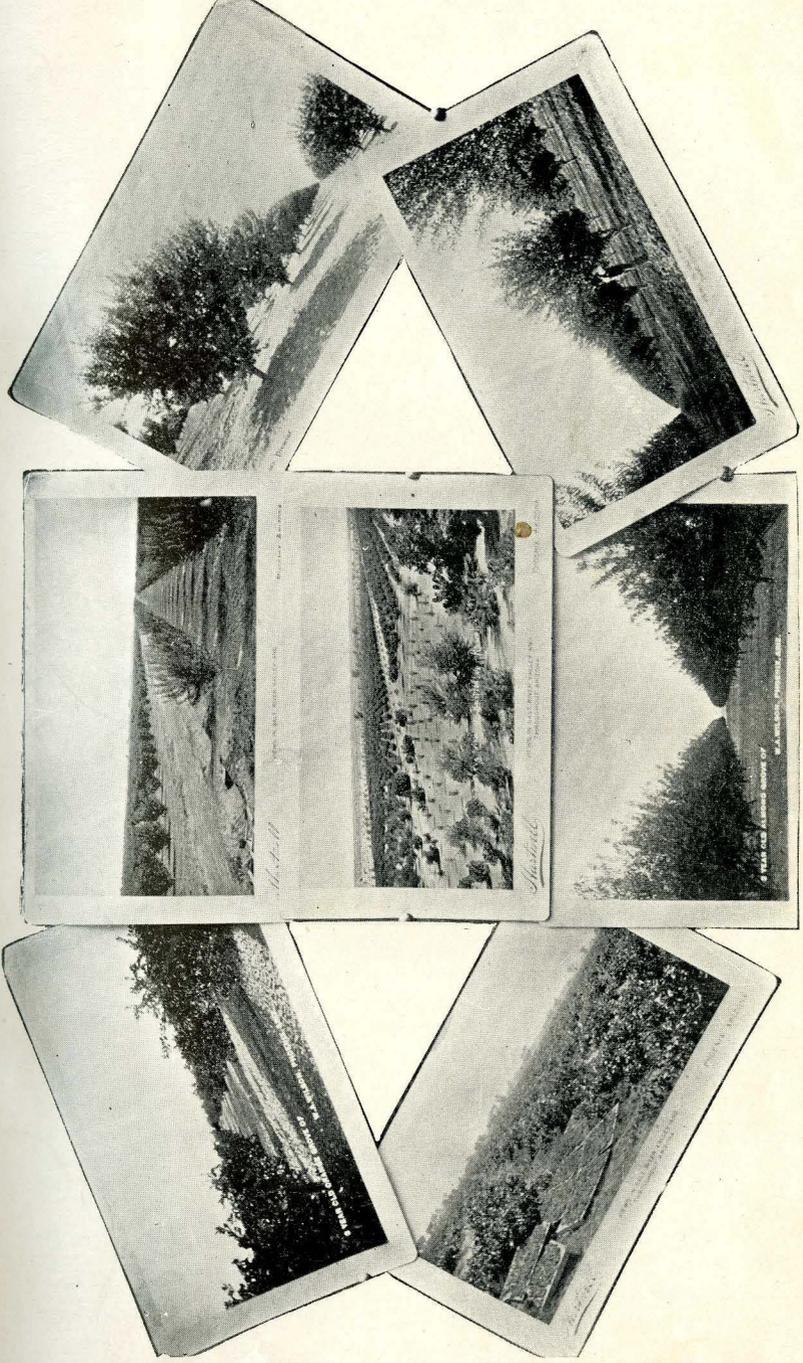
demand in northern and eastern markets at prices which will be remunerative against all cost of transportation and production. A comparison of the prices at which these products rule duringe the winter months in Colorado, the Missouri valley cities and Chicago will show returns per acre equalling fully those realized from our fancy fruitages. Watermelons, muskmelons and canteloupes have a long season, producing largely for five months. The early crop finds a wide market in adjoining states and territories, commanding such prices that make shipments of upwards of a thousand miles profitable. Cucumbers, squashes and pumpkins are principally raised to meet the home demand. Egg plant, peppers and string beans are large producers throughout the summer season.

Horticulture.

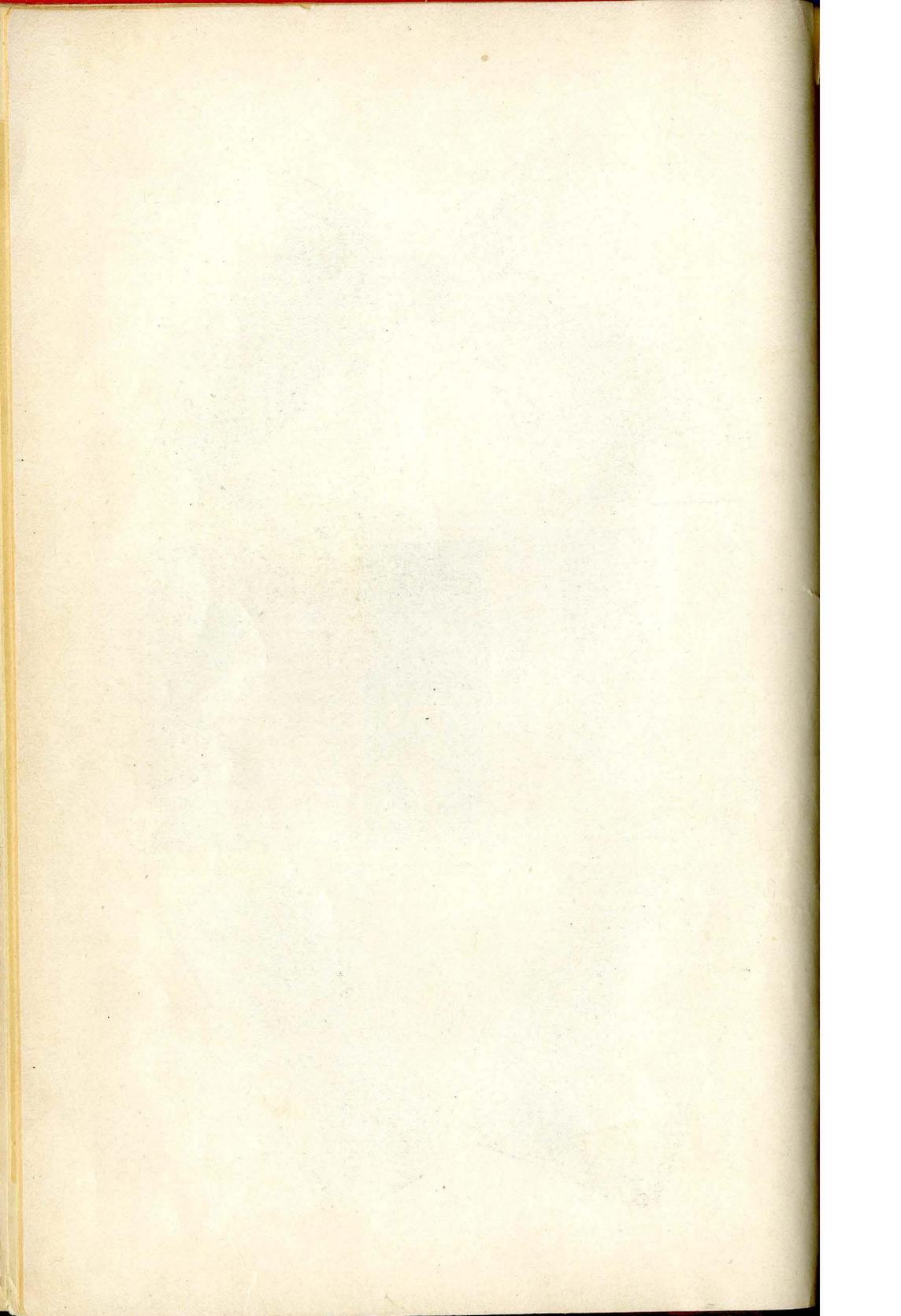
In horticulture this section of Arizona, in variety, quantity and quality of product exceeds in a pre-eminent degree any other locality in the United States. The fact that a large percentage of the present surplus finds a very profitable market in California demonstrates that the early maturity and superior qualities will always give Arizona's products the prestige of the market, there and elsewhere. All the semi-tropical fruits mature in perfection from one to two months earlier than in California, giving the advantage of first prices in the central and eastern markets.

Oranges, of course, lead. There are upwards of five hundred acres now in bearing, and the pecuniary results to the growers exceed those realized by the most famous groves in California. The pomela or grape fruit does even better than in California and will take front rank as a paying crop. Dates have been experimented with by several parties with encouraging results. The United States Agricultural department has now entered upon an experiment of forty-eight acres, bringing the plants from Africa. The importance of this lies in the fact that the date flourishes and does best in strong alkaline soils which are unfavorable to most crops. The olive has been thoroughly tested and has been found to do equally as well as in California. Large groves of this fruit exist here, which yield a handsome annual return to their owners. Almonds are rated as a good paying crop. Although not largely planted heretofore, the prices received warrant an extension of the acreage.

Of the deciduous fruits, the apricot at present heads the list with nearly three thousand acres in bearing. The exceptionally fine quality of this fruit has already created a demand for it far beyond the supply and at prices which give it first rank among paying orchard crops. The majority of the



ORCHARDS IN SALT RIVER VALLEY.



crop at present is in demand as ripe fruit, though some, sent as dried fruit to Chicago, has commanded fancy prices on account of the superior quality. Figs, pomegranates and nectarines are all successfully grown, but not yet in such quantities as to give them commercial status. Peaches rank next in acreage, and it seems that almost all the varieties known in different sections of the Union succeed here, but those of California origin give rather the best results. The establishment of canneries will warrant a large increase in the acreage of this crop. Pears rank next in order as to acreage. They produce well, retaining the fine flavors which render them famous in the various sections of their nativity. The present crop was of sufficient proportions to admit of shipping several carloads, besides supplying the home demand. A portion of the early varieties are sent to other markets where prices rule high. Apples are not as yet a feature in the orchards. There are, however, a few varieties that flourish, and can be produced profitably. Quinces have been grown with good results, but not in such quantities as to supply the home demand. Grapes of all varieties flourish. Some 6000 acres are now in fruitage. When wine-making is established on a more extensive scale, this line of fruit culture will admit of indefinite extension. Two classes of seedless grapes, the Thompson and the Sultana, are notable successes, being already in heavy demand for shipping, their excellence being rewarded with high prices. As a raisin-producing region, this county will undoubtedly rank with Fresno, California. These fruits are a grand success. For quality and flavor, superiority over all other sections is accorded. Some varieties are good shippers, notably the Wickson, which has been sent as far east as Boston, Mass., where it arrived in prime condition, and commanded prices that were highly remunerative to the grower. The drying of prunes as an industry is yet to be inaugurated, but beyond question will prove as great a success financially as in Santa Clara, California, where the business has attained such great proportions.

Berries are largely raised and prove to be one of the best paying crops. Strawberries bear profitably for six or seven months, the earliest of them commanding 15 cents per quart for shipping purposes. As high as \$500 per acre has been realized from this crop. Dewberries and blackberries are also prolific bearers, but at present the home market is barely supplied by the production.

All fruits mature very early, and the profits of the orchard exceed all other crops. As yet this section is comparatively free from insect pests that cost so much in California and elsewhere to keep under control, and the advantage of this cannot be too strongly emphasized.

Irrigation.

All of the agricultural wealth of Arizona has been created by irrigation. Less than 1 per cent of the acreage of the territory actually is irrigated, yet the values created thereby within the last two decades are enormous. The county of Maricopa alone, with a population now somewhat above thirty thousand, contains real and personal property of a total value of at least thirty millions of dollars, conservatively estimated from the notoriously low assessed valuation of \$9,500,000, and substantially all of this is due directly and indirectly to irrigation.

The broad valley of the Salt, with its 1,500,000 acres, tempted venturesome white settlers to locate, more than thirty years ago. Geologically, the Salt River Valley region is one of the oldest on the continent. The surrounding mountains have been eroded by the elements until they are mere knobs in comparison to their former height. The decomposed granite removed from them by the rains has made a soil twenty feet deep in the valley. The few settlers of a generation ago saw this, and saw the surprising crops that were raised by the crude irrigation methods of the Indians and their scattering Mexican neighbors. The Americans set about constructing primitive co-operative ditches from the banks of the river, and while their methods of irrigation for many years thereafter were little less than those of their aboriginal neighbors, the products of their labors were sufficiently gratifying and surprising to carry the fame of the valley across the intervening deserts and mountains thousands of miles, to the nearest railroad settlements, and thenceforth settlers straggled in until the construction of the Pacific railroads made possible the inflow of immigrants in a steady stream.

New canals were constructed to meet the wants of the growing population somewhat in the manner that new streets were laid out in the older cities—to meet the needs of the moment and the neighborhood, and with little idea of a systematic and economical irrigation of the valley. Accordingly, we find today that some of the twelve canals which supply water to the quarter of a million acres surrounding Phoenix should not have been constructed. This wasteful method of carrying water in numerous smaller and closely parallel ditches, with the consequent waste from evaporation and seepage, has been greatly modified by the construction of the later and larger canals—notably the Arizona canal, on the north side of the river, and the Consolidated canal, on the south side.

The important canals on the north side of the river in the

territory tributary to Phoenix are: The Arizona, the Grand, the Crosscut, the Maricopa, and the Salt River Valley. On the opposite side of the river are the Consolidated system, the Tempe and the Highland canals. They represent an actual investment of \$1,500,000.

The farmers buy water from the canals by the miners' inch, as a rule, one cubic foot of flow per second representing forty miners' inches, and semi-annually they contract for water for the ensuing six months, the amount taken for a quarter section of 160 acres ranging from forty to one hundred miners' inches, according to the crop raised and the method of applying the water. The price paid, reduced to an acreage basis, runs from \$1 to \$2 per acre, according to the canal from which it is bought.

Mining.

The mountains that rise so abruptly on the edges of the Salt River Valley hold many rich mineral treasures. On the northwest the great Vulture ledge has world-wide celebrity. In the first few years following its discovery, it is said that nuggets of gold "by the wagon load" were picked up from the surface of the ground, and for about twenty years the property has been successfully worked. It is not in operation now, though well equipped with a 100-stamp mill. There are vast quantities of low-grade ore on hand, however. In the mountains back of Vulture are many excellent prospects carrying gold, silver and copper, but a lack of water makes their working difficult and expensive. In the extreme north-western corner of the county are some copper properties of high-grade ore that are now being vigorously developed. The mountains yield their quota of mineral to organized effort almost as readily as the valleys yield their wealth of crops and fruits to the tiller of the soil. Many excellent properties are being operated, mostly gold and copper, and some of the greatest producers this country has ever had are within the confines of this county. Mountains of gold, silver and copper await the advent of the prospector, and it is only a matter of time until it will be difficult to get out of hearing of the stamps, or out of sight of the smelter in Maricopa county. An industry that promises to become one of great importance to the Territory, and the Salt River Valley in particular, is the manufacture of onyx. Forty-five miles northeast of Phoenix is a quarry of this valuable stone, an almost unlimited quantity of which is in sight. In quality and color it surpasses most of the fine German product, and probably is not equalled in any part of the world outside of India. Every conceivable color is to be found in great brilliancy, while the rich green

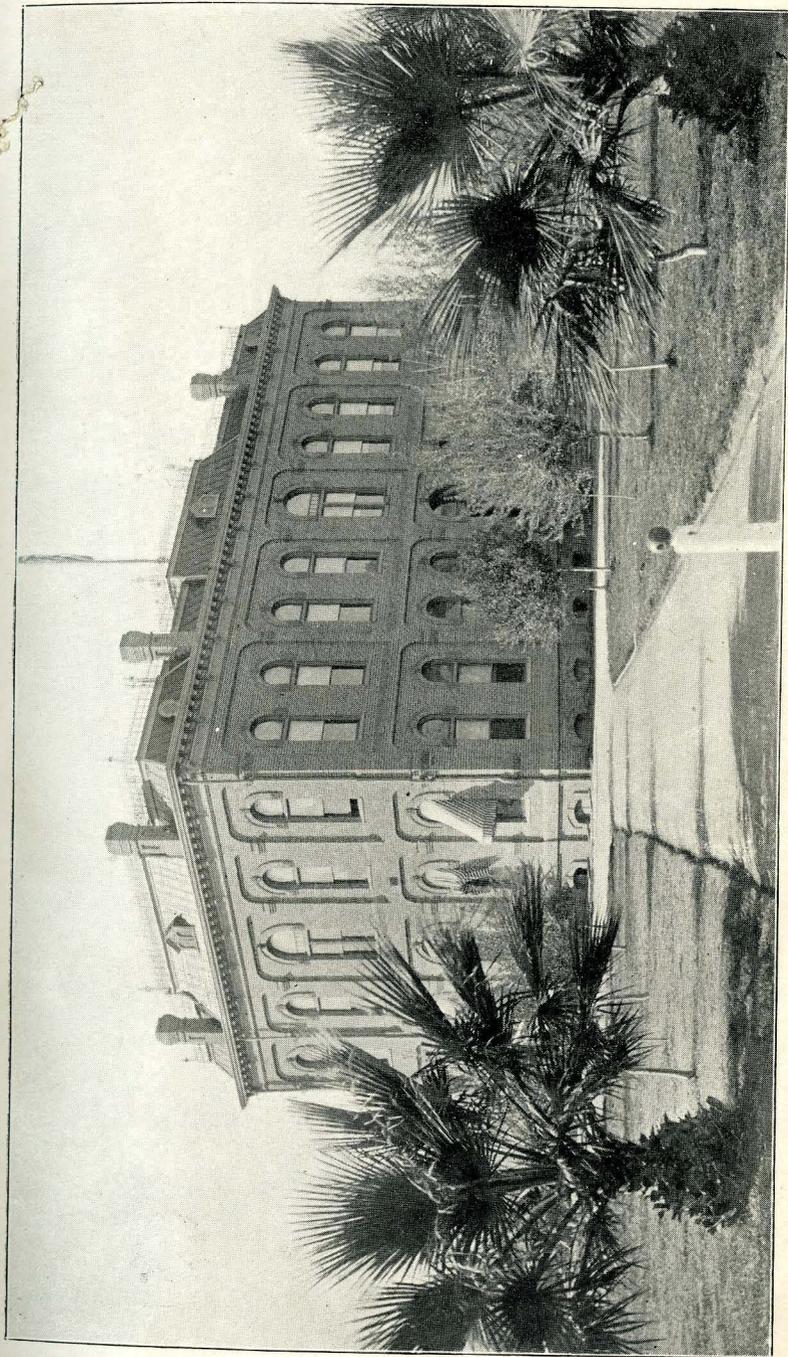
shades so much in demand predominate in point of quantity. A factory for the manufacture of the various articles for which it is used was established in Phoenix two years ago, most of the output being consumed by manufacturers of fine furniture for fancy table tops and similar articles. Many dainty trinkets of this material are for sale by the local jewelers and others, such as brooches, penholders, etc. The United States Indian School is about to add a department for the manufacture of articles made from onyx, and there is no doubt that the future will see great developments in this industry.

Climate.

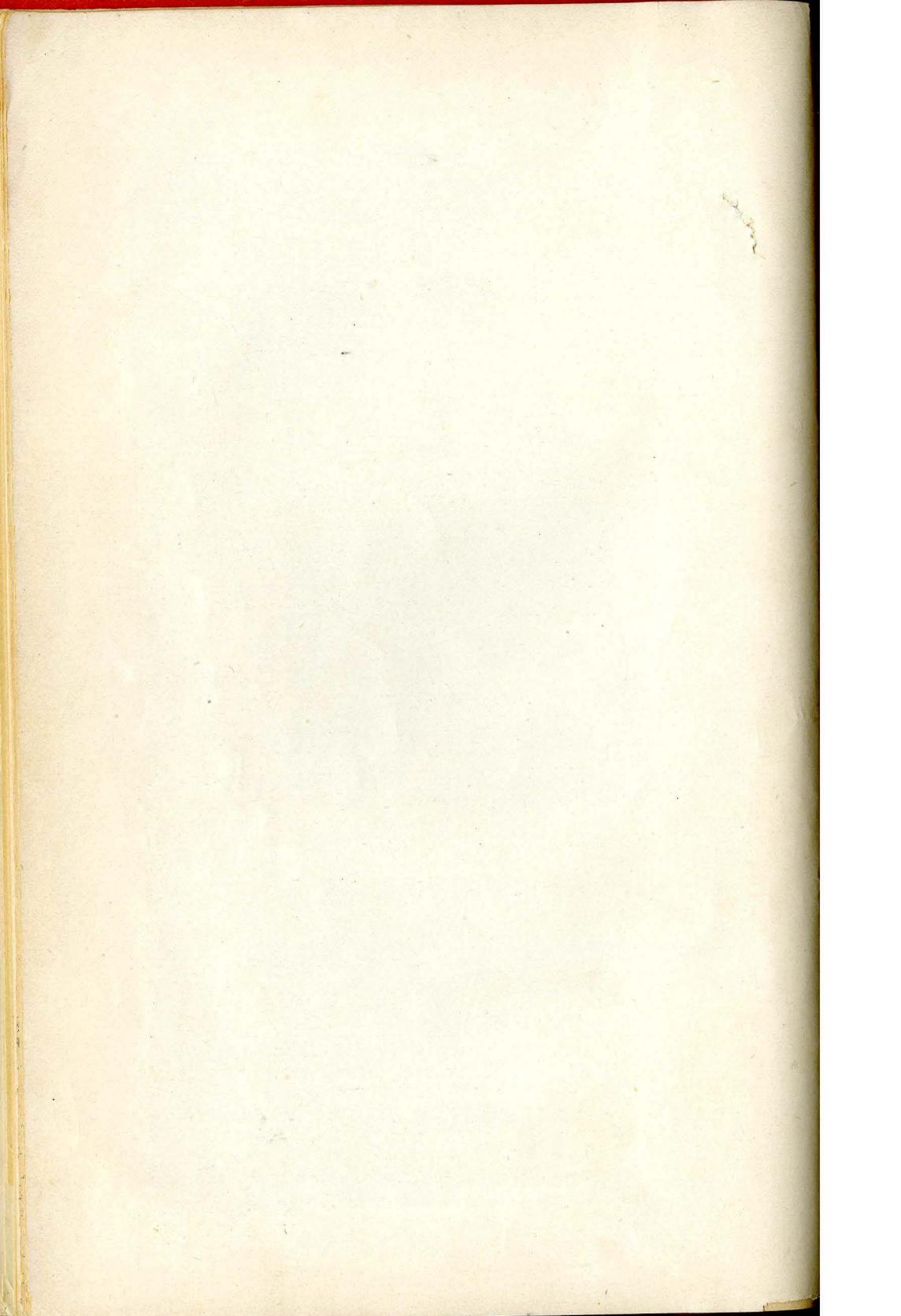
The climate of a locality "consists of the average value of the current weather conditions, with their ranges, taken in connection with its latitude, elevation and topography, soil and vegetation." The climate of the Salt River valley differs from that of places in the same latitude and elevation very materially, because of its topography, soil and vegetation.

Solly in his work on "Medical Climatology" well says, "an inquiry into the climate of Arizona discloses the fact that it is climatically distinct from each of its neighbors—New Mexico and California—and has natural laws of its own, although these laws are modified, in turn, by the climatic influences of both the Pacific Coast and the Rocky mountains. The Salt River valley is geographically a part of the great desert plain of the south and west of Arizona, but climatically it differs from most of this region because of its relatively low altitude, its situation with reference to certain ranges of mountains, and its soil and vegetation. The climate of the valley is unique. While there are other good climates, there are none presenting exactly its combination of conditions. These features are the lowest relative humidity, the slightest wind movement and the highest annual temperature in combination. No other region even approximates this in these respects.

The average temperature for a period of fourteen years at this station is for January 49 degrees Fahr., for July 90 degrees; the year 69 degrees; or by seasons, winter 51 degrees, spring 67 degrees, summer 87 degrees, and autumn 69 degrees. The relative humidity is 38 per cent. This is not a dry climate, but very dry, according to the Weather Bureau classification. The average annual rainfall is 7 inches. There are two seasons in which rain is more probable than at others—during the months of July and August, and December and January, though it cannot be said that there is a



CITY HALL, PHOENIX, ARIZONA.



rainy season in this valley. The average annual wind movement is about three miles per hour.

The number of clear days in the valley is from 80 to 90 per cent of the possible. The water of the valley is entirely free from organic matter. It differs from the "fountain" water of the eastern and middle states only in having a small amount of sodium chloride, which can be noticed when the water is warm, but which is entirely lost by cooling.

General A. W. Greely says that "Phoenix is the locality where the wind is perhaps the feeblest of any point in the arid regions." What is true of Phoenix in this regard is likewise true of all parts of the valley—and it is important to here note that cyclones and tornadoes are entirely unknown in this region. Dust storms occasionally occur in the fall and spring—just as they do in all of the Rocky mountain region, but they are of short duration. They are very disagreeable, but they do not occur more than eight or ten times in a year, and as they are the result of electrical disturbances, they seem to have a beneficial effect, the atmosphere becoming much clearer and cooler immediately thereafter.

The soil is sandy, though that which is commonly called adobe is found in various parts of the valley. Sand and gravel exist to a depth of from 20 to 100 feet. Underneath the entire valley there is a stratum of water, thus assuring a perfect drainage.

Healthfulness.

That this climate is remarkably healthful is attested by the low death rate of its resident population and by the fact that it is annually visited by thousands of health-seekers from all parts of the United States and Canada. More exhaustive literature on climatology will be published early in the fall. Some of the diseases are benefited in summer more than in winter, and vice versa. The fall, winter and spring, however, are the seasons during which the valley is most frequented by health-seekers.

The disease for which patients most commonly come to this valley is tuberculosis of the lungs. The fame of the valley has gone abroad, and each year sees a large increase in this class of our population. If fresh air, sunshine, a minimum of moisture and a low altitude make a desirable climate, there is none better than this. It is a fact that the disease does not originate here save under conditions most favorable to its growth. The whole medical world now recognizes the fact that an outdoor life in fresh, pure air, with good food, gives the greatest percentage of recoveries in tuberculosis. The aim of all sanatoria at this time, both in Europe and

America, is as nearly an absolute out-of-door life as possible.

There is no doubt that there is no place in America where this end can be attained with greater certainty than here in the Salt River Valley, and there are few places in the eastern hemisphere offering as good conditions. On this point Mr. Whitelaw Reid says: "During a five months' residence in Arizonan winter, there was but one day when the weather made it actually unpleasant for me to take exercise in the open air at some time or other during the day. Of course there were a good many days which a weather observer would describe as 'cloudy,' and some that were 'showery,' but during the five months (from November to May) there were only five days when we did not have brilliant sunshine at some time during the day. Even more than Egypt, anywhere north of Luxor, Arizona is 'The Land of Sunshine.'" Thus it is seen that the invalid may spend practically all of his time out of doors. Indeed, many sleep in the open air all winter, although it is not as common a practice as it should be, and should always be under intelligent direction. It is to be regretted that there is no organized effort on the part of our citizens to care for this class of invalids. Whatever is done is by individual effort. The hotel and boarding house accommodations are satisfactory for those who desire to live in the city. Many prefer the desert, and during the past few years the tendency is toward tent life on the mesa at the base of the foothills. No doubt this is to be the popular method of life for tubercular patients in the future.

Asthma is a disease for which great numbers visit this valley, and it is one for which many find relief and few fail. It is a disease with so many variations and for which there are so many causes that it is difficult to lay down hard and fast laws for the selection of a climate. A number of our most prominent citizens came here because of asthma and have found perfect relief.

Hay fever is practically unknown here, though the conditions are possible for its existence. If the exciting cause is pollen of vegetation, it is very easy to get to a point where there is no vegetation, within easy riding distance of the valley. If the cause is amenable to surgical treatment, climate is of no benefit.

Nasal and pharyngeal catarrhs are common in all climates where there is much variability, whether they be warm or cool, moist or dry, high or low, and the greatest benefit is usually derived from the climate which is in sharpest contrast to that in which the catarrh was contracted.

Pneumonia is not a common disease in this valley, nor is it often fatal. It is claimed that there are fewer cases of pneumonia among healthy persons in this valley, with less

fatality, than any resort in the west. Pneumonia is a common disease among persons affected with any inflammatory lung disease, and it is highly fatal. But it is much less common and much less fatal in places of low altitude than in the elevated resorts.

"Bronchitis," according to a standard work on climatology, "is usually soonest cured in a dry, warm, inland climate, of very moderate elevation, where there is little wind." If the conditions here are not those called for, there are none on this continent.

It is generally conceded that any disease of irregularity of the heart or great vessels should be treated at a low altitude in a sedative, mild climate. There is no doubt that life is frequently prolonged even in old valvular cases under such conditions.

Nervous disorders in general require a mild, sedative or slightly stimulating climate. Meningitis, corea, epilepsy, insanity and the chronic degenerations of brain and cord, do not seem to be influenced one way or the other.

Neurasthenics and those affected with passive hyperannia are benefited upon coming—perhaps because of change of scene and surroundings. Their improvement is no more permanent than elsewhere. Sunstroke is very rare. It is asserted that it never occurs here except in alcoholics. Laborers work in buildings, in ditches, in shops and fields, even in the hottest weather, without danger and with no more inconvenience than they experience on warm days in temperate climates. The "noon hour" is just the same here as in any other region.

Theoretically Southern Arizona is the place par excellence for diseases of the kidneys. The hot, dry air of summer should and does cause the skin to vastly increase the output of body excretions and greatly diminish the work of the kidneys.

PHOENIX.

Phoenix, the county seat of Maricopa county and capital of the Territory of Arizona, is a thriving modern town of about 15,000. People coming here to take advantage of the glorious climate under the impression that to enjoy it they will be compelled to forego the advantages and comforts of civilized life, find that, contrary to their expectations, the best of hotels are at their disposal, and that a variety of fruits and vegetables form a part of their daily diet the year round that could be had only as luxuries and at fancy prices in any other section of the United States. In addition to the

above, excellent accommodations are to be had in private families, the best of living being obtainable at extremely moderate prices.

The most impressive features presented to the new comer are the lovely shady avenues in the residential portions of the city, and the cosy homes that are to be seen on every hand. The houses for the most part are beautiful in design and replete in their equipment with all modern conveniences, while a luxuriant growth of semi-tropical plants around gives a charm that beggars description. Probably the best roads exist here that are to be found in any section west of the Mississippi river. One can ride, drive or go a wheel for miles in any direction without encountering anything bordering on rough country.

Two well-equipped electric street car lines are in operation, traversing the city from north to south and east to west, affording the sight seer an excellent opportunity to appreciate the beauties of the city proper, a four-mile ride being covered at a cost of five cents, the cars running every fifteen minutes.

The city is lighted by electricity, in addition to which a service of gas is maintained.

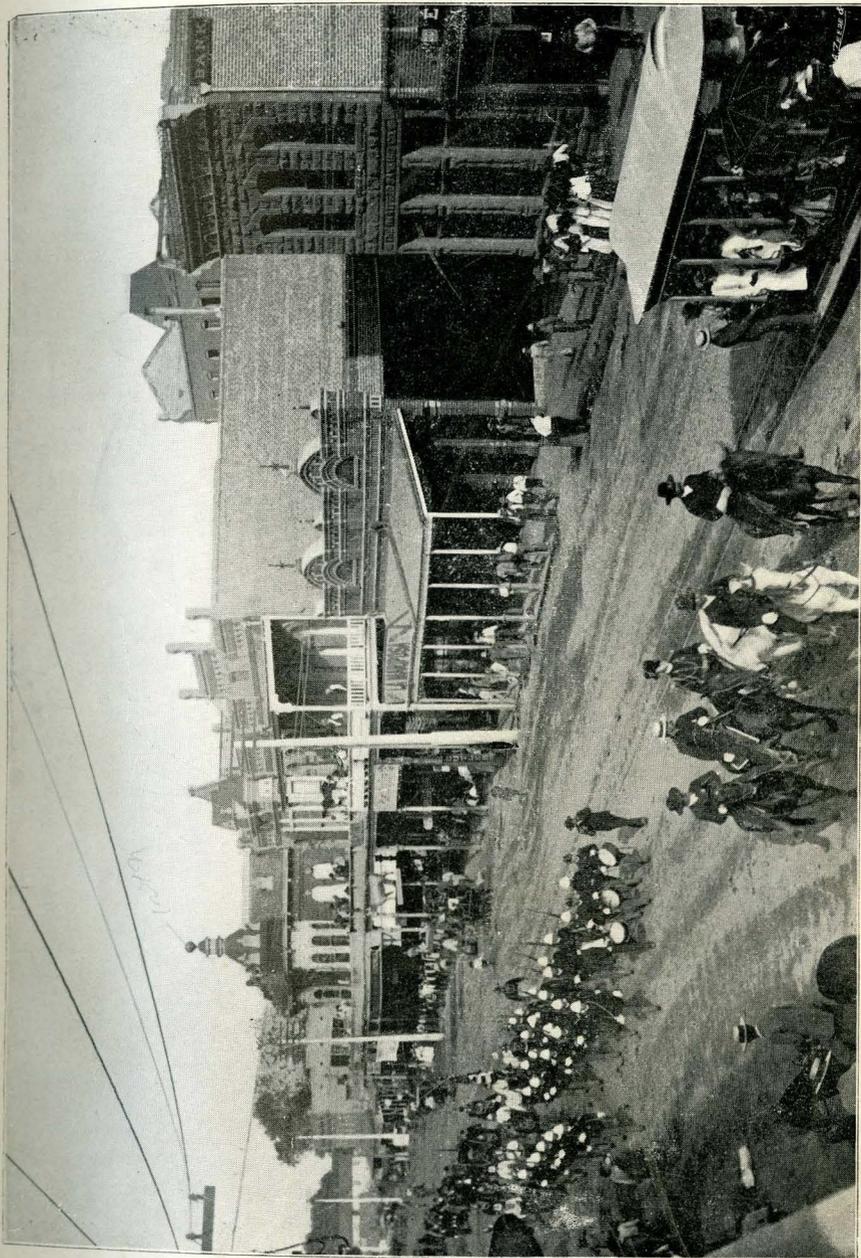
The water system is a feature by no means to be overlooked by those in search of health, and is extended even to the most remote suburbs.

Two ice plants are in operation the year round, having a productive capacity of forty tons per day, the product being retailed at the extremely low figure of one-half a cent a pound.

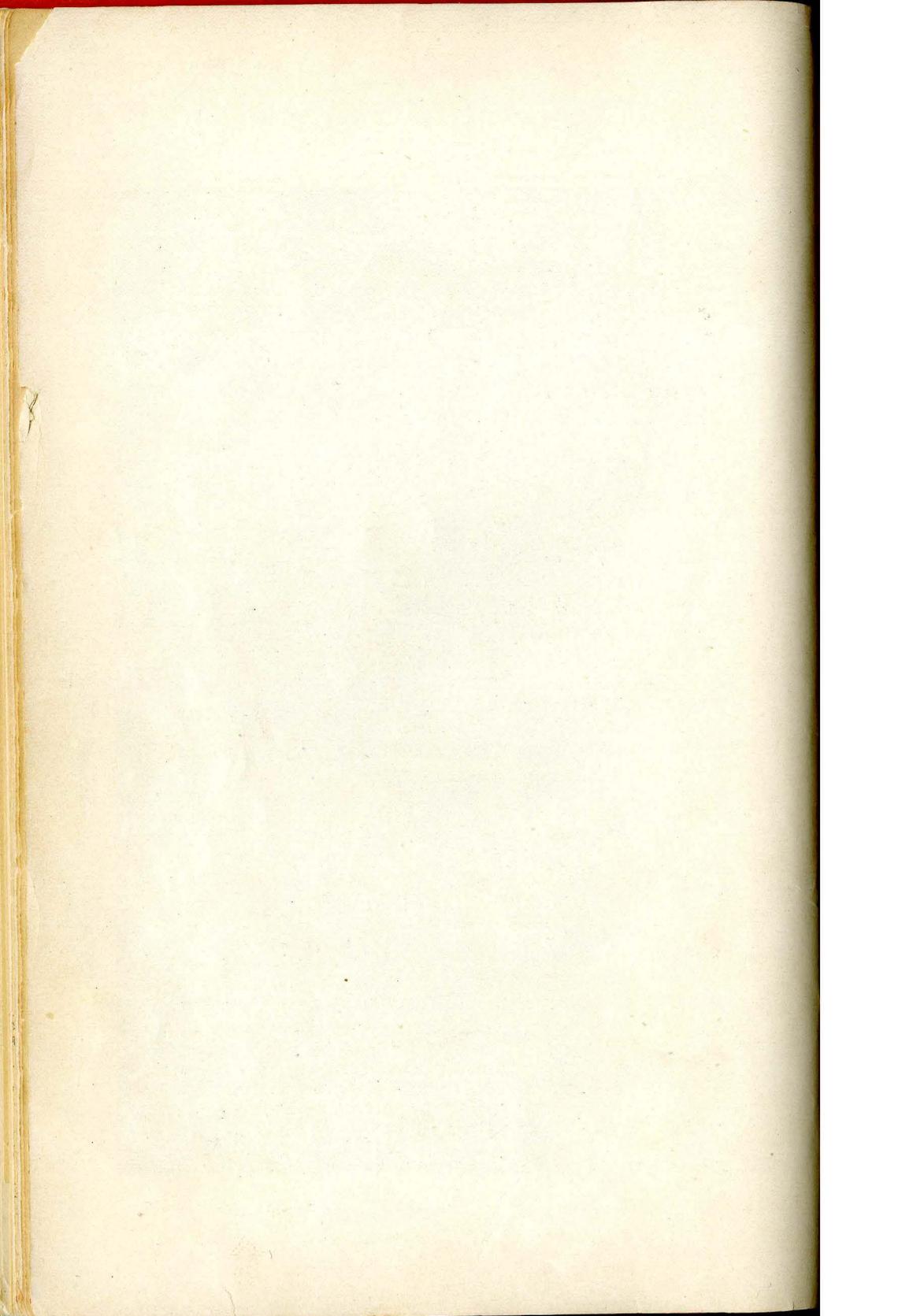
A well equipped telephone system is operated, which establishes a ready means of communication between the business and resident portions of the town, while a long distance system is now in course of construction.

All classes of trade are well represented, many of the retail concerns being a revelation to people coming from much larger towns, as money has not been spared in equipping some of our leading houses.

A cold storage plant is operated and pipe lines are laid so as to be available for all businesses requiring a low temperature for the preservation of their goods, butchers, grocers and liquor dealers being the principal patrons. A fine opera house has been lately constructed, having seating capacity of one thousand people, and many excellent theatrical companies visit the city every season. Fine parks, a large race track and a well appointed swimming bath also embrace important features for the amusement of residents. There are thirteen churches embracing denominations calculated to meet the requirements of almost all classes of



STREET VIEW IN PHOENIX.



society, all of which are presided over by men of recognized ability. There are also several church societies which have a large following. Educational facilities are of the best, one high school and four ward schools being maintained in the city proper. An excellent public library has recently been established here, supported by individual subscription. It is located in the City Hall, and there are already about 2000 volumes on the shelves with prospects of a large increase at an early date. There are four daily and six weekly newspapers reflecting the sentiments of all the political persuasions. Besides these are some of the finest equipped job printing establishments on the coast. The almost total absence of wind and dust adds very materially to the comfort of those living in town. A thorough street sprinkling system is maintained by the municipal government. The city fire department is also a noteworthy feature, being equipped with all the modern paraphernalia necessary to meet the requirements of existing conditions. Almost every fraternal society of recognized standing is represented here by a local lodge.

Three miles north of town a flourishing ostrich farm is to be found. There are about 160 birds of various ages, the descendants of a single pair of birds brought here 12 years ago. While this is not an industry that is calculated to invite extensive increase or investment of capital, it has nevertheless been a lucrative venture to the originators of the scheme. Apart from its commercial value it is one of the many points of interest that attract the visitor.

Here is located the capitol building, in which the Territorial governmental offices are situated. A new building is now in course of construction for this purpose in the spacious grounds at the west end of town, which have been cultivated and beautified for several years at the expense of the Territory, and which now present to the eye the grandest variety of palms, trees and flowering shrubs imaginable. The building is to cost \$125,000, and when completed will be an ideal one for the purpose for which it is designed, being equipped with fireproof vaults connected with every suite of offices. It is being constructed entirely of native material and will therefore be equivalent to a far more costly structure in which foreign material has been employed.

Three miles east of the city is the Territorial Insane Asylum, with a capacity for about 250 patients. This institution is maintained at the cost of the Territory, and is probably one of the best equipped and managed in the United States. Standing in spacious grounds set out in ornamental trees, it is a point well worth visiting. Among the useful features embodied in it, and which greatly enhance the comfort of its unfortunate occupants, are a large garden, farm and about

150 head of cattle, the produce from which materially adds to the liberal allowances made by the Territory.

The United States Industrial Indian School, which is located three miles north of the city, under the superintendency of Major S. M. McCowan, is a feature at once attractive and instructive. It is the largest Indian school in the United States, with the exception of the Carlisle, and here hundreds of Indian boys and girls are annually transformed from their native condition of indolence and uselessness into civilized members of society. They are taught to fill all the offices of civilized life, also to work at the various trades and the most approved methods of agriculture. The boys are instructed in military drills and subjected to a thorough discipline. A brass band, composed of members of the school, is a source of wonder to all who hear its performances. It is hard to realize that these boys, the offsprings of a people who lived in a state of savagery a few generations back, are such proficient musicians.

TEMPE.

Situated on the south bank of the Salt river, and nestling behind a towering butte, nine miles east of Phoenix, is the pretty little city of Tempe. The spot which it covers inspired Darald Dipper, the son of an English earl, thirty-one years ago, to name it Tempe, because it so vividly brought to his mind the vale of Tempe, in Greece, which he had visited in his travels. The people of the place have caught the spirit in which it was named, and every year sees the place a little prettier than the preceding one.

The town is one of the principal shipping points of the Territory, as it is the outlet of the south side of the Salt River valley. The Maricopa & Phoenix and the Phoenix & Mesa short-line railways pass through the place. Six trains run through the town daily and give it better train service than is enjoyed by any other city in the Territory, with the exception of Phoenix.

The country surrounding Tempe and contributory is among the best developed in the Territory. This is due to the Tempe canal. The Tempe canal is the oldest but one in the valley and the largest but two. It receives more water than any other canal and consequently the land under it supports a wealthy community. An electric light system is in operation, the new Tempe hotel—one of the handsomest and best in the Territory—is about completed, and the town has voted \$30,000 bonds to put in a water system, all of which is substantial evidence that the town is prosperous. Besides

these things of the present, Tempe has its projects and dreams as does every other energetic and growing little city.

The population of Tempe is 1400, and is increasing at a healthy rate. There are six church organizations, five of which have edifices, and the sixth is now providing itself with one. Tempe is the home of the Territorial Normal school and has in addition one public school. There are two hotels, a bank, six general merchandise stores, one fifty-barrel capacity flouring mill, two livery stables, three restaurants, five grocery stores, two meat markets and a hay and grain commission.

There are also five fraternal organizations which have lodges in the town, namely: The Odd Fellows, Masons, Woodmen, Workmen and United Moderns. The professions are competently represented.

MESA.

Twenty-two years ago a caravan of people from Utah settled on the land which is now covered by the lively town of Mesa. The name was derived from the topography of the country, the Spanish word mesa meaning table. The country surrounding Mesa is high, flat and nearly level. The town is eight miles east of Tempe and seventeen miles east of Phoenix. It is 100 feet higher than Tempe and 180 feet higher than Phoenix. The Maricopa & Phoenix & Salt River Valley railroad enters the place and runs two trains to Phoenix daily. The town is situated in the center of a thickly settled country of small farms, on the outskirts of which district are large grain and cattle ranches. The Mesa country is thrusting itself forward as a fruit section. There are more large and small orchards, vineyards and nut groves on the Mesa than anywhere else in the Territory. The soil on the Mesa cannot be surpassed, and the water supply is second only to Tempe, while the canal system is perfect.

The town of Mesa is one mile square. The blocks are twice the size of the ordinary city block, and the streets are as wide as boulevards. There are many beautiful residences and grounds and the business blocks are, for the most part, substantial bricks. The main street is lined on both sides with fine brick structures, most of which are two stories high, and occupied by the various firms, which are doing a prosperous business. The fact that Mesa has recently been advanced from a fourth to a third-class postoffice evidences its substantial growth.

A fine system of electric lighting, furnished by the Con-

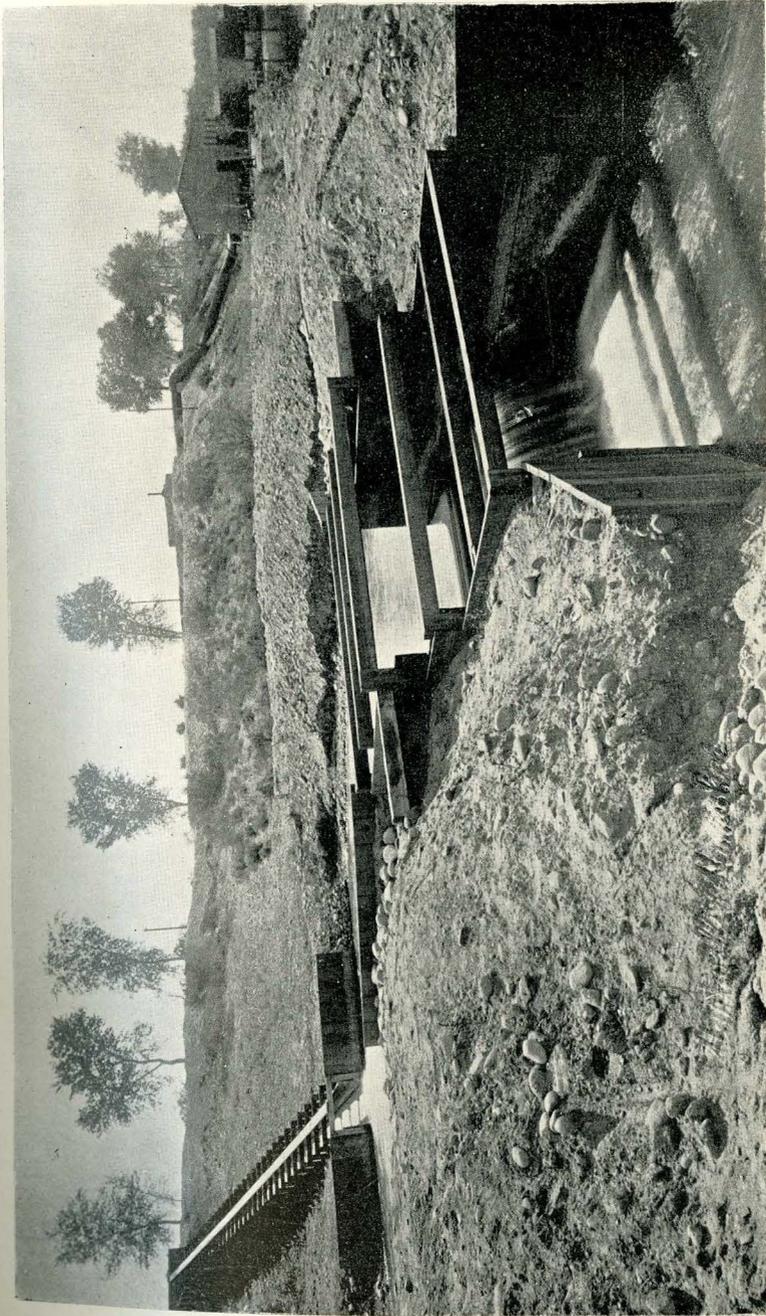
solidated Canal Company, and run by water power, is in operation. The power is generated by a pair of horizontal twenty-one inch Victor turbines, developing no less than 400 horse power. With the present 2200 volts two-phase Westinghouse dynamo, there is sufficient power to run the Mesa electric lighting plant, and to pump considerable water extra to the canals for irrigation purposes. There are three churches and four school buildings, two of the latter having cost in the neighborhood of \$10,000 each to build. A large flouring mill is successfully operated by the Co-operative Milling Company, and a branch creamery by the Tempe-Mesa Produce Company, while a winery has a capacity of 15,000 gallons. This creates a local market for the grape crop and would be extended if the production of grapes warranted it, as the supply is by no means adequate to the demand, owing to the excellence of the wines produced. Railroad, express, telegraph and telephone facilities are enjoyed, while two excellent hotels—the Kimball and the Alhambra—with a capacity for ninety guests, are at the disposal of the traveling public.

Many fine orchards are to be found in this vicinity, principally orange, olive and almond. From a thirty five acre almond orchard composed of three, four, five and six-year-old trees, there have just been harvested 41,000 pounds of nuts, which sold for \$200 a ton, an argument at once convincing as to the profit of this line of culture.

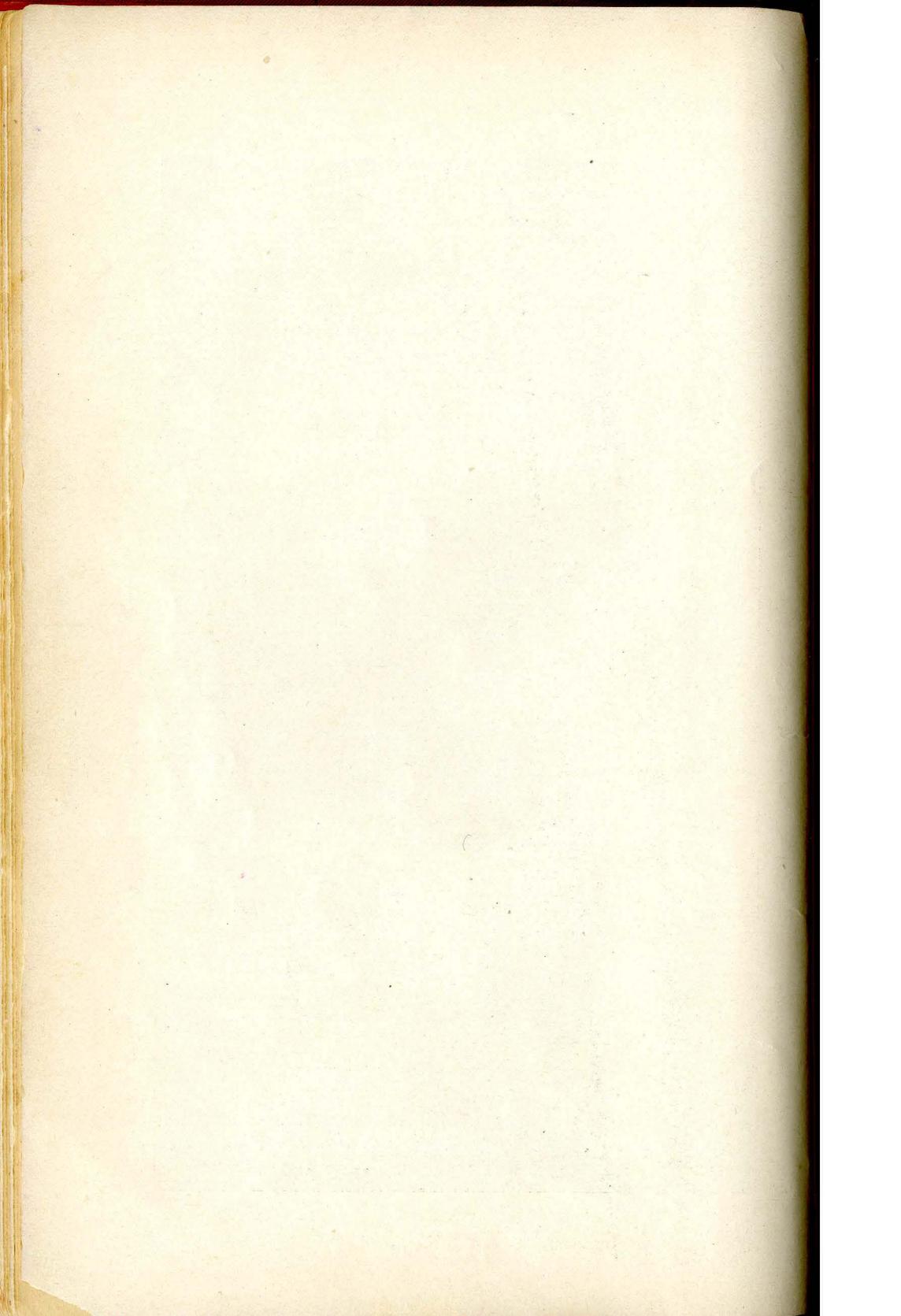
Mesa is the starting point for the rich mining region lying to the south and east in the Superstition mountains, and the local merchants derive a considerable volume of business from many of the flourishing camps that are running most of the time.

The Consolidated Canal Co.

Chief among the canals on the south side of Salt river is the Consolidated. It is the successor to and an enlargement of the Mesa canal, which was constructed twenty-one years ago by the sturdy settlers of that early time. More than eight years have now elapsed since the new company acquired the Mesa franchise, and during that time an immense quantity of work has been accomplished. The headgates are as substantial a piece of work as can be seen in Arizona or elsewhere. The gates are fifty feet in width by twenty-seven in height, with heavy granite wings and abutments tied into the bedrock with steel drift bolts. The coping courses of these wings and abutments are laid with red sandstone, and not only are these works of solid and substantial character throughout, but they present a very handsome and imposing appearance. As to their strength it is sufficient to say that



POWER HOUSE WASTEWAY, CONSOLIDATED CANAL COMPANY, MESA, ARIZONA.



when the work was quite green they withstood a flood of twenty feet in height, which came raging down the river with a suddenness which is not uncommon during the rainy season.

From the headgates on the Salt river to the division gates just north of Mesa is a canal eight miles in length, forty-five feet wide at bottom, with a seven-foot cut throughout and a capacity of 50,000 inches.

At the division are three sets of gates facing east, south and west, and from these gates the water courses away toward these three cardinal points, one of the most remarkable occurrences ever met with in irrigation engineering. The east gate discharges into what is known as the eastern branch of the Consolidated canal, and this branch is twenty feet in bottom, with a three-foot cut throughout, and a capacity of 17,000 inches. The south gate discharges into the Mesa canal, three miles in length, and the west gate into the two-mile crosscut, twenty feet in bottom, with a capacity of 20,000 inches, which leads to the power house and thence to the Tempe canal, with its own extensions, altogether sixteen miles in length.

The eastern branch follows with a two-foot grade, the highest line possible, taking first an easterly sweep and then running south to the line of the reservation, a distance of eighteen miles, or twenty-six miles from the river. From this branch are run on the west side laterals of 1200 to 1500 inches, thus supplying the farmer with water at his very door without any expense for the maintenance of private ditches. There are no less than 100 miles of these laterals, and a thorough system of distribution will be instituted that will further contribute to the economical and efficient utilization of the water supply. From the end of one of these laterals a branch known as the orange belt branch runs westward along the ridge between the Salt and Gila rivers, which irrigates the fine lands about Kyrene station. Altogether the canals and laterals of the Consolidated company cover and will provide water for upwards of 100,000 acres of land.

The western branch, with a capacity, as before stated, of 20,000 inches, among its other purposes is a supply ditch for the Tempe and Utah Extension canals, but the water from this branch, which runs to the abrupt mesa edge, forty feet above the Tempe canal, is first utilized as a source of power. Taken into the power house with a thirty six-foot head, it runs a pair of horizontal twenty one-inch Victor turbines, developing, with the minimum flow of the Tempe canal, no less than 400-horse power. With the present 2200 volt-two-phase Westinghouse dynamo there is sufficient power to run the Mesa electric lighting plant and to pump considerable water extra to the canals for irrigation purposes. The whole

of the works of the Consolidated company are of most substantial construction and reflects credit upon both manager and engineer. It only now remains for the Hudson Reservoir company to get to work upon their noted dam-site below the mouth of Tonto creek, on Salt river, when the immense area covered by the Consolidated Canal company will be assured an ample and constant supply of water, and is bound to become one of the most productive sections of country on the face of the earth.

The Consolidated is backed by Messrs. D. M. Ferry and C. C. Bowen of Detroit. Dr. A. J. Chandler is president and general manager, and Mr. W. H. Code engineer and superintendent.

