



NORTHERN
ARIZONA

—ITS—

FORESTS,
ARABLE AND GRAZING
LANDS.

—HOMES FOR THE MILLION—

1889

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INTRODUCTORY.

IT IS A COMMON error to suppose that Arizona is a land exclusively of desert sands and tropical heat. It is truly said to be a land of contrasts in scenery; its tropical climate either parching the soil and vegetation, or, under a fair supply of water, causing the flora to deck the surface with a luxuriant covering of verdure. With an extreme length of 378 and a width of 339 miles, her area of 113,929 square miles, a magnificent patrimony of 72,914,560 acres, covers a soil capable of producing every variety of fruit, vegetable and cereal known to the temperate zone, mines of coal, copper, iron, gold and silver, inexhaustible in extent, lakes of salt, springs of petroleum, and forests of pine, cedar, spruce, juniper, ash and oak, of as great extent as any State or Territory of the Union. The wonderful progress made in Southern Arizona in agriculture and horticulture is now generally understood and appreciated; the successful reclamation of large bodies of land by utilizing the waters of the Salt, Gila and other rivers and streams for irrigation, has transferred, what but a few years ago was a barren waste, into blooming gardens and fruitful fields that are now attracting the settler and home-seeker to that section as one of the most inviting portions of the West; while the northern portion of the Territory, with its millions upon millions of feet of merchantable lumber, its mountain valleys and elevated plateaus, its streams and water courses, and its millions of acres of fertile land that can be cultivated both with and without irrigation, remain to a great extent, a terra incognita to the outside world.

It is the purpose of this pamphlet to treat of the varied resources, exclusive of mining, which will be touched incidentally,

and the climatic advantages of that portion of Arizona lying north of the 34th parallel and embraced within the counties of Mohave, Yavapai and Apache, a territory greater in extent than the six New England States combined, and one whose lumbering, agricultural and stock-raising advantages make a most desirable country to the home-seeker and investor. Its mighty cañons, broad plateaus, crowned by lofty mountains, its picturesque parks, verdant valleys, forests of trees, and snow capped peaks, furnish pictures of unparalleled beauty to the sight-seer, while its strange and diversified geological features and the traces of an extinct civilization everywhere visible, make it a most interesting land to the scientist and archæologist.

It is the best watered portion of Arizona. The White mountains, Bradshaws, Sierra Prietas, Sierra Anches and San Francisco ranges of mountains all traverse it. The White, Puerco, Colorado Choquiti, Agua Fria, Verde, and other rivers and streams give an inexhaustable supply of water for irrigation if properly utilized. Skirting the dry valleys where no stream flows are mountains, in whose cañons are natural reservoirs that can, at small expense, be utilized for storing the life giving fluid. Gramma and bunch grass cover the highest mountain ranges, affording most excellent pasture for cattle and sheep.

The Colorado, which is formed by the junction of the Green and Grand rivers, drains the entire Territory, flowing through the northern portion of Yavapai and Mohave counties, it divides Arizona from California and Nevada and forms what is known as the "Grand Cañon," a chasm, cut by the river in its course to the sea, several hundred miles in length and varying in depth from 1,000 to 7,000 feet. In Apache county is found what is known as the "Petrified Forest;" acres covered with petrified trees and branches that take on a most beautiful polish and can be easily fashioned into ornamental articles of most exquisite beauty. In Yavapai county is "Fossil Creek" and the "Natural Bridge," both objects of great interest, which will receive a more extended notice hereafter.

HEALTH AND CLIMATE.

THE CLIMATE of northern Arizona is about as perfect as a proper admixture of hydrogen and oxygen can make it. Lying for the most part from 3,000 to 7,000 feet above sea level, there is not a night in midsummer when one cannot sleep comfortably in-doors, under a heavy pair of blankets. While in winter the thermometer ranges at night from 10° below to 30° above zero, the days are so bright and sunny, the air so dry, pure and bracing, that one seldom needs an overcoat. The prevailing winds in Arizona are from the Gulf of Mexico, which passing for hundreds of miles over a treeless desert, much of which is below sea level, that acts as a complete dessicant, robbing the atmosphere of all moisture, leaving it dry to the last possible degree. There is little dew and no fogs, and, although in the more elevated valleys snow falls to a depth of from one to three feet, yet it is without the accompaniment of the damp, chilly air, "penetrating to the marrow," in less favored localities. There is no malaria. The military posts of Fort Apache, Whipple Barracks and Fort Verde show them to be among the most healthy in the Union. There is not a day in the year when a laborer cannot do a full day's work in the open air. In no locality is man possessed of more mental or physical vigor, or capable of greater or more continued mental or physical exertion. There is no country with so great an average rainfall that during the year has so many bright and sunny days. Stock is neither housed nor fed in winter; they keep well the year round upon the ranges. The winters are mild, the summers the perfection. No night in summer but one can sleep comfortably under a heavy pair of blankets; but few days in winter when at midday it is necessary to close the doors and kindle a fire; but few days in the year when one is uncomfortable during the day without an overcoat.

To the courtesy of Lieut. W. A. Glassford, observer of the signal corps, I am indebted for the following table, showing temperature at the points therein stated for the year ending November 1, 1888:

PLACE.	NOV. 1887			DEC.			JAN 1888			FEB.			MARCH.			APRIL.		
	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.
Ft. Apache, Apache Co.	46°	76°	20°	38°	57°	1°	35°	66°	7°	*..	*..	*..	*..	*..	*..	54°	88°	30°
Ft. Verde, Yavapai Co.	50	89	25	39	61	14	58	66	11	49°	73°	25°	27°	79°	27°	68	90	35
Prescott, Yavapai Co.	45	73	20	32	57	8	28	56	12†	40	63	22	...	...	...	55	78	31
Holbrook, Apache Co.	45	70	19	...	...	...	28	54	10†	41	64	23	43	70	20	67	84	34

NORTHERN ARIZONA.

TEMPERATURE, CONTINUED.

PLACE.	MAY, 1888.			JU - E.			JULY.			AUGUST.			SEPT.			OCT.		
	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.
Ft. Apache.....	30°	125	42°	30°	96°	42	70	101	50°	...	...	...	70°	99°	48°	55°	88°	36°
Ft. Verde.....	35	117	40	75	106	43	33	109	50	80°	109	54°	76	104	51	63	96	34
Prescott.....	59	35	33	38	39	37	2	96	46	69	94	48	66	90	46	54	85	29
H lbrook.....	61	33	35	71	93	40	...	...	...	74	93	50	71	92	48	58	90	30

* Not given. † Below zero.

The meteorological summary for 1887 is given as follows:

PLACE.	Mean.....	Highest.....	Lowest.....	Precipitation.
Fort Apache.....	55°	102°	1°	17.84
Fort Verde.....	59	109	13	13.23
Prescott.....	54	97	8	18.36

The above table will give the reader a fair idea of the temperature and rainfall in Apache and Yavapai counties, and a large portion of Mohave. In the last named, the mountains gradually recede in height as the Colorado river is approached. At the Needles, where the Atlantic and Pacific railroad crosses into California, it is much warmer, probably four degrees, than at Fort Verde. To one unaccustomed to the climate of Arizona, 109°, the warmest day recorded for the present year at Fort Verde, might seem unsufferable, yet on account of the dryness of the air, which contains only 30 per cent. of moisture as compared to 75 and 80 per cent. in other localities, this degree of heat is not more oppressive than 85° in the eastern cities. In all northern Arizona, and, indeed, in the southern portion of the Territory, where the heat is much more intense, men work every day of summer in the harvest fields, and sunstrokes are unknown. The afternoon winds rob the days of undesirable heat and prepare the way for refreshing sleep at night.

The sanitary reports from Fort Apache, Fort Verde, Whipple Barracks, and other military posts, show the country to be extremely healthy. Malarial diseases are unknown.

SCHOOLS.

FOR a young community Arizona has an excellent school system. The pioneers of the Territory have from the commencement shown a commendable disposition in educational matters. The common schools are under the direct supervision of a Territorial Superintendent and a Board of Education, consisting of the Superintendent of Public Instruction, the Governor and Territorial Treasurer. This Board meets annually, and oftener if occasion demands. Their duties are to adopt such rules and regulations, consistent with the laws of the Territory, as will promote the advancement of the public schools, to prescribe and enforce the use of a uniform system of text books, to adopt a catalogue of books for the school libraries, and to issue and revoke Territorial certificates to teachers.

In every county of the Territory the Probate Judge is *ex officio* Superintendent of Public Instruction and is required by law to enforce the rules, the course of study and the text books adopted by the Territorial Board of Education. He is the Chairman of the Board of Examiners, consisting of himself and two other competent persons, selected by the Superintendent of Public Instruction, before whom, every three months, any person of good, moral character may appear, and, after passing a satisfactory examination, receive a teacher's certificate.

Every county is organized into school districts. Annually elections are held in each district to select three persons, either male or female, to act as school trustees for the ensuing year, who manage and control the public schools within the district. At these elections women, tax payers and heads of families are allowed to vote. In many of the districts women are chosen as trustees, and experience has demonstrated that females, as such officers, discharge their duties with more fidelity to the public interest than do their male colleagues, taking a greater interest in the general welfare of the schools under their supervision.

Arizona expends more money per capita upon its public schools than any State or Territory in the Union. Its laws are liberal, intended to extend school privileges to the most sparsely settled communities. The minimum number of children of school age

required for a school is but five, and the number of days constituting a school year are two hundred.

In the public schools nothing of a sectarian nature is permitted to be taught. Instruction in the English language is given in reading, writing, arithmetic, geography and grammar, also, in the history of the United States, physiology, industrial drawing, book-keeping, algebra, geometry, and such foreign languages as the Board of Territorial Instruction may prescribe, provided they do not interfere with the course of instruction in the English branches as above enumerated.

Arizona has invested in school property about a quarter of a million of dollars. The last school census gave of children between the ages of six and eighteen, 10,303. The number enrolled in the public schools was 6,617. The number of teachers were, males, 72; females, 113. Of primary schools there were 162, and grammar schools, 21, one-third of which were in the counties of Apache, Yavapai and Mohave, comprising northern Arizona. The money expended in these counties annually in the maintenance of their public schools is \$48,000, viz: Apache, \$12,000; Yavapai, \$30,000; Mohave, \$6,000.

FORESTS AND TREES.

THE TIMBER BELT of northern Arizona covers an area of 20,000 square miles, being the most extensive forest in the Southwest. The Bradshaws, Sierra Prieta, Santa Maria, San Francisco, Mogollon and White mountain ranges, in all their length and breadth, are covered with pine, juniper and spruce, that will employ numberless sawmills for generations to come. Many large mills are in successful operation, and millions of feet of merchantable lumber have been taken from these extensive forests without making an impression. In 1886 ties were sawed at Flagstaff for 1,500 miles of railway in Old Mexico, and every year large quantities of sawed lumber are shipped from this point, on the Atlantic & Pacific railroad, into California and New Mexico.

The pine, which is the principal component of these forests and is regarded as the best lumber tree, grows to the height of 150 feet and is from five to six feet in diameter. It grows straight and frequently it is seventy-five feet from the ground before the first

branches are reached. Scarcely inferior to it for building purposes, and greatly superior for mining timber, telegraph poles, or for any purpose where dampness is encountered, is the spruce, which is found in two varieties at the altitude of from 7,000 to 8,000 feet above sea level. Fir and piñon pine is found at a lesser altitude. The latter is a nut-bearing tree, the product of which is highly prized by the Indians as an article of food. The nut is small but oily and nutritious, it has preserved the native tribes from famines. The yellow and red juniper is found at altitudes of from 4,500 to 6,000 feet. The latter is an ornamental wood and receives a beautiful polish. "It is," says a recent writer, "magnificently adapted to all descriptions of fancy wood-work, and the effects that can be produced by its use in inlaying, carving and veneering are hard to surpass." The red and white oak grows in the more elevated ravines and cañons. The white oak is firm, close-grained and hard, well-adapted to wagon work. The ash, another hard wood, the black walnut and scrub oak is found in the lower valleys and ravines. Besides these are the cottonwood, alder, cedar, manzanita, maple, quakenasp, mesquit, wild cherry and ironwood, the last a tree peculiar to Arizona and Sonora. It is found at an elevation of 1,500 to 4,000 feet above sea level. There are two varieties, the black and the white; an ornamental wood that receives a beautiful polish; hard and brittle. When dry it cannot be cut with an axe and sinks in water, so great is its specific gravity. It makes a very hot fire, and as charcoal, creates a furnace heat equal to the best coke.

RAILROADS.

THE CHIEF DRAWBACK to the rapid development of northern Arizona lies in the want of railroad communication. The Atlantic & Pacific traverses this section from east to west a distance of 392 miles, and the Prescott & Arizona Central runs from Seligman on the Atlantic & Pacific to Prescott, a distance of 73.3 miles. This last road opens up northern Yavapai county. It is the intention to extend it south to Phoenix, a distance of 120 miles, which will develop a large mineral and agricultural region and be of reciprocal advantage, for it will create a market for lumber which the sawmills in and around Prescott can avail themselves of, and enable the people of the Salt river valley, in Maricopa county,

and farmers of the lower valleys in Yavapai to furnish their northern neighbors in the mining and lumbering districts with fruits, vegetables and grain. The Mineral Belt railroad is completed thirty miles from Flagstaff. It is intended to run this road from Flagstaff on the Atlantic & Pacific to Globe City, in Gila county, a distance, in a direct line, of about 125 miles. This road, as projected, passes through the great Mogollon Forest, and, besides poppling these forests with sawmills, will open to settlement several hundred thousand acres of as fine agricultural land as can be found on the continent, in a region where the annual rainfall being from twenty-five to thirty inches, irrigation is unnecessary.

RAILROAD LANDS.

Along the line of their road in Arizona there was granted to the Atlantic & Pacific alternate sections for forty miles on each side. The land within the limits of this grant, still held by the government, can be filed upon at the rate of \$2.50 per acre. As to their general character and the price at which the railroad lands are held by the company, the reader is referred to the following letter:

ATLANTIC & PACIFIC RAILROAD COMPANY,
LAW AND LAND DEPARTMENT,
ALBUQUERQUE, N. M. October 24, 1888.

Colonel J. F. Wilson, Prescott, Arizona:

DEAR SIR—I am in receipt of your favor of the 15th instant, stating that the Commissioner of Immigration desired some data as to the lands of the Atlantic & Pacific Railroad company in Arizona remaining unsold, with the view of inserting them in a pamphlet he contemplated issuing, to be devoted to advertising the lands of Arizona.

I am sorry I am unable to give you definite information as to the character of the lands, which inability is owing wholly to the fact that the United States has failed to survey the larger portion of the land grant; neither has it been fully explored by the company, but from reports in my possession, the records of this office, and my own knowledge, I give you the following data, which approaches as nearly an approximation as can now be arrived at:

By an act of Congress of July 27, 1866, there was granted to the company 25,600 acres per mile for every mile of road through the Territory of Arizona, which aggregated 10,048,230 acres. Of this area there has been sold 1,435,185 acres, leaving unsold, 8,623,055 acres. Of this unsold area more than 10 per cent. is agricultural in character—but I will say 10 per cent. which would be about 862,300 acres, leaving 7,760,755 acres of grazing lands. It is fair to say, however, that the estimate of 10 per cent. is based upon my knowledge of the townships which have been surveyed. The area of agricultural lands in that portion now unsurveyed and unexplored may be much larger.

Grazing lands, when sold in large bodies, are held at \$1.00 per acre; small areas at a greater price. Agricultural lands are held at from \$1.75 to \$5.00 per acre, according to location and character.

The terms of sale for large bodies of grazing lands are one-fourth cash and the balance in three equal annual payments, bearing 6 per cent. interest.

For agricultural lands, when sold in large bodies for colonies, etc., the same terms will be allowed; but in small bodies, such as a section or fraction thereof, the terms are cash. Exceptions might be made, but only where circumstances would warrant them. Very respectfully,

J. A. WILLIAMSON, Land Commissioner.

GRASS-STOCK RAISING.

NORTHERN ARIZONA is all well grassed. Of the native grasses, the black and white gramma are perhaps the most nutritious. Its superiority is generally admitted by stockmen, and beef fattened upon it is said to be tender, juicy, and of a most delicious flavor. Scarcely inferior to the gramma is the bunch that covers all the high mountain ranges. The galleta grows in the lower mesas, and, aside from giving good pasturage for stock, furnishes a most excellent hay. In addition to these, the alfilerillo or Mexican pin grass, well known and highly prized by all stockmen in California, is making its appearance in many of the valleys of this section. Its fattening qualities and rare vitality, however, make it a valuable addition to the native grasses. A peculiarity of the alfilerillo is that, however closely it is grazed, it springs anew after each rain; apparently it is impossible to tramp it out. When the grasses become dry upon the ranges they have all the nutritious qualities of hay, and stock of all kinds thrive upon them, which, with the browse from the chaparral, gives good pasturage during winter.

Alfalfa, or lucerne, is the only grass cultivated. It is grown to a limited extent in the settlements of Apache county, on the Little Colorado, and in some of the valleys of Yavapai county. This grass, unknown to the eastern farmer, is exclusively cultivated in California and Arizona. It is of thrifty growth, is cut three to five times per annum, and yields two tons per acre at each cutting. As hay it is most excellent for horses and cattle. Each acre when grazed will keep two head of horses or cattle the year through.

With an abundance of grazing land, it is not surprising that cattle-raising should be one of the leading industries of this section. Stripped of the hazards attending it elsewhere; it is a business safe, sure and profitable. In Idaho, Wyoming, Montana and Washington Territories it is the extreme rigor of the winters that makes cattle-raising uncertain; oftentimes when spring comes the stockman finds himself minus half his herd. In Texas it is the scant grass supply, the over crowding of the ranges, that causes thousands of head to perish, and is leading capital into other channels for investment. The winters of northern Arizona are not severe, the ranges are not crowded, and, as a consequence, there is seldom a winter when marketable steers cannot be found upon the ranges.

So far there has been an absolute freedom from all kinds of infectious and contagious diseases. It is claimed by some authorities that pleuro-pneumonia, splenic fever and kindred ailments can not exist here on account of the high and rarified atmosphere. As a further, and perhaps better, safe-guard to the stock interest, the Territory has stringent quarantine laws against the introduction of cattle from infected districts, and the rigid enforcement of these laws is left to a Board of Live Stock Sanitary Commissioners, selected by the Cattle Associations of the Territory. The expense attending cattle raising is small, one vaquero will take care of from two hundred to four hundred on the range. His wages are thirty dollars per month. During the spring and fall rodéos an extra man at the same pay is necessary.

In reference to the profits of the business, Mr. W. O. O'Neill, editor of the *Hoof and Horn*, the cattlemen's organ for Arizona, says:

"If the adage that 'nothing succeeds like success' applies as well to pastoral pursuits as to others, no more convincing proof can be given of the stability and prosperity of the live stock industry than the fortunes that have been made by those interested in it. No other business affords such large and sure returns on the money invested as that of stock-growing, and the rapidity with which fortunes have and are being made from humble beginning, would make it appear that if there be a royal road to wealth it is in the wake of the 'lowing herd.' A short resume of the details of the business will explain why this is so. The primary proposition to be considered is the comparatively small amount of capital required to make

a commencement. While many have commenced with but a very few hundred dollars and reached affluence, for the sake of convenience in making our calculations, we will start on a basis of \$2,500, invested in one hundred cows and the requisite number of high grade bulls, which, under the Territorial law, is estimated to be one bull to every twenty females. A range for the stock will cost the investor anywhere from nothing up into the thousands, as he may see fit to select. After the first investment the expenses attending the business are nominal, depending entirely on the option of the herd owner, while the increase, placed at the low estimate of sixty per cent. per annum, will, in the short space of five years, result as follows, admitting the natural laws governing the sexes to be as favorable to females as to males, which is generally conceded, and discarding fractions for the sake of convenience:

	Number of she cattle in commencement of year.....	Total increase during year.....	Total increase of she cattle.....	Total increase of the male stock.....	Total number of cattle on range at the year's end.....
First year.....	100	60	30	30	160
Second year.....	130	78	39	39	238
Third year.....	199	119	59	59	357
Fourth year.....	258	154	77	77	511
Fifth year.....	335	201	100	100	712

"As will be seen by the result, the investor's capital has increased seven-fold during the five years. That this is not an exaggerated estimate is shown by the records of the county tax assessment of Yavapai county, which is taken simply because it is most convenient, during the last five years, which are as follows:

"Total number of cattle in the county at the close of—

1882.....	34,243
1883.....	49,132
1884.....	64,008
1885.....	89,688
1886.....	116,286

"Allowing that one-half of the entire number of cattle in the county in 1882 were of the male sex, and that the amount of stock marketed during the five years equaled that which entered the

county by importation, although, in fact; it far exceeded it, and the same ratio of increase is maintained as appears in the estimate made on the basis of the increase from one hundred cows during the same extent of time.

“When ready for market the cattleman can ship either east or west, and he realizes from twenty to twenty-five dollars for a bullock that has cost him not more than five dollars in time and labor.”

Upon the subject of horse raising the same competent authority says :

“The advantages presented by this section in the matter of cattle-growing are of still greater value when applied to the breeding of horses and mules. The high altitude and bracing atmosphere developing the same lung power and bottom that have made the horses of Kentucky famous for their metal and staying qualities, while the vast extent of range permits a freedom of action that from the day the foal is dropped tends not only to the finest physical development, but also encourages and promotes that spirit of self-reliance, intelligence and courage which insures the animal self-possession and control under the most trying circumstances. These traits have become so characteristic of the horses of Arizona that the United States Government, during the last few years, have made the most strenuous efforts to secure as many of them as possible for its cavalry service, in which more than in any other sphere intelligence, docility, courage and hardness is demanded and required in the horse, and in the possession of these attributes old and experienced officers of this branch of the service says the chargers of Arizona surpass all others.”

Sheep-raising is extensively followed in the counties of Yavapai and Apache, which contain more sheep than all the Territory besides. The average increase upon a flock of ewes is seventy per cent. per annum. They are shorn twice a year—in Spring and Fall. Each sheep averages six pounds of wool per year—worth fifteen cents. The mutton sheep bring from \$2.50 to \$3.00 per head. One herder will care for 1,500 head. He is paid twenty-five dollars per month; so it does not require many figures to compute the profits. There is much rivalry between the cattle and sheep men, from the fact that cattle and horses will not graze upon grass once passed over by sheep; but there is an extensive territory so broken

in character as to be undesirable for cattle ranges, and it is probable that sheep-raising will continue a leading industry for many years to come.

Not more than half the grazing lands of northern Arizona are occupied. Many valuable ranges are yet open to occupation, but without developing a water supply, either by wells or storage reservoirs, a large area must remain vacant. There was assessed this year (1888) 18,274 horses; 187,419 sheep, and 231,282 cattle, as follows:

	HORSES.	SHEEP.	CATTLE.
Yavapai County	12,447	86,262	145,058
Apache County	4,447	100,982	65,472
Mohave County	1,380	175	20,752

It can be truthfully said that it will be only a few years when this district will support a million of cattle and a proportionate number of horses and sheep.

WATER AND IRRIGATION.

Irrigation is the artificial application of water to the soil. A method of cultivation unknown to the eastern farmer, but which is extensively practiced in the arid region west of the Rockies, adopted first by the Mormons in Utah more than forty years ago, time has demonstrated its practical utility and brought it into general favor where the rainfall is insufficient for cropping, the water being at all times under the direct control of the husbandman a full harvest is assured. For a full description of this mode of cultivation the reader is referred to a pamphlet entitled: "Irrigation—a sketch of its history and practice in various countries," by the Hon. Patrick Hamilton, which will be mailed without charge to any address upon application at this office. It is sufficient here to state that cultivation of the soil by the artificial application of water is the oldest system of husbandry known to man. It made the delta of the Nile for ages the granary of the world; it built up the magnificent empires of the olden time. Tyre, Nineveh and Babylon owed their wealth and grandeur to it. China and India have practiced it from time immemorial. Athens, Rome and Carthage encouraged it, and with its destruction Asia, Minor,

Northern Africa, Syria, once the centers of wealth, refinement, luxury and power, became desolate and barren wastes. In Italy, Spain and France it is followed in our day. Within the past few years 9,000,000 of acres of land have been reclaimed in Algeria through irrigation by the French government.

In California, Colorado, Utah and Arizona, large sums of money have been invested in irrigating canals, and so far as this Territory is concerned, although three millions of dollars have been expended in improvements of this kind, it may be truly said that the work is in its infancy.

Congress at its present session—the 50th—appropriated \$100,000 to commence a hydrographic survey of the arid belt, which, according to Major Powell, extends from the 100th meridian to the coast range of the Pacific. This survey will be of incalculable benefit to all the territory embraced within its limits, but to none more than Arizona, for it will demonstrate as far as science can, the localities where water storage reservoirs can be constructed, where artesian wells are practicable and where irrigation by pumping is feasible. This survey, it is estimated, will cost \$5,000,000, and will be the work of several years.

Irrigation in Northern Arizona is not far advanced. The canals for the most part are only a few miles in length and inexpensive affairs. Along the flowing streams of Yavapai and Apache large enterprises of this nature can be inaugurated with every assurance of success. The rainfall in the dry regions of these localities, and in the greater portion of Mohave county, ranges from ten to twenty inches per annum, so that water for one or two irrigations during the season is all that is required.

The building of the Walnut Grove storage reservoir, a full description of which is given elsewhere in these pages, has demonstrated what can be done in the way of storing water for irrigating purposes. This method was extensively followed by the ancients, and has been introduced in Colorado and California with marked success.

Where water lies within fifty feet of the surface a supply can be had by pumping, at a cost no greater than that imposed for the maintenance of canals. In California irrigation by pumping has long been practiced. Windmills oftentimes supply the motive power, but these in many localities are supplanted by steam, which

is considered the safest and surest. The following data is given by a leading California horticulturist: "With a six-inch pump driven by a twenty horse-power engine, I have raised 1,800 gallons per minute. The price of such a pump, including engine, boiler and all steam fittings, is \$1,400. To cover an acre of land one inch deep with water, requires, in round numbers, 23,000 gallons. One miner's inch being nine gallons nearly, it would require to cover 21 acres one inch deep, 2,555 inches, or 480,000 gallons. A No. 4 turbine pump will raise in a day's run of ten hours 480,000 gallons. This would be at the rate of 800 gallons or 80 miner's inches per minute. The total cost of running such a pump, including fuel and wages, will not be over \$5 for each working day of ten hours, which would make the cost of placing the 480,000 gallons on the land about one cent per 1,000 gallons. This from a depth of 25 feet. To raise the same quantity of water from a depth of 80 feet would cost about \$7, or 1½ cents per 1,000 gallons." Where wood is abundant and cheap, as in all the "dry valleys" of Northern Arizona, the above cost can be materially reduced.

FARM PRODUCE AND WAGES.

IN NORTHERN ARIZONA good prices are realized for all the products of the orchard, garden and farm. There is a good market in all the mining camps and towns and at the different military posts. Grain brings from two to three cents per pound; hay, alfalfa or grain-hay from \$20 to \$25 per ton. Fruits—peaches, pears, apples and grapes, an average of ten cents per pound. Potatoes, onions and other vegetables, from three to six cents per pound. Blackberries, raspberries and strawberries, about 25 cents per quart. Eggs, 50 cents to one dollar per dozen; butter 50 cents to 75 cents per pound. Chickens, from \$6 to \$9 per dozen, and turkeys, 25 cents per pound. A chicken ranch or dairy does well. The Clough orchard, near Prescott, containing only about five acres in peaches, apples and pears, realizes to its owner a small fortune every year.

Labor on the farm commands from \$25 to \$30 per month. Vaqueros on the cattle ranges, are paid \$30 per month; miners \$3 per day, and mechanics from \$4 to \$4.50 per day; domestic servants from \$25 to \$30 per month.

APACHE COUNTY.

Apache, in the northeast corner of the Territory, bordering New Mexico to the East and Utah to the north, is next to Yavapai, the largest county in the Territory. It has 20,940 square miles, which is more than the combined area of Delaware, Rhode Island, Maryland and Massachusetts. It embraces the eastern portion of the Colorado plateau, and has an elevation ranging from 4,000 to 6,000 above sea level. It can boast as fine a climate, as can be found on the continent. The air is pure and bracing in winter, and cool and pleasant in summer.

The Escudills and White Mountain ranges appear in the southern portion of the county. In the White Mountains the Little Colorado rises, and with its tributaries drains the country for several hundred miles. Camp Apache lies at the foot of this mountain range, which is covered with a fine growth of pine. In these mountains cold springs are numerous, and grass is abundant. Wheat, oats and vegetables can be grown without irrigation. In the Escudilla mountains grass is plentiful, water inexhaustible and timber abundant, mostly pine, oak and spruce, ash, maple and cottonwood are found in canyons. Dr. Rothrock U. S. A., in his report of this region, says: There is enough pine timber in the Sierra Blanca (White Mountains) to last the whole Territory for many years. The *Pinos Ponderoso* reaches a height of seventy feet; some firs are higher. The oak, resembling white oak, is branchy, close grained and solid; bunch and gramma grasses are abundant everywhere. The district would, in any portion of our dominion, be regarded as one of unusual promise. It is one of the most inviting portions of our country, yet remaining for civilization to occupy. Settlers will flock to occupy this region. These mountains furnish pasturage for thousands of head of cattle and sheep, and as the country becomes more accessible they will furnish homes for thousands of families.

The largest settlement, is the town of Springerville, on the head waters of the Little Colorado, a thriving town of several hundred inhabitants, devoted to lumbering, stock-raising and agriculture.

To the northwest of the White Mountains is the Mogollon mesa, ten to fifteen miles in width, in which the Chevelon Forks

and Cedar and Carrizo creeks head. The Tonto Basin borders it on the south. This mesa has an altitude of over 6,000 feet and contains many forest meadows and fine valleys, suitable for farming. The temperature in summer seldom rises above 80°, and in winter there are few days when the mercury falls to zero. The vegetation is luxuriant, the soil of the best, and but little of the land but that can be made productive.

The Little Colorado river, as before stated, rises in the White Mountains, and runs northeasterly through Apache county; crossing into Yavapai county on the 35th parallel, a few miles west of the town of Winslow, on the Atlantic & Pacific railroad. Its principal tributaries are the Puerco and Zuni rivers, Silver and Carrizo creeks. The principal settlements are St. Johns, Holbrook, Winslow, Woodruff, Brigham City and St. Joseph. At St. Johns, Woodruff, Brigham City and St. Joseph, irrigating canals have been dug and several thousand acres of land have been reclaimed, but the only attempt at reclamation upon a large scale has been inaugurated at Holbrook. The Holbrook Irrigating company at this place have projected a water-way twenty-five miles in length, which is intended to reclaim a large body of the most fertile land in the county. At these settlements large quantities of cereals are raised. The yield of wheat and barley is from thirty to fifty bushels per acre. Alfalfa is cut three and four times a year, and yields from six to ten tons per acre. Peaches, pears, apples and grapes are grown in great perfection. The valley of the Little Colorado varies in width from one to ten miles, and the river flows for more than a hundred miles through it, every fifteen or twenty miles running through a narrow canyon, where at small expense catchments could be built that would serve to bring the adjacent valley under cultivation. It is estimated that several hundred thousand acres of valuable land can thus be brought under cultivation. No accurate statistics of the rainfall of this valley have been kept, but it must be somewhere in the neighborhood of eighteen inches per annum, so that one or two irrigations is all that the land requires to produce abundant crops. In the thriving settlements of Show Low, on the Show Low river, and Snow Flake and Taylor, on the Silver Creek, a considerable body of land is under cultivation. At a moderate estimate, there is in Apache

county, south of the 35th parallel, five hundred thousand acres of land that can be brought under cultivation.

North of the Little Colorado the country is well grassed, but water is scarce. If reservoirs can be established in this portion of the county, it will become a stock raising paradise. The Moqui and Navajo Indian reservations cover the northern portion of Apache county, and notwithstanding a scarcity of water, these thrifty tribes are self-supporting, having large herds of cattle and horses and flocks of sheep and goats, besides they raise crops of corn sufficient for home consumption.

In his "Hand Book" to Arizona, Mr. R. J. Hinton pays this tribute to the Moqui Indians. "The habitations of the Moqui Indians to the East of the Little Colorado river, and a little south of the 36th parallel, are on the summit of lofty sandstone mesas, surrounded by a wide, barren sandy region, where grass is found but sparingly and in small patches, but plentiful when the rain is more than average. There is no water for irrigation, and only a few small springs for household purposes. The soil is of a light reddish color, loose, and does not require plowing, they do not know the use of manure. It is no longer a secret how the Indian corn is raised, (on which they mainly depend for support) when it is known that the soil contains a sufficient amount of moisture to develop the seed, and that there is, as shown by chemical investigation, a slow and steady replacing of the loss of water by evaporation, proving the presence of a stratum of water at moderate depth, ascending by capillary attraction to the seed planted at a depth of from one foot to eighteen inches. Under these unfavorable circumstances, with no wells or labor saving machinery of any kind, these poor and industrious people have supported themselves for centuries, only until recently taking up any better land. If in so inferior a part of the Territory, a race of people usually regarded as industrially inferior to our own, support themselves, is it not reasonable to suppose that industrious white men, with the customary facilities, can make for themselves in much better locations, more fully described, pleasant and profitable homes.

No mines of gold, silver or copper have been uncovered in Apache county, but its coal deposits are among the most extensive in the United States. These deposits extend from Gallup, N. M., to the northwest through the county into Utah, covering a ter-

ritory of an average width of ten miles. Beyond the two banks worked by the Atlantic & Pacific railroad, at Gallup, they are as yet undeveloped. It is bituminous and cokes easily. The main body of coal lies in the Navajo reservation, fifty miles north of the railroad. In that region is also found petroleum springs that will prove valuable. The oil has been tested and found in all respects equal to the Pennsylvania product. Thirty miles south of Navajo station are several salt lakes. The salt is of superior quality, both for dairy and table use, and apparently inexhaustible in quantity. It is used extensively by the stockmen of Northern Arizona.

The population of Apache county is about 12,000, and is rapidly increasing. St. Johns, 55 miles from Holbrook, is the county seat and principal town. It has a population of 2,000, and is steadily growing, being a place of considerable commercial importance; the center of a large grazing and agricultural country where quantities of grain and wool is marketed.

Holbrook, on the Atlantic & Pacific, near the junction of the Puerco and Little Colorado rivers, is a town of some 800 population. It is the shipping point for Fort Apache, Woodruff, Taylor, Snow Flake and other Southern points with which it is connected by a tri-weekly stage. A few miles east of this place is the Petrified Forests which the tourist should not fail to inspect.

Aside from her hundreds of thousands of agricultural and grazing land, which in time will give homes to a dense population. Apache county in her coal fields and lumbering industries, when properly opened, will give profitable employment to thousands of our countrymen. Possessing the natural advantages that create wealthy and populous communities, her future is assured.

YAVAPAI COUNTY.

Yavapai county, containing 30,015 square miles, is the largest political subdivision of Arizona. Larger than the state of Maine, and nearly as large as the combined area of Massachusetts, Connecticut, Vermont and New Hampshire. How much of its 19,209,600 acres is arable land, it is difficult to say, probably not less than 2,000,000 acres can be cultivated without irrigation, and much more could be reclaimed by the development of a water

supply. At present the area in cultivation is small owing to the lack of railroad facilities, which to a great extent confines the markets for farm and orchard products to the adjacent mining towns. So the best lands are utilized for grazing purposes.

The timber belt of Yavapai is the most extensive in the Territory. Commencing in the Juniper range of mountains, nearly northwest from Prescott, it extends southeasterly beyond the head of the Gila river, covers Tonto Basin in the southwest corner of the county and runs to the Verde river on the west, extending over an area in this county averaging 150 miles in length by fifty miles in width. The average altitude of the San Francisco range is 7,000, its highest peaks, from 12,000 to 13,000 feet above sea level, are covered with snow for ten months in the year; along the whole range the snow falls in winter to a depth of from two to ten feet. In this mountain range are found fine valleys, formerly covered with a growth of wild rye and pea vine, which has been replaced by other grasses. The soil is a rich compost, and when the timber is cleared off the melting snows of Spring form by absorption reservoirs of water sufficient to raise most abundant crops without artificial irrigation. Winter wheat, black oats, rye and barley, potatoes, onions, celery, cabbage, beets and all root vegetables are here grown in great perfection.

The yield of wheat is said to be from forty to fifty bushels to the acre, and of other cereals as great proportionately, while of vegetables it may be said, in no section of the country is the yield so great or is such size and perfection attained.

The Atlantic and Pacific railroad runs through it for a distance east and west of from forty to fifty miles. The Arizona Mineral Belt railroad, which, as before stated, will run from the town of Flagstaff to Globe City, in Gila county, will still further open up this country, which is described by Beebe as "the most beautiful region I ever remember to have seen in any part of the world. A vast forest of gigantic pines, intersected frequently by extensive open glades, sprinkled all over with mountain meadows, and wide savannahs, filled with the richest grasses, was traversed by our party for several days." And Dr. Parry says: "We have in these elevated districts a climate favoring a growth of trees, a more equable distribution of rain and dew throughout the year, especially adapted to the production of nutritious grasses and the

cultivation of grain without resorting to the expensive system of irrigation. These desirable climatic features are especially noticeable along the elevated slopes of the San Francisco mountains, where magnificent pine slopes are agreeably interspersed with beautiful grassy valleys and parks, numerous springs and a delightfully invigorating atmosphere. The most attractive place of summer resorts on the line of the road is at Mount Agassiz. It has every attraction; wealth, scenery, sky, water, elevation, climate, and proximity to the greatest natural curiosity known on this continent. The Grand Canyon of the Colorado river, from which it is distant forty or fifty miles."

In his hand book of Arizona, Mr. R. J. Hinton says: "On the way from Dog Buttes via Cosnino Caves, on the Flat-top mountains, (which is on the eastern side of the range), an exploring expedition crossed a number of little valleys and open glades, splendidly suited for farming purposes, here and there encountering fine grass. They found the soil at one place when analyzed very rich in phosphoric acid, and therefore most excellent for grain and corn; but for peas, beans and lentils, gypsum, procurable in abundance at Sunset Gap mesa, thirty miles away, was considered a desirable addition."

The Cosnino caves, fourteen in number, once the dwelling places of the Cosnino Indians, are situated about twenty miles east of Humphrey Peak, the highest mountain of the San Francisco range. They were built partly side by side, and partly above each other on a steep slope their walls formed by flows of basaltic lava.

Tonto Basin, in the southeastern corner of the county, from which rises abruptly the Mogollon range, is a distance of ninety miles from Prescott by wagon road, and has all the natural resources to support a large community. Its population is about two thousand, and is rapidly growing. The Basin has a great deal of arable land, is well timbered, and that which is not arable is well adapted to grazing purposes. The principal settlements are Strawberry Valley, Pine Creek, Payson, Rim-Rock, Pleasant Valley and Wild Rye. Pine Creek, situated in the western portion of the Basin, at the foot of the Mogollon mountains, and Payson, fifteen miles to the east in Green Valley, are the most important. Payson, being in the heart of an extensive agricultural country, is

the business center—a growing town that will become an important place in the near future.

Five miles from the village of Pine, Nature in trying her hand at bridge building, has given us a curiosity known as the Pine Creek natural bridge, which is thus described by Mr. P. C. Bicknell: "Saddling our horses one lazy afternoon, we soon left several miles of mountain trail behind us and found ourselves on the summit of a cypress crowned mountain, whose steep eastern slope descended abruptly five hundred feet to a cosy little valley, hemmed in on the opposite side by an abrupt precipice of still greater height. Descending with difficulty, we find ourselves on a large flat, with an area of probably sixty acres, with cultivated fields in which corn and potatoes were already well grown. We stood on the crown of the bridge and did not know it, for this beautiful garden patch is fringed on all sides with shrubbery and graceful trees, and one has to go one hundred yards south and descend into a precipitous canyon before he is aware of the huge tunnel which nature has cut through the solid rock beneath his feet. We ascertained, by the aid of a long fish line, that the crown of the bridge at its southern spring was one hundred and sixty-eight feet, and the span was eighty feet. Its total width up and down the creek is about one hundred and fifty yards; about eighty feet from its southern end, exactly in the center of the arch, is a natural hole cut into the interior, and, by looking down this, a birds' eye view is obtained of the bed of Pine Creek far below, at a perpendicular depth of one hundred and sixty-eight feet. But a full idea of the grandeur of this arch is not obtained until one stands beneath it and looks aloft. The gigantic limestone walls spring in perfect curves to the great arch above, and the fluted columns, meeting in the semi-obscure above, remind the beholder of the interior of some vast cathedral.

"The stream which winds among the huge boulders that strew the bottom lies here and there in deep, dark pools of unknown depth, while its precipitous sides are pierced by caves and grottes whose numerous windings and alley-ways lead one far into the bowels of the mountains. Many of these have been explored and many more have never been trodden by the foot of the white man, although from arrow-heads, pottery and scraps of matting, mingled with bones and charred wood, we can see that our Indian

brother has long been acquainted with these retreats. These grottoes are all hung with beautiful stalactites which take all imaginable forms, and any article, whether of wood or any soft substance, if placed beneath the streams which continually trickle from the roofs of these caverns will, in a short time become petrified. We gathered several petrified pine cones and branches of trees which were as hard as rock, and as perfect in form and outline as if it had lately fallen from the trees."

Similar in resources to the Tonto Basin is the Agua Fria valley, its first settlements are at Spaulding's station, fifteen miles southeast from Prescott, and extends southward for a distance of more than thirty miles, the land is under cultivation along the stream, is said to be three thousand acres, the river affording the water for irrigation, when irrigation is necessary. The Agua Fria flows through narrow canyons, which could be utilized as storage reservoirs, gathering the water during the wet seasons, and thus reclaiming many thousands of acres of land that at present cannot, on account of deficient water supply, be irrigated. In this valley is raised wheat, barley and corn; the soil is well adapted to the growth of alfalfa, as also fruits and vegetables, which are only cultivated in very limited quantities. At the Agricultural Fair at Albuquerque, N. M., last September, fruits and vegetables from this valley took premiums. About twelve miles west from the Agua Fria valley, near the southern lines of the county, is the mining camp of Tip Top, one of the oldest mining districts of Arizona, in which, and the adjacent town of Alexandria, several hundred miners are employed. Some twelve miles west of Tip Top are the Castle Creek warm spring, situated in the heart of the Bradshaw range, some 3,000 feet above sea level. These Springs are becoming a favorite resort in summer and at all seasons for persons afflicted with rheumatic ailments, who find relief in bathing in their waters. The warmest temperature is 145°, the coolest 138°. The analysis of these waters show them to be entirely pure, free from all chemical compounds.

Forty miles east of Prescott is the Verde valley, one of the most desirable locations in Arizona. The Verde river carries an abundance of water for irrigation. The land under cultivation in this valley is estimated at four thousand acres, but were all the water utilized this could be multiplied five times. The valley is

about 3,000 feet altitude; the soil a rich and fertile loam yields largely when cultivated in alfalfa or grain. The climate is temperate, no snows or heavy frosts in winter to retard vegetation, in summer the days are warm, but the nights cool, ensuring refreshing sleep. Grapes, apples, peaches and other deciduous fruits are grown to great perfection here.

In the Verde valley and along Beaver creek and Oak creek tributaries of the Verde river, are found traces of an extinct civilization—the silent footsteps of a race that died and left no trace of its identity. That at one time this country supported a large population is certain; that it is capable of doing so again is indisputable.

To the east of the Verde river and one of its tributaries is Fossil creek, so strongly impregnated that when its waters evaporate they leave a heavy deposit of lime and everything of vegetable growth becomes encrusted with a heavy coating that by chemical action leaves the original object reproduced in limestone. In this way blades of grass, leaves, shrubs and trunks of trees are fossilized among which are occasionally found the remains of animal life that has been subjected to this strange transformation. To the west of Prescott, about twenty miles, and across the Sierra Bonita range lies Skull, Kirkland, and People's valleys, in all of which are found fine farms in a high state of cultivation. Kirkland creek runs through these valleys, and furnishes the little water necessary for irrigation. A more delightful climate or a more prolific soil it is impossible to find. Large quantities of grass, grain and vegetables are grown annually in these valleys. A little east of People's valley is located Walnut Grove, which as its name implies is a place of unrivalled beauty. It is a valley of considerable extent in which are found many fine ranches. The Hassayampa river flows through its entire length and gives an abundance of water for irrigating purposes. Heretofore the farmers have directed their attention to the cultivation of cereals, but the adaptability of the soil and climate to the production of fruits being fully demonstrated, they are giving more attention to grape and fruit culture.

In Walnut Grove is located the first water storage reservoir ever constructed in the Territory, built by the Walnut Grove Storage Company, a New York enterprise. It is intended to

hydraulic the gold gravel deposits on the Hassayampa, twenty miles away, and to furnish water for the irrigation of several hundred thousand acres of agricultural land. The dam is given as follows, 110 feet high from the bed rock, and 400 feet long on the top; the base line of the dam is 135 feet thick at the bottom, and ten feet at the top. The front or apron wall twelve feet at bottom and six feet at 100-foot line. The back or down stream wall is fifteen feet thick at bottom and nine feet at the 100-foot line, both walls being of rough heavy dry stone masonry; the space between the walls being filled in with the smaller stones. The apron or skin is composed of two thicknesses of 3x8 planks securely fastened longitudinally to heavy cedar butts, the entering wall being eight feet and 8x8 vertical timber between the same. The first skin being fastened to the inner by a six-inch galvanized wrought iron spike, and the entire face of the apron painted with No. 3 paraffine paint. Thus making a strong water-tight face on the water side. The dam is constructed to resist a water pressure of 23,000 tons, with flushing gates and service gate complete. It will impound 3,000,000 cubic feet of water, equal to a discharge of 3,000,000 miner's inches daily for one year including loss by evaporation. The water will be conveyed by flume to the mining and agricultural land.

The company have only recently completed their dam, and are preparing for the more important work of mining and irrigation, with every assurance of success. The land that will be reclaimed under this company is equal in fertility to any in the Territory, and capable of producing fruit and grapes equal to any portion of California. The experiments made by the Piedmont Cattle Company (identified with the above Water Storage Co.) at Martinez ranch, proves conclusively that no better fruit lands exist on the continent. Here tomatoes ripen every month in the year in the open air, and fig trees bear the following year planted from the slip. Peaches, pears and apples, grapes, apricots and berries do exceptionally well. Oranges and olives, it is believed will also thrive. One thing is certain, on such land as is found under this company and in Kirkland valley, 20 acres in orchard or vineyard is a fortune to any man.

North and northwest of Prescott and skirting the Black Range are the Big and Little Chino valleys. The Prescott & Arizona

Central railroad runs through these valleys, which are at present used almost entirely for grazing. In the Big Chino the water lies near the surface, and the land could be cultivated by pumping for one or two irrigations during the dry months. In the Little Chino there is located several fine ranches where considerable grain, alfalfa and vegetables are raised. In Williamsom valley farming has been conducted profitably for twenty years, the water lies at a depth of from four to five feet from the surface and no irrigation is necessary. It is a large valley, every foot of which is arable land. Wheat, corn, barley and every variety of vegetables are grown here. Besides the valleys above noted, there are many others of less importance, that would give homes to the industrious pioneer farmer.

PRESCOTT, THE CAPITAL CITY.

On May 30, 1864, the citizens of Granite Creek, in Yavapai county, held a meeting and established thereon Prescott, called "in honor of the eminent American writer and standard authority upon Aztec and Spanish-American history." It is near the intersection of the 34th parallel of latitude with the 112th of longitude, a homelike place of about 2,000 people. It has a court house, a school house and city hall, all large and commodious brick buildings. The city hall contains the offices of the Governor and Secretary of the Territory and the Territorial library of some ten thousand volumes, mostly law books. In it the Territorial Legislative Assembly holds its sessions biennially. The main business portion of the town is of brick, with many private residences both of brick and lumber. It has several large mercantile establishments, a planing mill, ice factory, water works, an efficient fire department, two daily newspapers, the Courier and the Journal-Miner, and a weekly, the Hoof and Horn, devoted exclusively to the live stock industry, sampling works for the sampling of and purchase of gold and silver ore. Churches and the secret benevolent societies are fully represented. The community is self-respecting and orderly; the society as refined as any in the southwest.

The location of Prescott, so far as scenery is concerned, is perfect. Pine, cedar and juniper encircle it. Mountains surround it. On the northern spur of the Bradshaw range, one of the best metaliferous formations of Northern Arizona, she sits in serene

security the supply depot for the United Verde, Copper Basin, Hassayamp and other mining camps, besides the large agricultural and grazing country around it. It is one of the best favored towns in the Territory. An altitude of over 5,000 feet above sea level gives it a strong, healthy and invigorating climate both summer and winter. Its landscape is marked and massive. Towards the north the plateau on which Prescott is situated widens into a wooded plain, on which Whipple Barracks, a five-company military post is located, one mile away, across which to the east the "sawlike summits" of the Prieta range appear. To the west Granite Peak; still further south and west are the blue outlines of the Santa Maria mountains, above which, as a giant, Mount Hope lifts its bold front in the distance. To the north and east are the Black Hills, whose southern extremity reaches nearly to the town limits, while far away, to a distance of 70 miles, rising above these are the San Francisco peaks, snow-clad for more than three-fourths of the year. To the south the Bradshaw range rises abruptly, almost closing out the view, while like a silent sentinel, overlooking the town, is Thumb Butte, so called from a huge pile of rock that on its northern end has the appearance of a closed hand, on the top of which there seems to be a thumb slightly bent, the end of which lies near the town. Prescott has the geographical location to make it always a place of much commercial importance. As a summer resort it is most attractive, the days warm and pleasant, the nights cool and delightful, but few days in winter when fire is needed for personal comfort for the greater part of the day. It is one of the healthiest places on the continent. The Arizona Central connects Prescott with the Atlantic and Pacific at Seligman.

FLAGSTAFF.

The next town of importance to Prescott in Yavapai county is that of Flagstaff, situated on the Atlantic and Pacific railroad, where it crosses the San Francisco range of mountains at an altitude of 7,000 feet above sea level. It is a lumber center that will grow in importance as transportation facilities are increased, and the immense forests of pine surrounding it stretch for miles upon miles in all directions are utilized. The Ayer's Lumber Company, located at Flagstaff, have the largest saw mill in the United States, and furnishes steady employment for some three hundred men. Large quantities of lumber is shipped annually from this

point into California, New Mexico and Old Mexico. The woodsman's axe has made but little impression upon the pineries. Although the town has been twice swept by fires, yet, owing to the energy and activity of its citizens, it has rapidly recuperated, such untoward accidents seemingly being only temporary checks to its rapid growth. Its population is about 2,000. It has two banks, several stores and every appearance of a prosperous town. Aside from its lumbering industry and its being in the center of a large agricultural and grazing country, Flagstaff has extensive quarries of building stone that are being rapidly developed and must in the future become a material factor in its prosperity. It is a sandstone of a peculiarly rich, pale red color, and makes an edifice more beautiful than the "brown stone fronts" of the East. This stone has been shipped to a considerable extent during the past year. Many of the most beautiful buildings in Los Angeles have been constructed in part of this material, and a demand for it is springing up in San Francisco and other California cities. When the Mineral Belt railroad, which, as before stated, terminates here, is completed, Flagstaff will be the distributing point for all the lumber of the Mogollon and San Francisco ranges, as well as the extensive agricultural region which will thus be opened up. From this point there has been selected and surveyed a route for a railroad to the Grand Cañon of the Colorado, a distance of more than seventy miles.

The climate of Flagstaff is similar to that of all the mountain regions of Northern Arizona, healthy and invigorating, the atmosphere being dry, pure and bracing. It certainly has all the natural advantages to insure its steady growth and make it in a few years a city of no mean proportions.

MOHAVE COUNTY.

Mohave county, on the western boundary of Northern Arizona, varies in climate, being in that portion bordering the Colorado river similar to that of Maricopa county, the thermometer ranging from 108 to 112 at mid-day during the months of July, August and September, and from 60 to 80 degs. during the night. This county is one of the best mining districts of the Territory, yielding quantities of gold and silver, and having within its borders

large deposits of copper, some of which have been worked successfully. It has not advantages in an agricultural point of view equal to that of Apache and Yavapai counties, yet what land can be cultivated by irrigation is rich and fertile, and well adapted to the growth of all semi-tropical fruits. The valley of the Colorado is large, the soil deep and inexhaustible, but is subject to overflow in the month of June. After the waters recede good crops of vegetables and corn are grown. The Rio Santa Maria, which runs through the southern portion of the county, rises above and sinks below the surface; along its course there is quite a body of land which could be reclaimed by building dams for irrigating purposes. Upon these lands alfalfa, vegetables, cereals and fruits equal in variety and perfection to any portion of Arizona or California can be cultivated.

On Burro Creek, Trout Creek and the Big Sandy, are found fine ranches cultivated by irrigation. On Trout Creek Nature has left a place for the building of a dam that once built would reclaim many thousand acres of land. At this point the stream flows through a narrow canyon, where the waters could be stored up to the height of 150 feet and millions of cubic feet of water be impounded that thrown over the rich, fertile soil below, would convert a large area of desert into homes, groves of oranges and olives and vineyards of beauty and profit. In the Sacramento and Hualapai valleys the water lies near the surface, and could be utilized for irrigation by pumping. The area of land in cultivation is small, but this could be largely increased by systematic reclamation. The Big Sandy and Bill Williams' Fork are streams of considerable magnitude, and their waters could be made to reclaim the adjacent agricultural lands. By levying, large bodies of land can be reclaimed in the Colorado valley, adapted, when reclaimed, to the growth of citrus and deciduous fruits as valuable as any upon the continent. The valleys and mesas of this county are well grassed, but a great deal is not pastured on account of scarcity of water. This drawback in many localities could be obviated by the boring of artesian wells, which thus far has not been attempted.

In the Hualapai range of mountains are forests of juniper and pine that give profitable employment to several saw mills. Pine timber is also found in the Buckskin range of mountains.

Kingman, the county seat, a town of about 600 population, is located on the Atlantic & Pacific railroad; it is quite a business

center. It has works for the sampling and testing of mineral ores both gold and silver, and the ores from the surrounding mining camps are marketed here to the extent of about three hundred tons monthly.

Signal, the second town in Mohave county, is the center of an extensive mining district; the McCracken mill and the Signal mill for the reduction of the silver ores of these companies are situated here. The temperature at Kingman and Signal is the same as Fort Verde. The population of Mohave county is placed at 4,000.

CONCLUSION.

In the foregoing pages the object has been without elaboration to state facts as they exist in reference to the varied resources of the northern portion of Arizona. In conclusion it can be truthfully said that but few places in the Great West present such opportunities to the immigrant or investor.

Here, in a climate healthful and invigorating, are thousands of acres of virgin soil that can be homesteaded—an empire awaiting development, fortunes for good business men in almost any line they choose to follow, good wages to all industrious persons willing to work.

Secure in the possession of great mineral resources, Northern Arizona awaits the time when brain, brawn and money shall combine to develop her coal fields, to open her timber forests and people her hills and valleys with an active, intelligent population, the sure forerunner of wealth, power and prosperity.



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