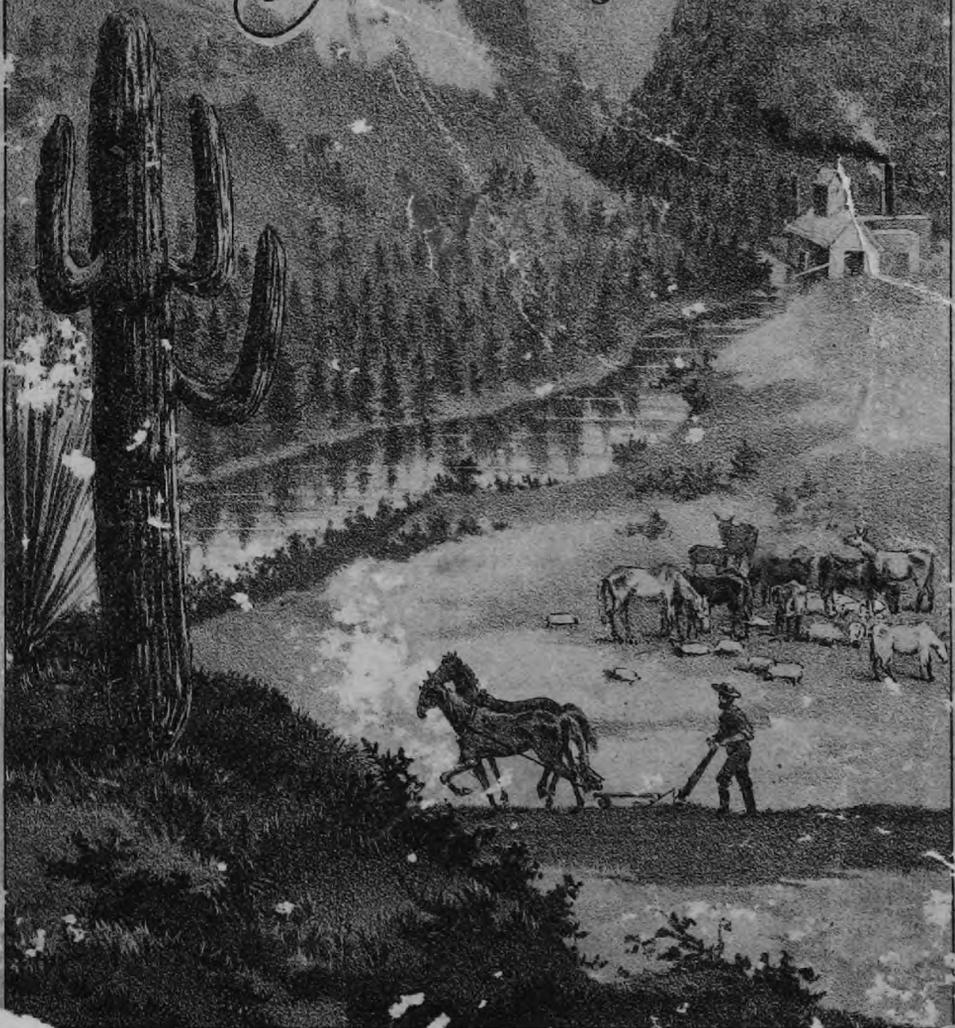
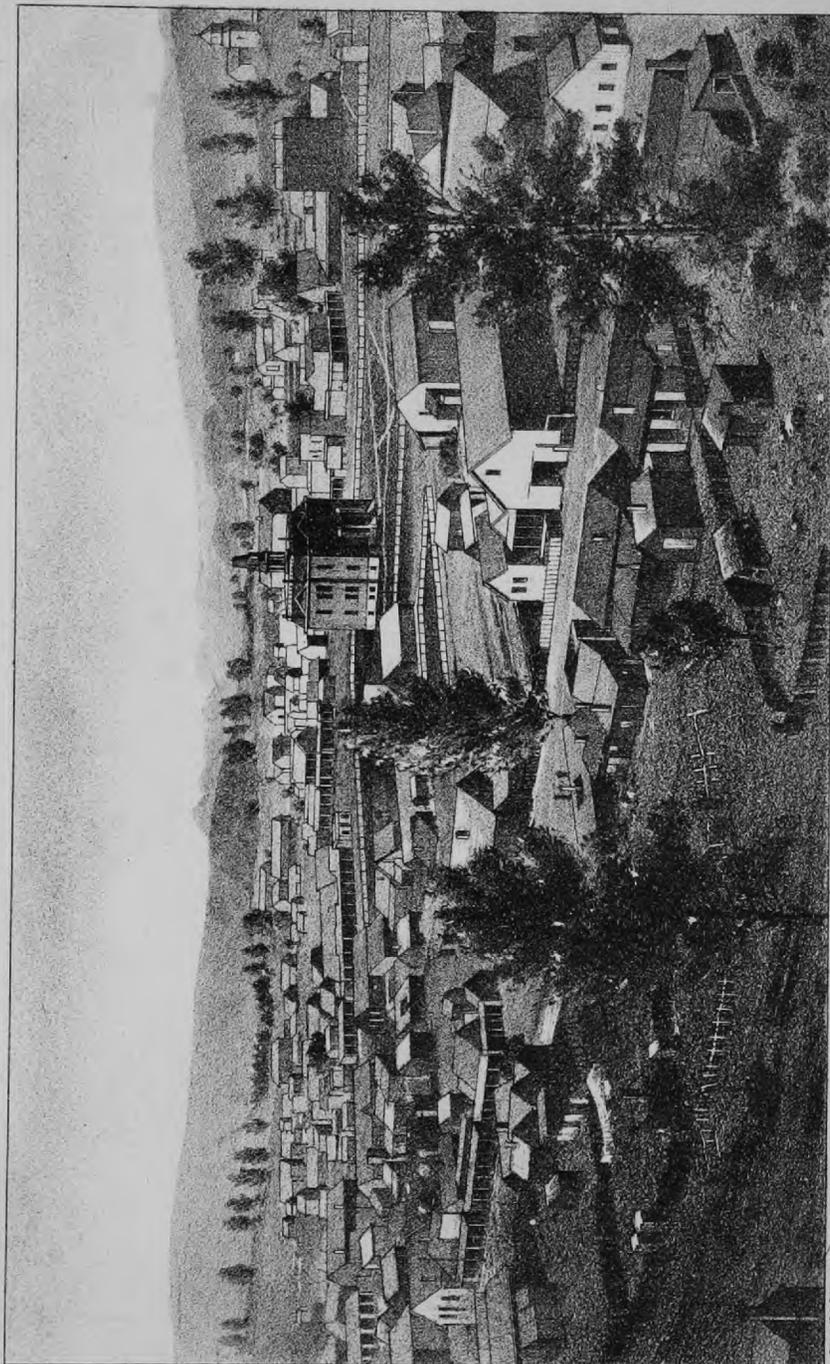


THE
RESOURCES
OF ARIZONA.





SEE PAGE 48

PRESCOTT, CAPITAL OF ARIZONA.

BATCROFT-LITH-3.F.

THE

Resources of Arizona

A DESCRIPTION

OF ITS MINERAL, FARMING, GRAZING AND TIMBER LANDS; ITS RIVERS,
MOUNTAINS, VALLEYS AND PLAINS; ITS CITIES, TOWNS AND
MINING CAMPS; ITS CLIMATE AND PRODUCTIONS;

WITH

BRIEF SKETCHES OF ITS EARLY HISTORY, PRE-HISTORIC RUINS, INDIAN
TRIBES, SPANISH MISSIONARIES, PAST AND PRESENT,
ETC., ETC.

SECOND EDITION:
ENLARGED AND ILLUSTRATED.



COMPILED BY
PATRICK HAMILTON,
UNDER AUTHORITY OF THE LEGISLATURE.
1883.

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TO THE READER.

THE pamphlet published two years ago by authority of the Legislature, created such a demand for information relating to the Territory, in all parts of the Union, that the session of 1883, provided for the issuing of another edition. This edition—enlarged and illustrated—is now presented to the public. It has been entirely re-written, contains a great deal of new matter, and is much fuller in detail and more comprehensive in scope than the first publication. Indeed, it may be considered an entirely new compilation.

The information it contains is fresh and reliable, and has been gathered by a tour throughout the Territory, and a personal visit to every city, town, mining camp and farming settlement of importance within its borders. Authorized by the representatives of the people, paid for out of the public treasury, and sent forth with the stamp of authority and the sanction of law, the truth has been sought, and the facts presented, and the statements made can be relied upon.

It is not claimed that the publication is exempt from the errors inseparable from a work of this nature, but it is believed such errors have been reduced to the minimum, and are of but minor importance. A perusal of its pages, it is hoped, will convey to the reader some definite idea of the grand resources of the least known political division of the American Union. As will be seen, it has made rapid progress in wealth, population and material developments during the past two years.

The opening of railroads is fast bringing its hidden wealth and its great natural advantages to the notice of the capitalist and the immigrant. To them the following pages are addressed with the belief that the facts they set forth will be sufficient to show the

opportunities for the investment of money and muscle in the coming country of the southwest.

To Rt. Rev. Bishop Salpointe of Tucson; Hon. Donald Robb, of Globe; Lieut. M. P. Maus, U. S. A.; Geo. W. Brown, Esq., Tucson; Paul Riecker, Esq., Tucson; Ridgeley Tilden, Esq., Tombstone; H. C. Hooker, Esq., Sierra Bonita Ranch; Ivy H. Cox, Esq., Phoenix; M. P. Romney, Esq., St. Johns; D. L. Sayre, Esq., Clifton; Arthur Lang, Esq., Tombstone, and Hon. R. C. Brown, Tucson, the author is indebted for assistance in the collection of the information herein contained, and tenders his sincere thanks for the same. The illustrations presented have been taken from photographic views kindly furnished by G. H. Rothrock, of Phoenix; D. F. Mitchell, of Prescott; J. C. Burge, of Globe, and C. S. Fly of Tombstone.

PATRICK HAMILTON.

PHOENIX, ARIZONA, Sept. 5, 1883.





A HISTORICAL SKETCH.

The adventures of Cabeza de Vaca and Marco de Niza—The expeditions of Coronado and Alarcon—The Explorations of Antonio de Espejo—Father Kino establishes the first Mission—Founding of the Presidios of Tucson and Tubac—Abandonment of the Missions—The Gadsden Purchase—Efforts to establish a Territorial Government—Origin of the name “Arizona”—Breaking out of the Civil War—A Territorial Government established—Trials and Hardships of the Early Pioneers—The Apaches placed on Reservations.

ARIZONA is an olden land with a modern history. That it was once the home of a semi-civilized race, there is ample evidence in the ruins left by its former occupants, in nearly every valley and mountain range. The origin and history of the people who once held sway in this remote region of the western world is lost in the mists of antiquity, and the twilight of time gives to their modern successors but a dim conjecture as to who they were, whence they came, and what were the causes which led to their complete extinction. These questions suggested themselves to the first Europeans who penetrated the territory now known as Arizona, nearly three hundred and fifty years ago, and the answers to them were as indefinite then as they are to-day. There is every reason to believe that the most interesting epoch in Arizona's history lies buried in those mysterious mounds which are an enigma alike to the savant and the sightseer; and the relics which are dug from them, suggest mutely, yet eloquently, the time when every valley smiled with peace and plenty; when mountain and *mesa* were covered with flocks and herds; when towns and cities beautified the plain, and a happy and contented people enjoyed the gifts of bounteous nature in this favored land. This was the golden age of Arizona; but not even tradition gives a whisper as to the causes which brought to so sudden an ending, a civilization at once so extensive and so unique.

The modern history of the region now embraced within the limits of Arizona Territory, begins with the advent of the early Spanish adventurers. More than a quarter of a century before their countrymen laid the foundations of St. Augustine, and long before Captain John Smith established the “first families” at

Jamestown, or the Puritan Pilgrims had sighted the inhospitable shores of Massachusetts Bay, the daring *Conquistadores* had penetrated the wilds of Arizona and New Mexico. To Alvar Nuñez Cabeza de Vaca, belongs the honor of being the first European to set foot upon Arizona soil. He was a member of the expedition which accompanied Pamphilo de Narveaz to the coast of Florida, in the year 1538. This leader, imbued with the wild spirit of adventure, which was the leading characteristic of the men whose conquering swords added a new world to the crown of Castile and Leon, met with only disappointment and disaster. Instead of the golden treasures and the Fountain of Perpetual Youth, which his excited imagination had pictured as lying hidden in the Land of Flowers, he found a barren and inhospitable region whose swamps swarmed with venomous and repulsive reptiles, and whose every breeze bore upon its wings the deadly malaria. In his haste to get away from a country so uninviting, he abandoned to their fate five of his followers, who, it is supposed, were absent on some expedition when the vessel which carried Pamphilo and the other adventurers hoisted sail and bore away for Vera Cruz. Alvar Nuñez Cabeza de Vaca was one of the five unfortunates whom de Narveaz so heartlessly deserted on the wild and desolate shore of the Florida Peninsula. They waited many days, anxiously looking for the return of their leader, but as he was never heard of more, it is supposed he perished, with all his companions, at sea.

Nuñez and his comrades were left in a desperate plight, before them stretched hundreds of leagues of treacherous sea; behind them lay an unknown region of vast extent, never yet pressed by the foot of a European. A council was held, and as they had neither compass nor provisions, it was resolved to penetrate the wilderness to the west and make an attempt to join their countrymen in Northern Mexico. They waded the swamps and bayous of Florida, passed through the Indian towns of the region now embraced within the States of Georgia and Alabama, and were treated kindly and furnished with provisions by those savages. They discovered and crossed the Father of Waters two years before De Soto stood upon its banks and found a fitting resting-place beneath its turbid flood. They traversed the great plains of the West, passed up the Arkansas River, entered what is now known as New Mexico, visited the pueblo towns on the Rio Grande, pressed on westward and entered the Zuni and Moquis villages. After a short stay in the pueblos of the last-named tribe they turned their faces southward, passed through Central Arizona, were the first white men to see the ruins of Casa Grande and the Pima settlements on the Gila, and, after many privations and numerous adventures, succeeded at last in joining their countrymen at Culiacan, in Sinaloa.

They gave glowing accounts of the country over which they passed, and their highly-colored description of the "Seven Cities of Cibola," the Moquis towns, and other points on the

route, aroused the spirit of adventure and cupidity among the restless Spaniards, ever ready to face any danger or undergo any hardship that promised glory or gain. The pious ardor of the zealous missionaries was likewise fired by the tales which Nuñez and his fellow-travelers told of the hordes to the northward, steeped in pagan idolatry and awaiting the coming of those who would lead them to the true God. An adventurous pioneer of the cross in the western world, Padre Marco de Niza by name, listening to the stories told by Cabeza de Vaca, resolved to satisfy himself as to their truth or falsity. Early in 1539, the good Father, under the patronage of the Viceroy Mendoza, and accompanied by a few followers, set out from Culiacan in search of the "Seven Cities of the Bull." They passed through the country of the Pimas, up the Santa Cruz, by the present site of Tucson, across the valleys of Central Arizona, into the country of the friendly Yavapais, over the great plateau, and, after a long and arduous journey, their eyes were at last gladdened by a sight of the mysterious "Seven Cities." Father de Niza sent forward a black attendant, named Estevan, to the first city to notify the chief of his arrival and the peaceful nature of his mission. It is said the black Lothario became a little too familiar with the Moquis maidens, which so incensed the warriors that they dashed out his brains with their war clubs. The Father, hearing of the fate which had befallen his dusky follower, did not enter the city, for obvious reasons. He set up the emblem of Christianity, named the country the New Kingdom of San Francisco, and returned to Culiacan.

The public mind throughout New Spain was wrought up to a high pitch of excitement by the news which Padre de Niza brought on his return. The desire to extend the dominion of the Cross, produced in the breasts of the fathers a spirit of holy adventure; and the thirst for gold and glory possessed alike the belted knight and the sturdy man-at-arms. The Viceroy Mendoza became infused with the spirit which surrounded him, and fitted out two expeditions to explore the marvelous country to the north; one by land under Vasquez de Coronado, and the other by sea under Fernando Alarcon. In April, 1540, Coronado marched out of Culiacan with nearly a thousand men, the greater number being Indians. He entered Arizona by the valley of the Santa Cruz, and passed by where Tucson now stands. He visited and examined the ruins of Chichitcala, which he named Casa Grande, followed the Salado to its junction with the Verde, up the latter stream to the Valley de Chino, and thence across to the San Francisco mountain country. From there he passed into the valley of the Colorado Chiquito, and finding large quantities of wild flax growing on its banks he named the stream "Rio del Lino." From that point three days' march brought him to the first of the Moquis Villages, forty-five days after starting from Culiacan.

The rich and populous cities which the adventurers expected

to find proved to be but a collection of poor and insignificant villages. The houses were small, built in terraces and laid in rough stone as they are at the present day. The province contained seven villages each governed by a chief. The people were peaceful, intelligent and industrious. They raised good crops of corn, beans and pumpkins; cultivated fine peaches, wore cotton cloth and dressed deer-skins, and were in no respect materially different from their descendants, the Moquis and Zunis of the present day. At one of the towns which he named Granada, the inhabitants offered resistance, and Coronado took the place by assault. Large quantities of grain were found in the store-houses, and every room was well supplied with domestic utensils, fashioned of baked clay. But he failed to find the treasures of gold which he had been led to believe existed in such vast quantities in the "Seven Cities."

Disappointed in his quest, the Spanish leader turned his face eastward. He visited the New Mexico pueblos on the Rio Grande, which he found larger and more populous than those of the Zuni and Moquis, and whose customs and mode of life were exactly similar. But among them, as among the tribes first visited, there was a notable dearth of the royal metal, and save a few silver and copper ornaments, their dwellings were entirely destitute of the wealth they had been reported to contain. Coronado explored the country as far east as the Canadian river, and north to the fortieth parallel of latitude, and in the spring of 1582, after two years of profitless wanderings, the expedition returned to Culiacan.

While encamped in the San Francisco mountains, Coronado sent out two detachments to explore the country to the west. One of these, commanded by Captain Diaz, discovered the Great Colorado below the Cañon and followed it to its mouth. Don García López de Cárdenas was sent northward with a command of twelve men, and was the first white man to gaze upon the wonders of the Grand Cañon.

The expedition of Alarcon set sail about the time Coronado marched. It was intended to co-operate with the land forces, but there was little concert of action in the movements of either. Alarcon discovered the Gulf of California, which he named the Sea of Cortez. He also discovered the Colorado and the Gila rivers. Not being able to stem the current of the former stream, he manned two boats and ascended it some ninety leagues to the mouth of the Grand Cañon. He then set sail and returned to Mexico.

It was not until 1582, that any further efforts were made to explore the region known to the Spaniards as "Arizuma." In that year Antonio de Espejo led an expedition toward the North. He penetrated to the region of the Rio Grande, traveled up that stream some fifteen days and named the country Nuevo Mexico. He passed through many pueblos, and turning westward, visited Zia and Acoma. The former place he speaks of as having a

population of 20,000 souls, "and containing eight market-places and better houses, the latter plastered and painted in diverse colors." The Zuni pueblos were next visited and named Cibola. From this point, Espejo traveled westward to the Moquis towns, where he was received most hospitably and presented with baskets of corn and mantles of cotton cloth. Tarrying here but a short time, he again journeyed on, and forty-five leagues southwest of Moqui, on a mountain easily ascended, he discovered rich silver ore. The mines were situated near two rivers, whose banks were lined with great quantities of wild grapes, walnut trees and flax "like that of Castile."

There can scarcely be a doubt that one of those streams was the Rio Verde, and that the mines were situated at no great distance from it, probably in the region of country now known as the Black Hills. This is the first authentic account we possess of the finding of precious metals within the limits of Arizona, and to Antonio de Espejo must be awarded the honor of the discovery. He was the pioneer prospector of our Territory, and little dreamt what magnificent results were to flow from his find. History is silent as to whether the old cavalier set up his "monuments" and marked his "claim," but as he shortly afterwards returned to Zuni, it is presumed he did not consider his discovery of sufficient importance to merit much attention. From Zuni, Espejo retraced his steps to the Rio Grande, and crossing over to the Rio Pecos, descended that stream to its mouth and then returned to Mexico, where he arrived in 1583.

A century elapsed after these explorations, before any effort was made to establish a permanent settlement in "Arizuma." In 1686, the Jesuit missionary, Fray Eusebio Francisco Kino, left the city of Mexico and journeyed to the north, with the intention of spreading the light of Christianity among the wild tribes of Sinaloa and Sonora. Being joined by Padre Juan María Salvatierra, the two pious friars pushed on to the country of the Sobahipuris, and in the year 1687, the first Mission within the territory now known as Arizona, was established at Guevavi, some distance south of Tucson. The Mission of San Xavier del Bac was founded about the same time, or not long after. The zealous propagandists preached the gospel truths to the tribes living along the Gila, many of whom ranged themselves beneath the banner of the Cross. Fray Kino and another priest pushed their apostolic peregrinations to the Gulf of California, and calculated the width of that desolate sea to be about fifty miles, from shore to shore. In one of their visits to the Gila, they tried, but unsuccessfully, to establish a Mission near the ruins of Casa Grande. In 1720, or thirty years after the founding of Guevavi, there were nine Missions, all in a prosperous condition within the present limits of the Territory. The population of those Missions was almost entirely composed of converts from the Pima tribe, who took the name of "Pápago," (baptized) and a few subjugated Apaches. The Missions were prosperous, and

the untiring labors of the pious Fathers brought forth good fruit in the peaceful and industrious Indian colonies which grew up about them. But they were subject to constant raids from the untamed Apache; and in 1751 an outbreak occurred among the Pimas, many of the priests were killed, and several of the Missions destroyed. After this insurrection, the vice-regal government established the presidios of Tucson and Tubac, and maintained therein small garrisons for the protection of the neighboring Missions.

In the year 1765, a royal decree was issued at Madrid ordering the expulsion of the Jesuits from Spain and her colonies. This was a severe blow to the Missions in "Arizuma" and one from which they never recovered. The decree was not carried into effect until 1767, when the last of the followers of Loyola were driven from the scenes of their labors and triumphs in southern Arizona. In May, 1768, eight Franciscan friars arrived in Tucson, from Mexico, to take the place of the expelled Jesuits. On their arrival, they found the Missions in a declining condition and subject to frequent attacks from the savage Apache. Life and enterprise seemed to have fled with their founders, and they maintained an uncertain and constantly harassed existence until the breaking out of the war for Mexican Independence. Being deprived of the fostering care and protection of the vice-regal government, they rapidly declined, and were finally abandoned by a decree of the Mexican government in 1820. During the regime of the Mission Fathers, a number of settlements were established in what is now southern Arizona. Besides the presidios of Tucson and Tubac, the flourishing *haciendas* of San Bernardino, Babacomari, San Pedro, Calabasas, and Arivaca, were rich in flocks and herds, but after the abandonment of the Missions, they were despoiled by the savages and deserted by those who escaped the tomahawk and the torch.

By the treaty of Guadalupe Hidalgo, in 1847, all that portion of the Territory, north of the Gila river was ceded to the United States. At that time there was not a single white inhabitant in all that vast region stretching from the Gila to the Utah boundary, and from the Colorado of the West to the present line of New Mexico. Northern and Central Arizona was an untrodden wild and the unconquered Apache was lord of mountain, river and plain. The few inhabitants who eked out a precarious existence within the miserable presidios of Tucson and Tubac, were the only inhabitants of the country, then called Pimiera Alta. In 1854, that portion of the present territory lying south of the Gila was acquired from Mexico by the treaty negotiated by James Gadsden, then Minister to our sister republic. The price paid for the purchase, embracing some forty thousand square miles, was ten millions of dollars. A good deal of ridicule was cast upon Mr. Gadsden for throwing such a sum upon a "worthless desert," and it was generally considered that the Mexicans had decidedly the best of the bargain. But although

Minister Gadsden failed in achieving the main object he had in mind: the securing of Guaymas and the control of the gulf, yet, in view of the marvelous mineral wealth contained in the territory acquired, it must be considered a cheap and valuable acquisition. Subsequent to the ratification of the Gadsden treaty, the territory was attached to the county of Doña Ana, New Mexico. In 1855 the country was formally turned over to the United States by the Mexican authorities; American troops took possession of Tucson and Tubac; the Mexican colors were lowered, the stars and stripes hoisted in their place, and the authority of the Great Republic established where Spaniard and Mexican held sway for more than two hundred years.

After the acquisition of southern Arizona, several expeditions were sent out by the War Department to explore the almost unknown territory of the southwest. The reports of Lieutenants Whipple and Ives were the first valuable contribution to our knowledge of Arizona. In 1854, Lieutenant Williamson made a survey of the country north of the Gila, with the object of discovering a route for a railroad from the Atlantic to the Pacific. In the same year, Lieutenant Gray surveyed the route from Marshall, Texas, to Tubac, and from thence to Port Lobos, on the Gulf, and also to Fort Yuma and San Diego. A year later, Lieutenant Beale made numerous surveys throughout northern Arizona.

On the last day of December, 1854, a memorial to Congress was introduced in the Legislature of New Mexico by the Representative from Doña Ana county, praying for the organization of the Territory into a separate political division. The name first chosen was "Pimeria," but the one afterwards adopted was "Arizona." Authorities differ as to the origin of the name. It is a corruption of "Arizuma," first applied to the country by the early Spanish explorers. Some maintain that the word is of Pima origin, and means "Little Creek," while others hold that its derivation is from the two Pima words "Ari," a maiden, and "Zon," a valley or country, having reference to the traditional maiden queen who once ruled over all the Pima nation. Before it was conferred on the whole Territory it was borne by a mountain near the celebrated Planchas de Plata, on the southern boundary of the Territory.

The first attempt to secure a Territorial Government proved a failure. But this did not deter energetic and enterprising men from pushing their way into Southern Arizona. In August, 1856, an expedition under the leadership of Charles D. Poston, entered the Territory from San Antonio, Texas, for the purpose of working the rich silver mines said to exist in the Santa Rita and Arivaca districts. About the same time the Government established two military posts in the Gadsden Purchase, one at the head of the Sonoita, some sixty miles east of Tucson, called Fort Buchanan, and the other on the lower San Pedro, near the mouth of the Arivaipa, and known as Fort Breckenridge. In

August, 1858, the Butterfield semi-weekly stage route was established. During the next two years a large amount of capital was invested in mining development; and notwithstanding the enormous cost of supplies and material of all kinds, which had to be transported hundreds of miles over wretched roads, the country made steady progress. Its great resources were becoming known, and it seemed on the high road to prosperity when the breaking out of the Civil War ended abruptly Arizona's onward march in the path of progress. The troops at Forts Buchanan and Breckenridge received orders to evacuate the Territory, burn and destroy all Government property they could not carry away, and fall back to the Rio Grande. The two forts were reduced to ashes, together with large quantities of Government stores, and the military abandoned the country. About the same time the Butterfield mail line, deprived of all protection against hostile savages, was stopped, and the route changed further north.

Every enterprise came to a stand-still, and every American who could get away fled to California or Sonora. The Apache marauders swept down from their mountain strongholds and carried death and destruction throughout Southern Arizona. Mines, ranches and stock ranges were abandoned, and the few whites left in the country took refuge within the walls of Tucson. The savages indulged in a saturnalia of slaughter, and the last glimmer of civilization seemed about to be quenched in blood. In February, 1862, one Captain Hunter, with a company of Texans, entered Tucson, and hoisted the Confederate flag. He held possession of the place until May, when the advance of the California volunteers caused him to retreat to the Rio Grande. With the advent of the California troops and the feeling of security which their presence inspired, the country began slowly to awaken from the horrible nightmare which had crushed out every vestige of peaceful industry. The discovery of rich gold diggings on the Colorado, at Weaver Hill, and on the Hassayampa, gave a fresh impetus to immigration, and business of every kind began to revive.

The people had long clamored for a territorial government. A bill looking to that end was introduced in the Congress of 1857, but failed to pass. Again, in 1860, the people made an effort in the same direction, and Sylvester Mowry was elected to proceed to Washington and urge upon the National Legislature the necessity for such a measure. Another bill was introduced, but political jealousies defeated the effort, and the breaking out of the Great Rebellion indefinitely postponed the matter. Arizona remained attached to New Mexico until the 24th day of February, 1863, when the bill giving it a separate political existence received the President's signature. The civil officers appointed to conduct the affairs of the new Territory entered on their duties at Navajo Springs, the 29th day of December, 1863. The national colors were given to the breeze, a salute was fired,

an address delivered, and the Territorial government formally inaugurated. The seat of government was first established at Fort Whipple, which had been built by order of General Carleton for the protection of the miners then working the rich placers of the Sierra Prieta. It was afterwards removed to Prescott, where, except for a short interval, it has since remained.

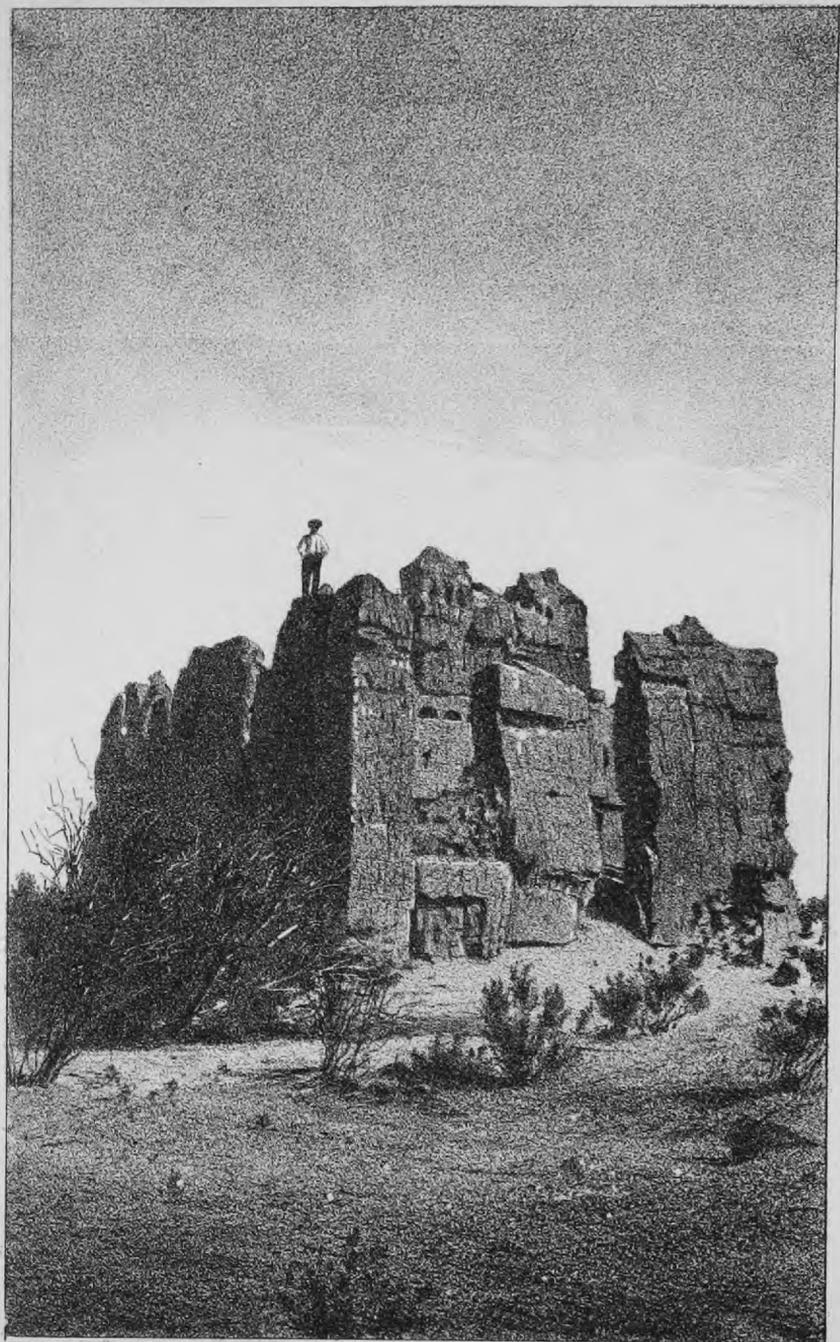
From 1863 to 1874, the history of Arizona is written in blood. Population increased slowly, and the rich mineral discoveries in the northern part of the Territory attracted the larger portion of the immigration. But the Apache stubbornly disputed the advance of the white man, and many an adventurous pioneer fell a victim to savage treachery and left his bones to bleach on the desert plain or bleak mountain side. In the ten years just mentioned, it is estimated that not less than eight hundred victims of Apache ferocity found bloody graves within the length and breadth of Arizona. But steadily the red man yielded to his destiny. Towns and villages sprang up all over the Territory. Rich mines were discovered in every direction; the fertile bottom lands were brought under cultivation; herds of sleek cattle covered mountain and plain, and foot by foot the dauntless pioneer won this rich domain from the dusky fiends who so long had cursed it by their presence. But it was no easy victory; and the intrepidity, self-sacrifice and indomitable courage of the heroic band who achieved it, are worthy to be embalmed in the pages of Arizona's history, and handed down to future time as an emulation to those who possess the land which their valor and self-denial so gallantly won. Rough perhaps, were they in manner, and rude of speech, but they had in abundance those sterling virtues which flourish best on the border and which adorn and ennoble our common humanity. They had stout hands and honest hearts, a courage which no danger daunted, a will which no obstacles could turn aside, and an energy proof against every disappointment. Peace to their ashes, and green be the memory of their gallant deeds in the hearts of their countrymen!

After years of murder, rapine and robbery, the hostile Apaches were brought to terms by General George Crook, in 1874, and placed on reservations. Since then the progress of the Territory in wealth, population and material development has been steadily gaining year by year. The population has more than quadrupled; hundreds of rich mines have been made to yield up their long buried treasures; vast stretches of the desert have been reclaimed and made to yield bountiful crops of grain and fruits; hundreds of thousands of cattle roam at will over mountain, valley and *mesa*, and the signs of peace and prosperity are seen on every hand. With the building of two transcontinental railroads through the northern and southern portions of the Territory, Arizona may be said to have entered on a new epoch in her history. She is no longer an isolated and unknown region infested by the fiercest of savages. She stands on the highway of nations and the fiery annihilator of time and space has heralded

throughout the land the vast richness of her mines, the fertility of her soil, the salubrity of her climate, and the grand opportunities which she offers both to the capitalist and the immigrant.

It is not the purpose of this publication to speculate on the future of this great Territory where nature has done so much and man, as yet, so little. One of the first discovered portions of the western world, long cursed by the demon of isolation and the blight of savage dominion, it is only the past few years that its grand resources and vast possibilities began to be known. Rich in all that go to build up a strong and prosperous commonwealth, it requires no prophetic eye to discern the brilliant future in store for this favored region. It has entered on the full tide of prosperity, and throughout the Union eager eyes are casting longing looks toward the land of "sunshine and silver." In the following pages the author will endeavor to tell them what kind of a land it is, and the inducements it holds out to the stout-hearted and strong-handed who are looking for homes nearer the setting sun.





SEE PAGE 257

RUINS OF CASA GRANDE.

DANROFF-LYN-S.P.



PHYSICAL FEATURES.

Area and Boundaries—The Great Colorado Plateau—The Country South of the Thirty-fourth Parallel—Wild and Striking Scenery—A Field for the Scientist and the Sightseer—The Painted Desert—Geological Features—The Mountain System of the Territory—The Rivers of Arizona—Altitude of Principal Mountains—Grand Cañon of the Colorado.

THE Territory of Arizona extends from the 109th degree of longitude, westward to the Great Colorado; and from $31^{\circ} 28'$ of north latitude to the thirty-seventh parallel. It is bounded on the north by Nevada and Utah, on the east by New Mexico, on the south by the Mexican State of Sonora, and on the west by California and Nevada. It comprises the extreme southwestern corner of the United States, and has an area of 113,947 square miles. Its greatest length from north to south is about 400 miles, and from east to west, very nearly 350. The country may be generally described as a vast elevated plateau crossed and seamed in its northern part by deep cañons, mighty fissures and narrow valleys. This great plateau has an elevation of from 5,000 to 6,000 feet in the north, which gradually descends to sea-level in the extreme southwest. Rising like a giant sentinel above this lofty table-land, is the extinct volcanic cone of San Francisco. This magnificent mountain has an altitude of 13,000 feet above the ocean. It is in latitude $35^{\circ} 30'$ north, and longitude $111^{\circ} 45'$ west. Its summit is crowned with snow for more than six months in the year, and its towering peak, looming up in solitary grandeur through the clear air, can be distinctly seen nearly 200 miles away. The most extensive of the grand *mesas* or table-lands of Arizona is known as the Colorado plateau. It may be said to extend from the thirty-fourth parallel of latitude to the northern boundary of the Territory, and has an average elevation of between 4,000 and 6,000 feet. Its surface is diversified by massive mountain ranges, like the San Francisco, the Bradshaw and the Mogollon, with many detached spurs and peaks. Lying between these ranges are extensive grassy plains, beautiful valleys and charming mountain glens, with a rich soil and a delightful climate. This immense region is drained by the Colorado of the West, the Verde, Colorado Chiquito, and many smaller streams.

From the base of the San Francisco peak, there is a rapid descent to the south, and during the melting of the winter snows, or after the heavy summer rains, the deep gorges and dry ravines are foaming floods, whose irresistible fury carries everything before them. South of the thirty-fourth parallel, there is a marked change in the aspect of the country. The descent from the upper plateau is abrupt, the climate is much warmer, and there is a difference of between 2,000 and 3,000 feet in altitude. From this point, to the boundary of Sonora, Arizona is a country of vast plains and wide valleys, crossed in all directions by detached mountain ranges, and dotted with many an isolated peak torn into fantastic shapes by the storms and floods of centuries, and baked and blistered by burning summer suns. This portion of the Territory has a gradual descent towards the California Gulf; a large quantity of the water which falls on the elevated plateau to the north, finds its outlet to the sea through its wide valleys, enriching them with the detritus which it gathers in its course. Mountain, valley, plain and *mesa*, are the features of Arizona's topography.

The southwestern portion of the Territory, adjacent to the Gulf, is made up of wide gravelly plains, covered with a sparse growth of coarse grass and scanty shrubbery, and crossed by detached ranges and isolated spurs, devoid of vegetation. Water is scarce, and the soil of a poor quality. In the southeast, the mountains assume lofty and massive proportions, like the Santa Catalinas, the Santa Ritas, the Huachucas, the Graham range, and the Chiricahuas. These ranges are clothed with verdure to their very summits, are well wooded and watered, and are among the most delightful spots in the entire Territory. Broad valleys, covered with rich and nutritious grasses and affording pasturage for immense herds of cattle, stretch away from these mountains to the foot-hills of the Sierra Madre.

Central Arizona is well watered, and contains the largest and richest body of farming land in the Territory. The valleys of the Gila and the Salt river are among the finest on the continent. There are hundreds of thousands of acres with a soil that will grow anything raised within the temperate and semi-tropical zones. The climate is superb, and the productiveness of these rich bottom-lands is not equaled by any portion of the great West. Although the mountain ranges of the Territory are detached and broken, they have a marked and regular parallelism in the trend and direction of their axis from northwest to southeast. The physical features of the country present a panorama which has not its like in the western world. Massive ranges, crowned to their summits by the lordly pine, isolated peaks, bare and barren, of strange and fantastic shapes, smiling valleys clothed in their garb of green, rocky gorges and dark and gloomy cañons, where the sunlight scarcely ever penetrates, rolling grassy

plains, dry sandy wastes, and over all the cloudless skies, the wonderfully clear and balmy air, and the bluish purple haze which lends such a charm to the view and softens the harsh outline of rugged mountain and barren plain.

That portion of Arizona, north of the thirty-fifth parallel and east of the Colorado Chiquito and the Great Colorado, is mostly a barren region, but little known. The geological structure is sandstone, and the country is made up of lofty *mesas*, their summits covered with dwarf pines and cedars, and their precipitous sides cut by deep gorges. Between these *mesas* sometimes occur narrow valleys well watered, which afford fine pasturage for stock. The extreme northeastern corner of this wild region—embracing a strip of country forty miles long by eighty wide—is a portion of the Navajo Indian Reservation. It is a mountainous district, watered by the Rio de Chelle and its tributaries. The entire country, north of the Moquis villages, is occupied by the Navajos, who pasture immense herds of horses and sheep on its rich uplands during the summer months.

North from the junction of the Little Colorado with the great river is that remarkable region known as the Painted Desert. It is a wild and desolate plateau, entirely destitute of water or vegetation, its entire surface covered by lofty columns, isolated peaks and buttes, composed of sandstone, and worn into grotesque and fantastic shapes by the storms and floods of ages. This weird region is a veritable "Fata Morgana," and presents the most marvelous mirages. On its air of dazzling clearness are depicted "palaces, hanging gardens, colonnades, temples, fountains, lakes, fortifications with flags flying on their ramparts, landscapes, woods, groves, orchards, meadows, and companies of men and women, herds of cattle, deer, antelope, etc., and all painted with such an admirable mixture of light and shade that it is impossible to form any conception of the picture without seeing it." The Indians call it the "Country of Departed Spirits," and carefully avoid it.

The geological features of the Territory are as varied as the character of its surface. That portion north of the Little Colorado and extending to the Utah line, is composed almost entirely of sandstone. It contains large deposits of coal, but as yet none of the precious metals have been found in that region. The country south of the San Francisco mountain, east to the line of New Mexico, and north of the thirty-fourth parallel, is covered by the lava flow, which in ages past was poured out in mighty volumes from the fiery furnace which seethed within the depths of this lofty peak. Evidences of the lava stream from this once active volcano are found all over the Colorado plateau, south and east from the San Francisco cone, and for a radius of nearly 100 miles in this direction, traces of the fiery flow are visible. The main ranges through the central portion of the Colorado plateau are composed mostly of granites, porphyry and slates, with occasional belts of trap, metamorphic

rock, and limestone. Eruptive rock is found in many localities, and likewise quantities of conglomerate drift. The mountain ranges of the upper Colorado basin are generally porphyritic granites, with shistose and metamorphic slates.

The ranges in the southeastern portion of the Territory, below the Gila, are mostly composed of primitive rocks, but large beds of lime, gypsum, felsite, trap, and other secondary rocks are not uncommon. The lower portion of the great Colorado basin bears traces of violent volcanic disturbance. The mountains and the dry and narrow valleys between them are covered with scoria, volcanic ash and large masses of igneous rock. There can scarcely be a doubt that this portion of the Territory was at some remote period the theatre of volcanic action, and the isolated ranges and jagged peaks of which it is composed, are scorched and riven by the fiery flood which once swept over this portion of Arizona. The geological characteristics of the region known as the Papaguera, in the southwestern corner of the Territory, present a curious geological medley. Granite, porphyry, mica schist, trachyte, quartzite, lime, quartz, feldspar, and many other varieties are found in juxtaposition. The mountains extending from the Gila through the center of the Territory to the Sonora line, and including the Santa Catalinas, Santa Ritas, and Huachucas, are generally formed of granites, porphyry and slates.

Arizona is a land of marvels for the scientist as well as the sightseer. Nowhere on the globe can the work of nature be traced more clearly and intelligently. Torn and riven by stupendous gorges, crowned by lofty mountains, adorned with grassy plains, beautiful valleys, delightful parks, and lofty table-lands, the topography of the Territory presents a picture of weird beauty and massive grandeur, unequalled on the continent. The plateau of Arizona shows, throughout its entire extent, marked traces of water and volcanic action, and it is evident that the greater portion of its surface was, for ages, a series of vast lakes or inland seas. The isolated peaks, rising like islets above its valleys and plains, and the fantastically castellated *buttes*, which are so striking a feature of its varied landscape, show clearly the erosion caused by the retreating waters. Fire and flood have left the indelible marks of their visitation on the face of Arizona, but it has only added a new charm, to her wild beauty, and given added variety to hill, mountain and vale. The geologist will find here a land full of interest and instruction. Nature was evidently in a varying mood when she formed a region whose geological and mineralogical features are in such striking contrast with long-received and firmly-established theories. It is a land *sui generis* in its strata and formation, full of the most unexpected combinations and startling contradictions; but it is a land where the student of nature will find her great book with every page full of instruction, and with such a record of countless ages, that the historic period of man is but as yesterday.

Arizona has been called a Mountain Land, and the name fits it well. The ranges, spurs and peaks which cover so large a portion of its surface are among the most interesting physical features of this wonderful country. Although apparently broken and thrown about without regard to continuity or regularity, the general trend of their axes have a marked inclination from northeast to southwest. The mountain system of the Territory is a continuation of both the Rocky Mountain chain and the Sierra Nevada. In $43^{\circ} 30'$, north latitude, the Wind River chain of the Rocky range divides about the remote sources of the Great Colorado. One branch trends southward, and, passing around the sources of the Platte, the Arkansas and the Rio Grande, is merged into the Guadaloupe mountains, and at last loses itself in the great prairie plains of the southwest. The other branch, turning to the west and south, forms the Wasatch range, the eastern rim of the Utah Basin, and, widening out to the level of the great plateau, reaches the cañon of the Colorado near 112° of longitude.

A branch of the Sierra Nevada deflects from that range east of Owens river, and, with a general trend to the southeast, passes by the head of the Rio Virgin, becomes merged in the plateau, and unites with the Wasatch at the Grand cañon. These united ranges form the mountain system of Arizona, and south of the great river break up into parallel ridges, isolated groups, detached spurs and peaks, which are again united in one massive chain in the Mother of Mountains, in Northern Mexico. The San Francisco peak may be considered the apex of the Arizona mountain plateau, and the northern limit of the numerous ranges extending from the thirty-fifth parallel to the Sonora line, and from the 109th to the 113th degree of longitude.

From the San Francisco mountain a ridge extends southeast which separates the waters of the Little Colorado from those of the Gila. This is known as the Mogollon range, while its southeastern spurs are known as the *Sierra Blanca*, or White Mountain. These ranges are well wooded, containing some of the finest timber to be found in the Territory. They are also well watered by springs and streams, are adorned with many beautiful parks and elevated valleys, covered with rich grasses, which afford excellent feed for stock. West of the Mogollon, and running parallel with that range, is the Sierra Mazatzal. Like the Mogollon, it is an extension of the San Francisco Mountain system. Its course is east of the Verde, and south to the Rio Salado. Its slopes and summit are covered with an abundance of pine, juniper and oak, water is found in several streams and springs, and its valleys and foot-hills are covered with a fine growth of rich grasses.

Between the Mazatzal and the Mogollon are several detached spurs and short ranges. The largest of these is known as the Sierra Ancha. It is situated in what is known as Tonto Basin,

and is a flat-topped mountain, some thirty miles in length, covered with one of the largest and finest bodies of pine timber to be found in Arizona. Between the Salt river and the Gila are many mountain groups, some of which attain a considerable elevation. The most prominent are the Superstition range, which rears its lofty and rugged front east of the great plains stretching between the Salt and the Gila; the Pinal range, which runs nearly parallel with the Gila, and whose northern slopes are heavily timbered; the Salt river and Apache mountains, south of the Salado; the Gila range, Sierra Natanes, and the Sierra de la Petahaya. Nearly all of these offshoots from the main ranges are well watered and timbered.

That vast region west of the Rio Verde, and extending from the Great Colorado to the Gila is crossed by numerous mountain ranges. Running paralleled with the former stream, and west of it are the Verde mountains. The northern end of this ridge is called the Black Hills, and is a massive elevation covered with a heavy growth of timber, having several fine springs and known to contain rich deposits of gold, silver, and copper. The northern slope of the Black Hills is washed by the Verde, and running north of that stream is a range of hills which culminates in the Bill Williams mountain, a prominent peak west of the San Francisco cone. The next range to the west is the Bradshaw and the Sierra Prieta. This is one of the most magnificent mountain chains in the territory. It may be said to begin at Granite Peak, some ten miles north of Prescott, and extends in a south-westerly direction to the wide plains which stretch along the Salt river near its junction with the Gila, being nearly fifty miles in length with an average width of about twenty miles. This grand mountain ridge is clothed with a fine growth of pine, oak, cedar, and many other varieties; is carpeted with a mantle of succulent grass; has many fine streams, and deliciously cool springs; is adorned with many a lovely vale and beautiful glen, and throughout its entire length is penetrated by rich veins of gold, silver, copper, lead, and many other valuable minerals. North of the Sierra Prieta and connected with it by a chain of low hills, is the Juniper range, well timbered with the wood from which it takes its name. A great portion of it is covered by the lava flow from the San Francisco, and, as yet, no mineral discoveries of any value have been found in it.

Between the Juniper and the Colorado, and north of Bill Williams fork are a number of irregular spurs running paralleled, and known as the Mount Hope, the Cottonwood, the Hualapai, the Cerbat, and the Black mountains, bordering on the Colorado. Some of these elevations, such as Mount Hope and Mount Hualapai, are well wooded, while the others have but a sparse growth of timber. But nearly all of them are rich in the precious metals, and have been mined successfully since the first settlement of Northern Arizona. Between

these ridges are many valleys covered with a growth of coarse grass, cactus, and the *hedeundilla*, or grease-wood, destitute of water and given over to solitude. Southeast from Prescott, and extending from Date creek to the Hassayampa, is what is known as the Weaver range. It clearly defines the limits of the Upper Colorado plateau, and south of it there is a sharp and sudden descent to the plains and valleys of the Gila and the Salt rivers. It is famous through the length and breadth of Arizona as being the *locale* of Antelope peak, on the summit of which was found that wonderful deposit of gold, an account of which will be found in another place.

South of the Gila to the Sonora line the ranges of the plateau system are clearly defined. The Peloncillo is the first encountered west of the line of New Mexico. It is low and broken, and generally destitute of timber. Lying to the west, and separated from it by the magnificent San Simon valley—one of the finest grazing regions of the Territory—is the massive chain of the Chiricahua, one of the largest and most continuous mountain ranges in the Territory. In places it is twenty miles in width, and is over 100 miles in length, taking the Pinalaño, and the Santa Teresa ranges which join it on the north, and which are really the same mountain ridge—the only break in their continuity being the low divide known as Railroad Pass. The Chiricahuas are well watered, and contain some of the finest timber and picturesque scenery to be met with in Southern Arizona. They are also known to be rich in minerals, and many valuable discoveries have been made within their borders. West of the Chiricahuas, and separated from them by the rich grazing lands of the Sulphur Spring valley, is the Dragoon range. It is not so lofty or so well wooded as the Chiricahuas, but is a well-defined and rugged ridge with many striking peculiarities of structure.

North of the Whetstones and connected with them by low, rolling hills, the Santa Catalina lifts its rocky front and majestic crest from the desert plain. It is one of the most imposing of Arizona's many mountains, and as seen from Tucson impresses the beholder with its vastness and rugged grandeur. Its summit is crowned with pine, oak, juniper, ash, and other varieties, while many springs bubble out in its shady glens and find their way to the thirsty plain through deep and rocky gorges which have been worn by the rains and floods of centuries. The Santa Catalina range extends north to the Gila, the upper portion being known as the Tortilla mountains. East of the Santa Catalinas, and between that range and the Pinalaño group, the Galiuro mountain lifts its sombre crest. It extends from the cañon of the Gila in a southwesterly direction, until it abuts on the Sulphur Spring valley, having a length of between thirty and forty miles. In many places its slopes and summit are heavily timbered, and its foot-hills and narrow valleys are among

the best grazing lands in the Territory. Its formation belongs to the tertiary period. Its northern extremity is crowned by the imposing peak known as Mt. Turnbull, a prominent landmark in this portion of the Territory.

Southwest from the Santa Catalinas is the mountain group known as the Santa Ritas, whose lofty peak, Mt. Wrightson, rises into the clear air some 10,000 feet above sea level. The Santa Ritas are historical landmarks in the modern annals of Arizona. The first attempt at mining, by Americans, was made in this region, and the blood of many a pioneer has moistened their hills and vales. They are rich in all the minerals, and mining has been carried on here since the purchase of the country from Mexico. The Santa Ritas are well timbered towards the summit and have a delightful climate. To the southeast and joined to the Santa Ritas by the Patagonia mountains, is the Huachuca range. This is a massive elevation well wooded, and watered by numerous streams and springs. It contains many beautiful valleys and grassy glades, has a superb climate, and is one of the most delightful spots in the whole Territory. Its eastern slope fronts on the San Pedro valley, and the boundary line of Mexico passes through its southern end.

West of the Santa Rita range and between the Gila and the line of Sonora, the country is composed of wide grassy plains, with detached ranges, isolated spurs, and solitary peaks and buttes covering its surface. The most prominent of these ranges are the Atascoso, which walls in the valley of the Santa Cruz on the west and embraces a rich mining region; the Sierra Verde, which bounds the lovely vale of Arivaca on the west. The Baboquivera peak in this range is one of the most prominent landmarks in Southern Arizona. It rises to a height of over 8,000 feet, and its sharp outlines can be clearly seen nearly 100 miles away. It stands like a giant sentinel guarding that wild and weird region to the west known as the Papaguera or home of the Papagoes. The Cababi, the Quijotoa, the Ajo and many other isolated groups are found in this section. They are generally rugged and rocky with little vegetation, but rich in nearly every variety of mineral.

Between the Gila and the thirty-fourth parallel and west of the 112th meridian, the country is similar to the one we have just described. Extensive plains, covered with coarse grasses, and stunted shrubbery, and barren mountains mostly destitute of water and bare of vegetation. The best known of those rugged groups are the Harcuvar, the Sierra de Estrella, at the junction of the Gila and Salt, the White Tank mountains, the Haqui-hela, the Big Horn, the Plomosa, the Castle Dome, the Chocolate range and the ridges which run paralleled to the Colorado. Nearly all of those rocky elevations carry either gold, silver or copper, and furnish an abundance of water at a short depth below the surface.

This sketch will convey to the reader some idea of the grand mountain system of Arizona. They are the most striking feature of the country's topography, and contain within their rocky recesses more mineral wealth than any region of a like extent on the globe. Their rugged outlines have a wild and fascinating beauty of their own; and the delicate tints of light and shade with which an Arizona sun enwraps their jagged peaks and gloomy gorges, form a picture seen nowhere else outside the land of cloudless skies and perpetual summer.

The altitude of the different mountain ranges above sea level is as follows:

San Francisco Peak.....	12,561 feet.
Sierra Blanca	11,496 "
Mount Graham.....	10,516 "
Mount Wrightson (Santa Ritas).....	10,315 "
Santa Catalina.....	9,950 "
Mount Kendrick.....	9,800 "
Mount Turnbull.....	9,500 "
Mount Sitgreaves.....	9,097 "
Bill Williams.....	9,080 "
Chiricahua.....	9,000 "
Mount Union (Sierra Prieta).....	9,000 "
Four Peaks (Mazatzal).....	8,600 "

First among the rivers of Arizona is the Colorado of the West which washes the western border of the Territory, and takes rank among the great waterways of the continent, both on account of the vast area it drains, and the mighty volume of water it carries to the ocean. It belongs to that grand system of rivers which have their sources in the Rocky mountain cordilleras, and drain the continent, from ocean to ocean; and next to the Columbia, is the principal tributary of the Pacific ocean on the American continent. The Colorado takes its rise in the Wind river chain of the Rocky mountains, some 12,000 feet above the level of the sea. It flows southeasterly in its upper course, and is known as the Green. In southeastern Utah it is joined by the Grand, which flows down from the western slope of the Rocky mountains. The streams, united, form the Colorado proper, and from the point of junction to the Gulf of California it is known by that name. Below the junction, the course of the stream is southwesterly, until it is joined by the San Juan, from the east, above the entrance to the Great cañon. From there it runs southwesterly through the tremendous chasm of the plateau, to the mouth of the Virgin, and from there it winds its way almost due south to the Sea of Cortez. The great river was discovered by Captain Fernando Alarcon, on the 9th of May, 1540. He ascended the river in boats as far as the cañon, and was probably the first white man who gazed upon the wonders of the Great gorge.

The length of the Colorado, from the headwaters of Green river to the Gulf, is over 1,500 miles, and the area of territory drained by this mighty river is larger than New England Penn-

sylvania and Virginia combined. Above its junction with the Grand its waters are clear and limpid, but after passing through the Grand cañon, they are as turbid as those of the Missouri. The river is navigable by boats of light draft for over 600 miles, but it is one of the most changeable and capricious streams on the continent. It is continually shifting its channel, and it requires long experience and careful study to pilot a boat through its sinuous current. It is claimed that the channel changes every twenty-four hours, and where the river ran last year is often a fertile bottom overgrown with weeds and willow. Owing to the shifting sands and shoals, the Colorado can never be utilized to any great extent for travel or traffic. No doubt many of the camps along the river will receive their material by this route, but the building of two trans-continental railroads forever precludes the possibility of its supplying any large area of country. The Colorado drains the entire Territory of Arizona, and every drop of water which falls on its mountains, plains and *mesas*, finds its way to the great river. In its course through the Territory it receives but two tributaries of any consequence—the Little Colorado and the Gila.

The Grand cañon of the Colorado is the most stupendous chasm on the globe, and has not a parallel anywhere on earth. It is a tremendous gorge, over 400 miles in length, and from 1000 to 6000 feet in depth, cut through the eruptive rock of the elevated plateau by the river in its passage for ages from its mountain sources to the sea. A recent visitor to this wonder of the western world thus gives his impressions in the *Central New Mexico*: "Four hundred and sixty-five miles west from Albuquerque, at Peach Springs, Arizona, is the point on the A. and P. railroad nearest the cañon, it being only eighteen miles northward down Dry Wash and Diamond creek to the river. At this point you take a wagon and start down Dry Wash. Almost from the commencement the scenery becomes interesting. Every mile you advance raises the walls above you; every corner you turn discloses some new castle, a higher pillar or huger column. About half way down you enter the Amphitheatre—well named indeed. The cañon at this point widens out; its walls are a succession of stairways of strata, forums and pillars occupy the arena, and the upper walls are turreted with sandstone monuments that stand like sentinels against the clear sky.

"Farther down, Diamond creek enters the cañon abruptly through a side door, as it were, from a major gorge of its own. The cañon is very deep at this point, and the rest of the distance to the river grows rapidly deeper. Some magnificent scenery is now presented to view—Noah's Ark, Moses on Sinai, the Parthenon, etc. The cañon widens out, leaving a sort of triangular mountain in the bottom, and this is nearly 3,000 feet above the water of the creek. A lady, who recently visited this spot, is one

of the first that ever accomplished the feat of climbing to the summit of this mountain in the cañon, and declares that it has pillars on its surface 1,000 feet high, which do not begin to reach the top of the cañon proper. She says, also, that the walls of the cañon look just as awfully high after climbing this 3,000 feet as they did from the creek.

"On down the cañon a little further and you are at the great gorge itself. The scenery in this vicinity is beyond the power of language to describe. The pen of T. Starr King would falter at the task. Moran or Elkins would die of grief at the inadequacy of their brushes to paint it.

"The sun shining in at different peaks behind the castellated walls produces a rainbow here, throws a grotesque shadow there, or brings a profile into relief at another. The rocks in this light are of many colors—white, dark gray, pink and purple. From some of the narrow side cañons the stars are visible at midday. In fact the walls are so high that the sky seems a spangled azure cover laid gently across from brink to brink. The grand old Colorado itself, fifty feet in depth, is a roaring torrent, rushing on with high wave and fury, wearing its bed even deeper yet.

"Every turn you make in its tortuous course brings newer visions still. Up its side cañons you catch glimpses of heaven through vistas of brink that would enchant a fairy; all along its banks cloud-reaching, polished, buttressed, moss and vine covered castles lift their lofty heads up amongst pictures of light and shadow so high that they are hazy in the distance. Variegated sandstone Babels, run up higher still, until the blue air of heaven clasps them round in gauzy-like embrace.

"The awfulness of the scene is appalling. Rocks overhang the pathway as you advance, and histrionic statues point scornful fingers at you from all directions. Frowning profiles seem to threaten your every step, and misty caves suggest filmy apparitions as you gaze into their depths.

"Every stream that enters this great gorge has cut another chasm; every rivulet, rill and brook has cut its cañon too. In fact, the whole of the Grand cañon, along its whole length, is a vast labyrinth of gorges, a tangled maze of cañons, pillars, cathedrals, castles, Pisas and battlemented Babels, which, as the sun advances on its course, present an unpaintable, untellable and wholly indescribable picture.

"No description that can possibly be written of this "paradise of the geologist," until it can be more thoroughly explored, can at all convey an adequate idea of its grandeur. Its whole course is through the Union's greatest table land, averaging as high as 8,000 feet above sea level. It might truly be said that this great river flows on the ground floor of America, and the Rocky mountains are built up around it."

This awe-inspiring and mighty work of nature has been explored its entire length by Major Powell, who has given a most

interesting and vivid description of its many wonders. So grand, gloomy and peculiar a view is found nowhere else on earth. To stand beside the dark and seething waters of a rushing river, over a mile below the crust of the earth, and gaze up at the buttressed and battlemented walls, whose summits seem to reach the sky, is a spectacle so different from the ordinary scenes of nature that it is sure to attract thousands of visitors from all parts of the country.

The Little Colorado, named by its Spanish discoverers, *Rio de Lino*, and known to the Mexicans as the Colorado Chiquito, takes its rise in the Sierra Blanca range, near the line of 34° north, and only a short distance from the sources of the San Francisco, the Black and the Salt rivers. The country around its head waters is covered with extensive pine forests, and contains many beautiful mountain parks, springs and small lakes, the latter fed by the heavy snows which fall on these mountains. The course of the stream is northwest, and its first important tributary is the Zuni river, which comes down from the pueblos of that name, in New Mexico. A short distance to the northwest it is joined by the Rio Puerco, which likewise has its source in New Mexico. About ten miles above its junction with the Little Colorado, the Puerco receives Lithodendron creek. On the banks of this creek is one of the most remarkable natural curiosities in the United States. It is a large petrified forest, extending over many miles. They are silicified conifera of a gigantic size. One has been discovered that measures more than twenty feet at the base, and at a break, 100 feet from the base, it was ten feet in diameter. Limbs and branches, petrified to solid rock, are found scattered about in every direction. It is also said that many fossil ferns exist in conjunction with the trees. This singular freak of nature belongs to the carboniferous period, and is evidently a portion of that vast forest which once existed in this treeless waste, and now forms the great coal measures that underlie its surface. The texture and form of the dead trees is clearly discernable, resembling much the immense redwoods of California. Many fossils of animals of an unknown and extinct species are found scattered about among those immense rocky trunks, solidified to pure dolomite or magnesian limestone.

The "Petrified Forest" is one of the wonders of Arizona, and is already attracting many visitors from the Thirty-fifth Parallel Railroad. West of the Lithodendron, the Little Colorado is joined by Leroux fork from the east, and Chevelon's fork from the west, both small mountain streams. From thence the river flows in a northwesterly direction, keeping about thirty miles to the north of the San Francisco peak. Below the Moencopy which joins it from the north, it enters a deep and rocky cañon, whose eroded walls show the action of the water for ages in wearing its bed to the great river. Through this cañon, which

is in places a half a mile in depth, with smooth, perpendicular walls, the stream flows on to the Colorado of the West, which it enters at the Grand cañon. The Colorado Chiquito has a length of nearly 200 miles, and contains some large and fertile valleys along its upper course.

Next to the Colorado the Gila is the largest river of Arizona. Its sources are in one of the eastern spurs of the Mogollon mountains, near the summit of the divide that separates the waters flowing into the Mexican gulf from those that seek an outlet in the Pacific ocean. It crosses the Territory from the line of New Mexico to the Colorado near Fort Yuma, following very nearly in its course the thirty-third parallel of latitude. Almost the entire Territory, south of the thirty-fifth parallel, is drained by the Gila, and four-fifths of the streams within its borders are tributary to it. For more than half its length it is a mountain stream, dashing through deep gorges, rocky cañons, and wild and rugged scenery. After passing the boundary line it forms a narrow valley with a rich soil, until it enters the Sierra de la Petahaya and the Sierra Natanes. From the latter range it receives the Rio San Francisco, a clear and impetuous mountain torrent. A few miles west of the San Francisco the Gila receives the Bonita and Eagle creek, beautiful mountain streams having their sources in the Sierra Blanca, and bordered by grassy valleys containing many acres of rich arable lands. Below the mouth of the Bonita the Gila forms a valley nearly forty miles in length, and from two to four in width. This magnificent vale is known as *Pueblo Viejo* (Old Town), and throughout its entire length are the ruins of former habitations, the marks of large irrigating canals and fragments of broken pottery, showing that a dense population once had their homes here. The valley is being rapidly settled up. At this point the great valley of the San Simon sweeps down from the foot-hills of the Sierra Madre, and the waters of its underground river—the Rio del Sur—enters the Gila near the town of Solomonville.

Below the Pueblo Viejo, the Gila cuts its way through the Santa Teresa, the Galiuro, the Mescal, the Tortilla and other detached ranges. In its course through these rocky barriers, it forms deep gorges and narrow cañons for a distance of nearly sixty miles, exhibiting in places mountain scenery grand in its solitude and savage beauty. Before entering the cañon the Gila is joined from the north by the San Carlos, a large stream with a rich and fruitful valley. The remains of irrigating works and the ruins of former dwellings which line its banks show that a large and industrious population once existed here. The name has become familiar throughout the United States as the home of thousands of idle, worthless and vicious Apaches. Midway in its course through the cañon, the Gila is joined by the San Pedro flowing from the south, one of its longest and most important tributaries, a full description of which will be found later on.

About ten miles above the town of Florence the Gila emerges from its mountain fastnesses, enters on the wide plains which extend to the Colorado, and flows through a large, rich and fertile valley to its junction with the latter stream.

This valley of the Gila embraces a large portion of the arable lands of Arizona; has a soil of exceeding richness, and produces magnificent crops of grain, vegetables, grasses and fruits. At Florence and other points to the west, this valley is under a state of cultivation, a full and detailed description of which will be found under the head of Agriculture. Near Maricopa Wells the Santa Cruz mingles its waters with those of the Gila, by an underground passage. It is a sluggish stream, and for two-thirds of its course its waters sink in the thirsty sands. Some ten miles west of the town of Phoenix the Salt river joins the Gila, from the north. This is the most important tributary which it receives in its course. Indeed, it can hardly be called a tributary, as its volume of water is much larger than the last-named stream. From the Salt to the Colorado of the West, the Gila receives no living stream, though several dry river-beds like the Hassayampa and the Agua Fria are often swollen by the summer rains, and carry down vast volumes of water from the Bradshaw and Sierra Prieta ranges.

The Salt river, which joins the Gila below Phoenix, is formed by the Black and White rivers, which unite their waters in the Mogollon mountains, about twenty miles west of Fort Apache. These streams have their sources in the Sierra Blanca, and before they unite receive many sparkling tributaries, fed by the springs and snows of this elevated region. The most important are the North Fork of White river, Bonita fork, and Carizo creek. These water-courses, as well as the White and the Black, contain some magnificent mountain trout, and afford fine sport for the angler. Below the junction of the last-named streams the Salt river enters the mountain system through which the Gila winds its way, some forty miles to the south. The cañon formed in its course is longer than that of the Gila, and much more striking in its scenic effects. The deep gorges, with their towering walls on either side, and masses of rock piled in wild confusion and twisted into most fantastic shapes by the storms and floods of centuries; the numerous cascades and falls over which the water foams and whirls, present a scene of wild beauty worthy the pencil of an artist.

During its course through the cañon, the Salt receives several tributaries from the north, the largest being Tonto, Cherry and Cibicu creeks. These streams sometimes carry large bodies of water and are bordered by rich but narrow valleys. About thirty miles above its junction with the Gila, it is joined by the Rio Verde flowing from the north. The Salt river drains a large area of country, and, next to the Colorado, carries the largest volume of water of any stream in the Territory. After leaving

the cañon it flows through the richest and most extensive body of agricultural land in Arizona. Its length, reckoning from the head of Black river, is nearly 200 miles. The San Pedro, which enters the Gila at the lower end of the cañon, takes its rise in the spurs of the Sierra Madre, in Sonora, and flows north through a fertile valley, with grass-covered *mesas*, gradually swelling into the mountain ridges on either side. It is a sluggish narrow stream, but carrying sufficient water to irrigate the rich bottom-lands through which it flows.

Its principal tributary is the Arivaipai which enters it from the east near the site of old Camp Grant. This stream heads in the Pinalaño range, and flowing to the northeast forms a deep and precipitous cañon in its passage through the northern end of the Galurio mountains. This cañon contains some of the wildest mountain scenery in the Territory, and has been the theatre of many a bloody encounter with the Apaches, who long looked upon it as one of their strongholds.

The Santa Cruz, briefly alluded to heretofore, is perhaps the most remarkable of the streams which go to form Arizona's system of water-ways. Its sources are in the southern end of the Patagonia mountains near the Mexican line. From thence it flows to the south through Sonora for several miles, and then making a sharp bend to the north, passes by the towns of Calabasas, Tubac and the city of Tucson. Its bed is formed of loose sand, and for the greater portion of its devious way it seeks an underground channel. From its source to Tucson, it is bordered by a valley of exceeding fertility which yields large crops of cereals and fruits, wherever the land can be irrigated. At Calabasas, Tubac and Tucson the water forces itself to the surface and the valley is under a state of cultivation. From the last named town the Santa Cruz pursues a northwesterly course to its junction with the Gila, losing itself completely in the barren plain, and only appearing once at Maricopa Wells before it unites with that stream. Its entire length is about 150 miles.

The Rio Verde is formed from a series of springs in what is known as Chino valley in the great Colorado plateau, and between the Juniper range and Bill Williams mountain. Thence flowing southeast it receives several small streams from the south, among them Granite creek, on which Prescott is situated. Still pursuing its southerly course the Verde passes around the northern slopes of the Black Hills receiving from the mountainous region of the east, Turkey, Oak, Beaver and several other creeks flowing from the base of the San Francisco peak. Below Fort Verde, Clear creek, Fossil creek, the East fork and many smaller water-courses enter the stream from the Mazatzal range on the east. The Verde carries a volume of water almost as large as the Gila. During its course it forms several small but exceedingly rich and beautiful valleys, many of which are under a high state of cultivation. The waters of the Verde are clear and limpid;

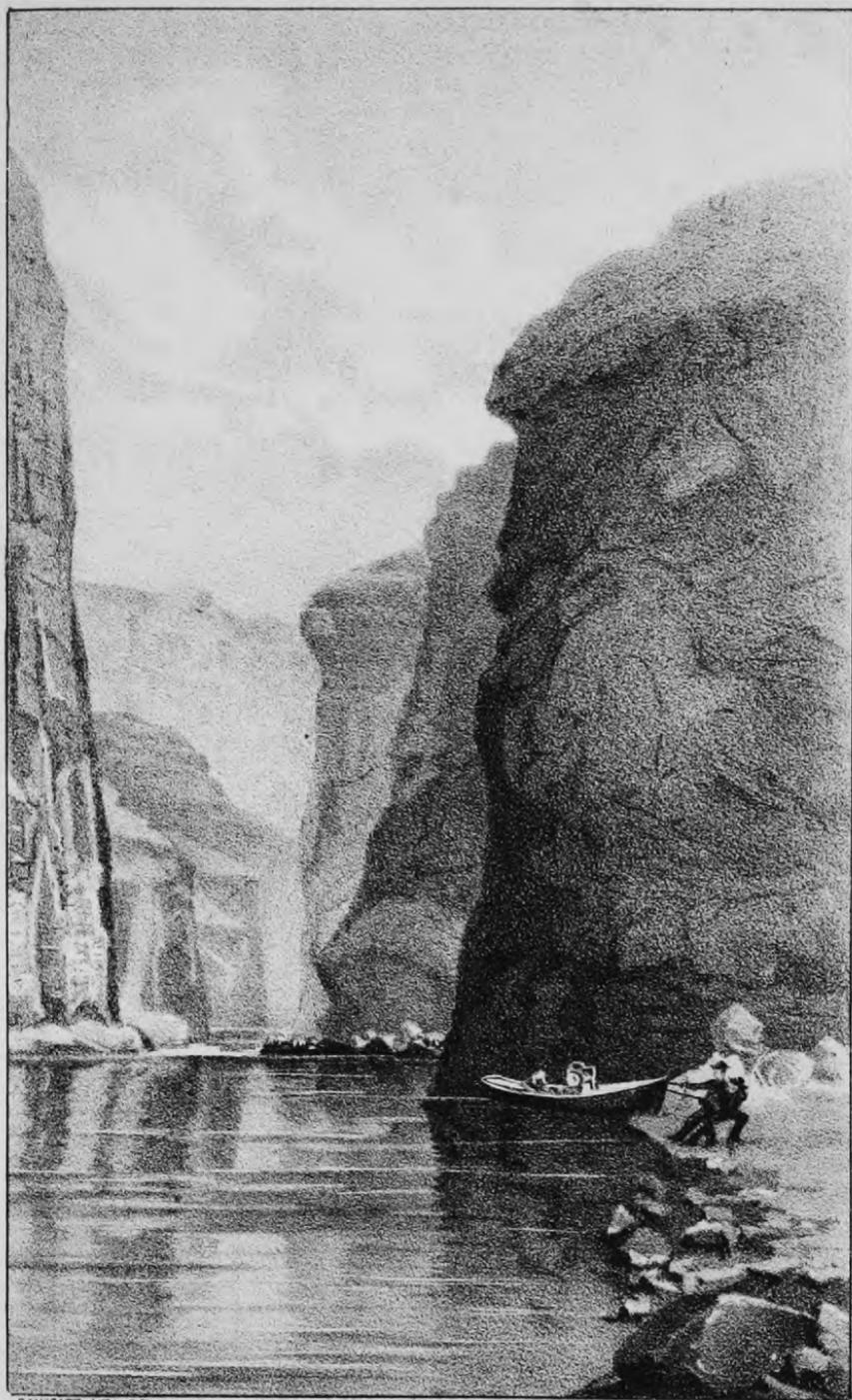
its banks are shaded by a fine growth of cotton-wood, ash, box elder, maple, willow and many other varieties; it is well stocked with fish, and is one of the most beautiful water-courses in the Territory. Its entire length is nearly 150 miles.

The Agua Fria takes its rise some ten miles east of Prescott, and sweeping around the northern slopes of the Sierra Prieta range, pursues a southern course, paralleled to the Rio Verde, and some thirty miles west of the latter stream. It is fed by the rains and snows which fall on the southern spurs of the Sierra Prieta basin, and drains in its course the eastern slopes of the massive Bradshaw range. It enters the Gila at the Big Bend by an underground channel, 120 miles from its mountain home.

The Agua Fria forms many beautiful farming and grazing valleys, which contain some pleasant homes. Some twenty miles west of the Agua Fria the Hassayampa enters the Gila. This stream heads in the Sierra Prieta range, ten miles south-east of Prescott. It flows south through a mountainous region, draining the western slopes of the Bradshaw and the Antelope mountains. It contains a few narrow valleys, which yield prolifically of grain and fruits. Bill Williams Fork is formed by the junction of the Santa Maria and the Big Sandy. The Santa Maria rises into the elevated plateau known as Peeples valley, lying north from the Antelope mountains. Thence it flows northward, and is known as Kirkland creek. Being joined by Sycamore creek from the Mount Hope range it turns to the west and unites with the Big Sandy. This latter stream heads in the Cottonwood range near the thirty-fifth parallel, and pursues a southerly course. Bill Williams Fork, below the junction of the two streams just described, follows a nearly straight course westward to the Colorado. The country through which it passes is a dry and barren region, but rich in the precious metals. The upper sources of the stream contain some small but rich valleys, which produce good crops of hay, corn and vegetables. In the hills and mountains adjacent there is also some excellent grazing land.

These are the principal water-courses of Arizona. Although considered a dry country, it will be seen that the Territory is well supplied with the life-giving element. Its streams are the arteries which convey life and verdure to its surface, causes the parched desert to bloom, makes the arid waste to don its robes of green and brings to mountain, plain, valley and glen, beauty, fertility and productiveness.





BAVROFT-LITH-S.F.

GRAND CANON OF THE COLORADO.

SEE PAGE 26



FAUNA AND FLORA.

The Wild Animals of Arizona—Habitat of the Bear, Elk, Deer, etc.—The Feathered Tribe of Arizona—Reptiles and Insects—The “Gila Monster”—Fish—The *Cereus Gigantus* and the Cactus Family—The Maguey Plant ; Its Value for Manufacturing Purposes—The Amole, or Soap-Weed—The Native Woods of the Territory—The Mesquite Tree—The Iron Wood—The Native Grasses of the Territory.

THE Fauna and Flora of Arizona, are both interesting and extensive, and contain some species in each, peculiar to this semi-tropic clime, not found in any other part of the United States. Nearly all the animals indigeneous to the temperate zone, are found in the Territory, and its variety of fish, fowl and wild game, make some portions of it the very paradise of the sportsman.

The bruin family are well represented, and almost every wooded mountain throughout the Territory, can show a specimen. The grizzly inhabits the White mountains and the neighborhood of Fort Apache ; the cinnamon, the black and the brown bear are met with in the San Francisco, the Mogollon, the Sierra Blanca, the Bradshaw, the Juniper, Bill Williams, the Matatzal, the Santa Catalinas, the Chiricahuas, the Huachucas, the Santa Ritas, the Galiuro, the Pinal, the Dragoon, the Pinaleño, and, in fact, in every mountain range of any size throughout the Territory. Although rarely seen so far south, some magnificent specimens of the elk family inhabit the ravines and glens of the San Francisco and Sierra Blanca. The California lion, or cougar, makes his home in all the mountainous regions of Arizona. He sometimes attains a large size, but is cowardly and treacherous by nature. The leopard is known to exist in Southern Arizona, and several, of a good size, have been killed. They are however, rarely seen.

The black-tailed deer is found in all parts of the Territory. It attains a large size, and specimens weighing over two hundred pounds are often brought down by the successful hunter. The early settlers depended almost entirely on the deer for their supply of fresh meat, and the wholesale slaughter, at all seasons,

has almost exterminated this noble game in some portions of Arizona. The antelope is found in large herds on the grassy plains of the upper plateau, and in nearly every valley from the thirty-sixth parallel to the southern boundary. The *coyote*, or prairie wolf, roams over the deserts, plains and *mesas*, and his ear-splitting yelp pierces the drowsy ear of night from the Sonora line to the Utah border. Another species of the wolf family inhabits some of the mountain ranges; they are large, gaunt and fierce, and do not hesitate to attack and kill full-grown calves, colts and other domestic animals.

The beaver is a habitat of the streams throughout the Mogollon and the White mountains. Its watery domiciles are also found along the Verde, the Little Colorado, the Upper Gila and Salt rivers, and the San Pedro. The Arizona beaver is not as large as his northern brother, nor is his fur so valuable. The big-horn mountain sheep is a dweller in the elevated rocky ridges of Arizona's mountain system, but is most numerous in the lofty, barren crags of the Colorado plateau. The most desolate and inaccessible regions are the favorite haunts of this animal.

The fox makes his home in all parts of the Territory; the Arizona specimen is much smaller than that known in the Eastern States, but has all the sagacity and cunning of his larger brother. The wild cat is seen in nearly every wooded mountain; many of them attain a large size and have all the fierce instincts of their race. That species of the hare, known as the "jackass rabbit" is a noticeable feature of the landscape throughout the dry, barren plains and foot-hills of Arizona; the flesh is coarse and tasteless, but that of the smaller variety known as the "cotton tail" is as white and tender as that of a chicken. Squirrels are numerous everywhere—the larger variety inhabiting the wooded mountains, while the ground squirrel seeks the plains and foot-hills. The wood rat and the kangaroo rat are at home in every portion of the Territory; gophers inhabit the valleys along every water-course, as well as the dry plains, and in places make sad havoc with growing vegetables. The *Mephitis Americana* is found all over Arizona. The varieties most common are of a beautiful black and white color, but here as everywhere else, distance lends enchantment to the view, and this peculiar animal appears to the best advantage the farther he is off.

Of the feathered tribe, the Territory possesses a rich and numerous variety. The ornithologist has here a field both interesting and instructive, while the devotee of rod and gun can revel in the delights of his glorious sport. The American eagle makes his home among the lofty peaks and deep canyons of the Mogollon, Sierra Blanca, Pinaleño, Chiricahua and other wooded ranges. It sometimes attains a large size. The wild turkey abounds in all the principal mountains of the Territory.

It is a noble bird, very often weighing twenty and twenty-five pounds, with a flesh white, tender and exquisitely flavored. The bird is shy and difficult to kill, being often known to receive several charges of coarse shot, and then succeed in eluding the hunter. Wild duck frequent nearly all the water-courses of the Territory, and the wild goose is occasionally seen on the Colorado, the Gila and the Salt. The quail, or California partridge, is extensively distributed throughout Arizona, and seems to be rapidly increasing. They are a beautiful bird, with a flesh of delicious flavor and tenderness. All attempts to domesticate them have proved a failure.

The Arizona mocking-bird is found from Utah to Sonora, and from New Mexico to the Great Colorado. Wherever there is a spring or a grove the melody of this sweet songster breaks the stillness, and enlivens the solitude of mountain, valley and plain. Blackbirds are found everywhere, and pigeons inhabit the mountain ranges. The hawk is met with from end to end of the Territory; some of the species reach a large size, and their partiality for young chickens is as strongly marked in Arizona as elsewhere.

Many species of the owl family inhabit the Territory, and their nocturnal serenades have been often anathematized by the weary traveler or prospector. The crow tribe are strongly represented, and wherever the industrious pioneer has made a home and redeemed the soil, those dusky scavengers are sure to be found. There are many varieties of the thrush, and his sweet song fills with melody the mountains, valleys and glens of eastern Arizona. Humming-birds of beautiful plumage are met with in the central and southeastern valleys and mountains, as are also warblers and finches. The water ousel and the blackbird are encountered in the mountain ridges of southeastern Arizona. The persistent tap of the woodpecker is heard in every timbered region of the Territory; and the chatter of the thievish blue-jay disturbs the song of his more musical neighbors everywhere. The oriole is found in the Galiuro, Pinaleño and Chiricahua ranges; he is a beautiful bird and a sweet singer.

Larks, swallows, buntings, wrens, grosbeaks and linnets are found in all parts of Arizona. Magpies are seen in the southeastern mountain ridges near the Sonora border. The Arizona vireo is widely distributed and is one of our sweetest songsters. Of aquatic birds, herons, snipes, sandpipers, cranes, etc., large numbers are found along the Colorado, Salt, Gila, Verde and the larger streams. In brilliancy of plumage, variety of species and sweetness of song, the birds of Arizona will compare with any portion of the Union. To give a detailed description of their habits, etc., is beyond the scope of this work, but it would be a subject both interesting and instructive.

Before closing this notice of the fauna of the Territory, some allusion should be made to the reptiles and insects which popu-

lar belief has long considered Arizona to be plagued with. First among these singular curiosities comes that large saurian, commonly called the "Gila Monster." It is of the lizard species and sometimes reaches a length of two feet. It is usually of a blackish-red color, covered with scales, and has anything but a prepossessing appearance. It is generally found in the southern portion of the Territory and makes its home on the dry and barren *mesas* between the thirty-fifth and thirty-second parallels and between the one hundred and eleventh and one hundred and fourteenth degrees of longitude. It is not entirely harmless; and when sitting on a rock with its mouth sending forth a greenish, frothy slime and puffing like a miniature steam-engine, it presents a formidable appearance to the new arrival.

Many smaller species of the lizard family exist in Arizona and are generally found in the most barren and desolate localities. The horned toad, another branch of the family is met with on all the plains and barren uplands. Rattlesnakes of several varieties are seen, but they are not near so numerous as voracious (?) travelers would have their readers believe. On the upper plateau and in the elevated mountain regions, they are rarely met with. The same will apply to tarantulas, scorpions and centipedes. These poisonous insects are scarcely ever found in the wooded mountain regions. In fact, it has been said, and with truth, that Arizona has fewer venomous reptiles than any portion of the continent, and this has been attributed to the dry, pure atmosphere which wraps her mountains and plains.

The fish found in the waters of the Territory have some striking peculiarities of their own, which may be of interest to the reader. In the Colorado there is a large fish known as the "Colorado Salmon." The taste is something like the sturgeon, but the fish is coarse and devoid of flavor. Some weighing seventy pounds have been taken near Yuma. In the Gila is found a fish resembling a sucker; it is well-flavored but very bony. The "Colorado Salmon" is also found in this stream. In the Salt river a fish called the "humpback" is found in large numbers. Although well-flavored it has too many bones to be of much value as a food fish. In the Verde is a fish known as the "Verde trout." It sometimes reaches a weight of five pounds, has an excellent flavor, but is so full of small bones that it is not likely ever to come into favor. The same fish is also found in the Salt River, but the change does not affect its bony peculiarities. In the streams which form the headwaters of the Colorado Chiquito, as well as those of the Salt and the Gila, trout are found in abundance. In the cool and sparkling streams which flow down from the winter snows of the Mogollon and the Sierra Blanca, these beautiful fish find a permanent home. They are equal in flavor to the best Eastern or California brook-trout, and magnificent specimens, weighing as high as four and five pounds, are not unfrequently taken.

The Territorial legislature has created a fish commission, and made an appropriation of several thousand dollars for the purpose of stocking the rivers and lakes of the Territory with carp and other varieties suitable to the climate. Spawns have been placed in the Colorado, Gila, Salt, Verde, Agua Frio, Colorado Chiquito, and other streams. Many individuals have also arranged large ponds on their premises, and stocked the same with the young fish. So far tried, the carp thrives and increases with wonderful rapidity in the waters of Arizona. The temperature of the streams in the southern part of the Territory—although a trifle warm during the summer months—has no injurious effect on this fish; and although many of them are destroyed each year by the native varieties, who look upon them as interlopers, they multiply at so rapid a rate, that in a year or two they will swarm in every stream.

The flora of Arizona, like all else relating to the country, has many distinct peculiarities of its own, and embraces many varieties found nowhere else in the United States. Here the vegetable productions of the tropic, the temperate and the frigid zones grow side by side, presenting a picture often strange and anomalous. Arizona is the land of the *cereus giganteus*, called by the Indians and Mexicans the *sahuaro*. This is the largest species of the cactus family, and sometimes attains a height of forty feet. The body of the *sahuaro* is made up of thin pieces of wood, arranged in the form of a cylinder, covered and held together by the outside skin or fibre. This fibre is a pale-green, and the trunk is fluted like a Corinthian column. Near the top, large arms, in shape like the main trunk, put out from it like the branches of a candelabrum, the whole being covered with sharp, prickly thorns. A beautiful purple blossom decks its top, and in the latter part of June a pear-shaped fruit ripens, and is much prized by Mexicans and Indians. The fruit tastes a good deal like a fig, and is exceedingly palatable.

This singular plant is found on the waterless plains and rocky, gravelly *mesas* in every portion of the Territory, and is one of the most curious objects which greets the eye of the traveler. The *sahuaro* is short-lived, and the elements of decay are at work ere it has fairly begun to grow. It first begins to rot at the base, and at last topples over. The Mexicans use the narrow ribs of wood for roofing their *adobe* houses, building fences, etc. The *nopal*, or prickly pear, is another species of the cactus, extensively distributed all over the Territory. Its fruit, known as the *tuna*, is both palatable and refreshing, and second only to that of the *cereus* in its saccharine qualities. Its height is from four to six feet, with large fleshy leaves, which, in their tender state, are cooked by the natives and taste not unlike string beans. Like all the cactus family, it is a mass of sharp thorns which men and beasts carefully avoid. Another variety is known as the "vinegar cactus," so called from a small, deep-red berry,

exceedingly acid in taste, which it bears. The Indians use this fruit as an anti-scorbutic.

One of the most valued varieties of the cactus is called the *bisnaga*, or "well of the desert." It is of a cylindrical shape, covered with sharp thorns, and is found growing on the dry plains and foot-hills. By cutting out the center of the plant a bowl-shaped cavity is formed, which soon fills with excellent water and affords the thirsty wanderer a refreshing drink. The "grape cactus" is another variety of the plant. It grows to a height of from four to six feet, with numerous branches bearing clusters of fruit of the *tuna* variety, and reminding one forcibly of grape clusters. This cactus also bears bunches of large thorns, capable of penetrating the strongest leather. On the elevated plain between Florence and Pinal there is a regular forest of this unsightly plant.

The *Cholla* is another variety of cactus. It seldom reaches above a foot in height, and most generally is found in little bunches, nestling among the grass. Many a thoughtless traveler who inadvertently sat down on this prickly nuisance has risen with a suddenness only equalled by the volume and emphasis of his remarks on the occasion. The *ocotilla* is, by some, classed with the cacti family. It is a beautiful plant, growing in clusters of straight poles, from ten to fifteen feet in height, and covered with coarse thorns. In the spring it puts forth green leaves and scarlet blossoms, and is one of the most attractive objects the eye rests upon on the table-lands of Arizona. This plant is extensively used for fencing in portions of the Territory where there is a scarcity of wood. There are many other varieties of the cacti family in the Territory, but there is a sameness among all, which would be of little interest to the reader. They are a marked peculiarity of the country, and a never-ending source of wonderment to the newcomer.

The *maguey*, or *mescal*, sometimes wrongly called the century plant, is the most useful of all the natural vegetable products of the Territory. It flourishes on the foot-hills, elevated table-lands, and often on the mountain sides. It prefers the southern slopes where it receives more sunshine, and seems best adapted to a dry, drift soil. In the neighboring republic of Mexico, large tracts are devoted to the cultivation of the plant, which is a considerable source of revenue to the country. The Mexicans make from it a distilled liquid known as *mescal*, and containing a large percentage of alcohol. It is as clear as gin, has the strong, smoky taste of Scotch whisky, and will intoxicate as quickly as either. From the fiber of the plant the Mexicans also manufacture a coarse cloth and paper of an excellent quality. The plant is of circular shape, its center being in appearance something like a cabbage head, surrounded by long, sharp-pointed green leaves, fleshy and stiff, their edges being covered with thorns. From the center of the head springs a slender pole, eight to

twelve feet in height, and crowned with short branches, bearing small, yellow flowers. These flowers are shaped like a tiny cup, and when in full bloom are filled with a syrup, having a sweet, strong taste. The head of the *mescal* is the most valuable part, and was looked upon by the Apaches as their chief article of food.

In preparing it for use, the outer leaves are peeled off and the head placed in a primitive oven made of round stones, sunk in the ground, which have been heated by a fire of mesquite wood. The *mescal* is placed on these stones, covered by the hot ashes and earth, and roasted; after which it is taken out and a few outside leaves being removed is ready for use. It is sweet and nutritious, tasting like a boiled beet. The Apaches likewise make it into flat fibrous cakes which constituted the only commissary carried by war parties during the long and bloody struggle against the whites. The Indians also make from it a syrup of which they are very fond, and by fermentation an intoxicating drink called *tizwin*. It will thus be seen that the *maguey* is a most valuable plant, and, with proper cultivation, can furnish the raw material for many industries which could be profitably engaged in here.

The *amole*, or soap weed, is another of the valuable plants indigenous to Arizona. It grows in profusion on all the dry plains and rolling uplands of the country, and reaches a height of from two to three feet, with long and narrow leaves, which will make excellent rope, paper, cloth and other fabrics. The roots are used by the Mexicans as a substitute for soap; a heavy lather is made by agitating the crushed roots in the water which is said to be superior to ordinary soap for the cleansing of flannel fabrics. It is also used as a hair-wash, and is said to keep it clean, soft and glossy. The *hedeundilla*, or grease wood, is found on the hills, table-lands and plains over the entire extent of the Territory. It is a bushy shrub, growing to a height of from two to eight feet, with dark-green leaves, and in the early summer, produces a yellow blossom; by rubbing the leaves between the hands an unpleasant odor is produced and a greasy substance adheres to the fingers. A gum exudes from the plant, which resembles much in color and quality, gum-Arabic. It is an evergreen and seems to be indigenous to this country.

The *yucca* plant, or Spanish bayonet, is another of Arizona's peculiar vegetable productions. It grows in all parts of the Territory, and its strong, fleshy, sharp-pointed leaves contain a fibre which makes excellent paper. On the foot-hills of the mountain ranges of the Colorado plateau the California *manzanita* grows luxuriantly; and along the dry valleys and water-courses the arrow weed and the black willow are found in profusion. The former furnishes the aborigines with arrows for their rude bows, and the latter, with some resemblance to the weeping willow, bears a large purplish blossom devoid of frag-

rance. Among the other plants of the Territory should be mentioned the *pectis*, the creosote bush, and the snake weed. The first named has an odor like essence of lemon, and the last is valuable as an antidote against the bites of venomous reptiles. The Indians masticate the leaves and apply them to the wound which proves an effectual remedy against the poison. The aborigines use a great many plants for their curative properties, and no doubt when the flora of Arizona is classified, and thoroughly known, the pharmacopœia will be enriched by many valuable remedies from its plants and herbs.

Grapes, currants, strawberries, blackberries, cherries, and raspberries are found in the mountains and valleys of northern, central and southern Arizona. The wild grape is especially prolific. It is rich in saccharine matter, and a very palatable wine, of the color and taste of light claret, is made from it. It contains a fair percentage of alcohol, and by grafting with the domestic varieties a very fine wine grape is produced. Walnuts grow in profusion along all the wooded mountain ranges of the Territory; and immense quantities of acorns, used by the Indians as an article of food, are found wherever the oak tree grows.

A shrub, bearing a close resemblance to the coffee-plant, is found in different portions of Arizona. The beans, of which there are generally two in the pod, has a strong flavor of domestic coffee, and when prepared in the same way makes an excellent substitute for the genuine article. Wild flax grows in the valley of the Colorado Chiquito, and in several other places on the great plateau; the wild tobacco plant has been found in the Santa Cruz valley, and the wild potato is at home in the Santa Ritas, the Huachucas and the Santa Catalinas. It is also found in the valleys north of the Moquis villages, and is used extensively by the Navajoes as an article of food. The root is about the size of an English walnut and when cooked is dry, mealy, and of a fine flavor. Arizona has a great number of mercurial plants and a great variety of wild flowers which bloom after the rainy season, and send forth a delightful fragrance over the arid desert and lonely plain.

Pine, spruce, cedar, oak, and juniper cover the principal mountain ranges of the Territory. The great pine forest of the Mogollon extends from the San Francisco peak to the thirty-third parallel, and has an average width of over sixty miles. This extensive timber belt contains some of the finest and largest specimens of the pine family to be found on the continent. The upper portion of the Colorado plateau has a scattered growth of scrub pine, and cedars; while the Bradshaw and Sierra Prieta ranges show magnificent forests of pine, oak, and juniper. In the ranges south of the Gila the same variety of timber abounds, while the rolling foot-hills have a fine growth of oak. There are two varieties of the oak in the territory, the white oak, which

people in the Atlantic and Western States are familiar with, and the black oak. The latter has an extensive growth in California and Arizona, and also in Northern Mexico, and bears a strong resemblance to the live oak of the Southern States. Sycamore, ash, walnut, elder, maple, willow, cottonwood are found growing along the water-courses in all parts of the Territory. The ash makes excellent timber for spokes and wagon tongues; while the Arizona cedar makes beautiful cabinet-ware—its fine texture, beautiful color, and delightful odor being especially adapted for the more delicate kinds of work.

The mesquite tree is among the most valuable of the woods of Arizona. It may be considered a native of the region south of the Great plateau, and is nearly always found growing in rich, heavy soils. Large groves of the tree are found in the rich bottom-lands of the Colorado, the Gila, the Salt, the Santa Cruz, the San Pedro, and on nearly all the principal streams throughout Central and Southern Arizona. On the lower Colorado, a short distance above Yuma, on the Gila, near Casa Grande, and on the Santa Cruz, near the mission of San Xavier, are extensive forests of mesquite, many of the trees reaching a height of forty feet, and measuring over two feet in diameter.

The tree puts forth many limbs, and has a bushy appearance; its leaves resemble those of the locust, and it bears large quantities of a bean-like fruit, which are gathered by the Indians and considered by them as their staple article of diet. The fruit is dried and ground into a flour from which a bread is made that is highly prized by the natives. These beans also make a rich feed for cattle and horses, being superior in their fattening qualities to either corn or barley. The wood of the mesquite makes excellent wagon timber, being peculiarly adapted to this climate; it also makes a handsome shade tree, and in all respects is the most valuable of the native woods of the Territory.

The *palo verde*, or green tree, is a native of Arizona. It loves the dry, gravelly *mesas*, the waterless plains, and the barren deserts. It seldom attains a height of over twelve feet; has sharp thorns instead of leaves; has soft, spongy wood; gives a poor shade, and is perhaps the least attractive of Arizona's arboreal productions. The pepper tree is found growing along many of the water-courses of Arizona. It scarcely ever attains a height of more than fifteen feet. When properly cared for it makes a handsome shade tree. The iron wood, *lignum vitæ*, is another wood, native and to the Arizona manor born. Its leaves closely resemble the mesquite, but its wood is much heavier, close-grained and susceptible of a high polish. When dry it is hard and brittle, and will dent the finest tempered axe. It was in allusion to this peculiar wood, and the coarse, native grass of the deserts, that the genial traveler, Ross Browne, humorously wrote, "in Arizona, hay is cut with a hoe and wood with a hammer." The wood of this tree makes an intense heat;

it bears a bean similar to the mesquite, very rich in grape-sugar, and highly prized by the Indians as an article of food. In the cultivated valleys of the Territory, different varieties of shade and ornamental trees are being introduced with most gratifying results. The Lombardy poplar, the mulberry, the China umbrella tree, and many other varieties do well. There is no reason why all the beautiful flowering and shade trees of the semi-tropic zone should not, with careful cultivation, flourish in Arizona.

Of the grasses of the Territory, the most widely distributed is the *gramma*, which grows in every portion of the country. There are two varieties of this grass, the black and the white *gramma*, both of which are excellent food for stock. Cattle in Arizona, fed on this grass, keep fat winter and summer, and their beef is unequaled in flavor and quality. In the mountain regions the pine, mesquite, and other varieties grow luxuriantly, and afford rich and nutritious feed. In some portions of northern Arizona the *alfileria*, or wild clover, has been introduced by sheep driven from California, and is fast spreading all over the country. On the barren plains in the west and southwestern portions of the Territory, a coarse grass, called by the Mexicans *gayette*, grows extensively. Cut when green, and properly cured, it makes a fair substitute for hay.

In many of the southern valleys and foot-hills there is a grass called the "buffalo;" it grows in bunches, and stock are very fond of it. Although Arizona has been considered a barren, sandy waste, it can show as fine a growth of rich and succulent grasses as any region of the southwest, and its capabilities as a stock-growing region are almost limitless.





COUNTIES AND CHIEF TOWNS.

Pima County—Tucson: its History, General Appearance, Public Buildings, Gas, Water Works, Electric Light, and its Educational Advantages, etc.—Yavapai County—Prescott: its Buildings, Public and Private, Delightful Situation, Trade, etc.—Whipple Barracks—Cochise County and its Early History—Tombstone: Its Appearance, History, and Characteristics—Benson—Bisbee—Maricopa County—Phoenix and its Charming Surroundings, Public Buildings, Trade, etc—Tempe—Yuma County, Town and Fort—Pinal County—Florence—Pinal—Gila County—Globe—Graham, Mohave, and Apache Counties—Population of the Territory.

PIMA county was the first portion of Arizona settled by Europeans, and is one of the oldest political divisions of the Territory, having been organized by the first legislature, which assembled in 1864. Its original boundaries included all that vast region south of the Gila, and east of the line of $113^{\circ} 20'$, west longitude from Greenwich, the larger portion of the Gadsden purchase. Since then the whole of Cochise county, and portions of Pinal and Graham have been taken from Pima. But it is still a good-sized domain, being about 180 miles in length from east to west, and averaging over fifty-five miles in width, from north to south, containing an area of something like 10,500 square miles. The county is bordered on the north by Maricopa and Pinal, on the east by Cochise, on the south by Sonora and on the west by Yuma county.

The western portion of Pima, bordering the line of Sonora and extending along the Gulf of California, is a series of wide rolling plains, with detached mountains and isolated peaks scattered over its surface. These mountains are rocky and rugged; the plains are covered with a sparse growth of grass and shrubs, and in some places with mesquite wood. Water is generally scarce in this uninviting region; and did not every mountain, and peak, and butte, contain rich deposits of the precious metals, there would be few attractions for the white man in this portion of Arizona. South of Tucson the country is made up of grassy plains, rolling hills and lofty mountains. East to the line of Cochise, it is of a similar character, while to the north the dry

plains are crossed by the massive chain of the Santa Catalinas. South and east the county is crossed by the Santa Rita, the Patagonia, the Whetstone, and the Atascoso ranges. The Santa Cruz flows through the county from its source in the Patagonia range to the boundary of Maricopa, and is the only running stream of any consequence in Pima.

The history of Pima county is the history of Arizona up to its organization as a Territory in 1863. Its early settlers had more than their share of the hardships, dangers and vicissitudes which were the lot of old Arizonans. For years after its acquisition from Mexico, it was practically without any government, the only semblance of authority being on the Rio Grande, over 300 miles away. Its valleys and mountains have been moistened by the blood of many an adventurous pioneer, and for years its advancement was retarded by a handful of red demons. But Pima has passed through those dark and early days, and stands in the bright sunshine of progress and prosperity. The railroads, already in operation, have greatly assisted in the development of her grand mining and grazing resources, and those projected will do much more. Her condition is a prosperous one, and immigration and capital are every day making it more so. The total valuation of property in this county is \$4,903,362; total indebtedness, \$530,000; rate of taxation, \$2.90 on each \$100. The population of the county, according to the census of 1882, was 17,427.

Tucson, the oldest and largest city in the Territory, is situated on a gently sloping *mesa*, on the right bank of the Santa Cruz, about two hundred and fifty miles east of the Colorado river, and three hundred miles north of Guaymas, on the California gulf. The situation is a commanding one. North and west, the wide plain is overlooked by the massive chain of the Santa Catalinas, while to the south the peaks of the Santa Ritas loom up dim and shadowy through the purple haze. To the east, the low and irregular range of the Sierratas borders the river valley and overlooks the town. On all sides the view is bounded by lofty and rugged mountains, and in the center of the wide plain the old town sits like a relic of the past which has been rudely awakened from the slumber of centuries by the rush and roar of modern civilization. Tucson is said to be a Pima word. It is pronounced Chook-son, by that people, and means "Black creek." Its early history is involved in obscurity, but it is known that an Indian *rancheria* stood here, before the Spaniards established a military station, to protect the Mission of San Xavier. This was in 1694, so that the history of the town may be said to date from that time. During the long years of Spanish and Mexican rule, and up to the breaking out of the California gold fever, Tucson was an insignificant village. The rush of adventurers to the new Eldorado, infused a little life into the sleepy old place, and it began slowly to improve, until the building of the S. P. R. R.

Since then, Tucson has made rapid strides in the path of progress and prosperity. The old landmarks are gradually disappearing, and the spirit of improvement and enterprise is seen in the many fine public and private residences which are visible on every side. The old and the new civilization have here met, and the town is in that transitory condition, where the one-story, flat-roofed adobes and the narrow, crooked streets are giving way to handsome structures and broad, roomy thoroughfares. But it yet retains many of the peculiar features of a Spanish-American town, and the division known as the *Barrio Libre*, with its tortuous lanes and alleys, its uninviting adobes, with their cool, roomy courtyards in the interior, its motley population of Mexicans and Indians, and the mellifluous chatter of *la lengua Castellana*, looks like a bit of old Mexico transplanted to the Northern Republic.

Several handsome public buildings and many attractive private residences have been erected within the past three years, and many more are in course of construction. The county court-house is an imposing structure of brick, faced with stone and surmounted by a handsome tower. Its cost was \$75,000. The Catholic cathedral is a large building, ornamented with a handsome façade and lofty spire. It is built of brick and stone. The Congregationalists have a commodious place of worship, the Methodists have a neat, brick church. The Presbyterian church is a tasteful building, and the Baptists have also a creditable place of worship. Tucson contains the largest mercantile houses in the Territory. Some of them carry immense stocks of goods, and do a heavy trade with Sonora and Northern Mexico. Water is brought to the city in iron pipes from a point on the Santa Cruz, seven miles south. The streets, stores and private residences are well-lighted with gas. The electric light has lately been introduced, and the mast from the summit of the court-house tower casts a brilliant light over the city. Herdic coaches traverse the city in all directions, and are a great convenience to the public. A handsome opera-house has been erected near the railroad depot, and two variety entertainments are always open, and well patronized.

The secret societies are in strong force, and all appear to be in a flourishing condition. The following orders are represented: Arizona Commandery No. 1, Knights Templar; Tucson Chapter No. 2, Royal Arch Masons; Tucson Lodge No. 4, Free and Accepted Masons; Santa Rita Lodge of Perfection, No. 1, Scottish Rite, F. & A. M.; Tucson Lodge No. 3, Knights of Pythias; Arizona Lodge No. 1, Ancient Order of United Workmen; Arizona Legion No. 1, Select Knights, A. O. U. W.; Pima Lodge No. 3, Independent Order of Odd Fellows; Aztec Lodge No. 1, American Legion of Honor; Tucson Lodge No. 4, Independent Order of Good Templars; Arizona Lodge No. 337, I. O. B. B.; Division No. 28, Brotherhood of Locomotive Engineers; Tucson

Typographical Union, No. 210. A public library has been established, and is under the control of a Board of Trustees selected by the City Council.

The educational advantages of the city are excellent. The public school has been graded, and a corps of competent teachers are employed. A handsome and commodious high school is now in course of construction on Military plaza. It will be ready for occupancy by the first of December and will cost \$50,000. Every branch of business is represented in Tucson. There are two flouring mills which furnish an excellent article from Arizona wheat. Two breweries, manufacture large quantities of home-made "lager," a favorite beverage with the thirsty Tucsonites during the summer months. While inclined to be a trifle hot for about three months in the year, the climate of Tucson from the first of September to the middle of May, is as near perfection as can be found anywhere. Although the thermometer sometimes reaches 110° during the heated term, yet so pure and dry is the atmosphere that a person feels more comfortable than he would in the eastern cities with the mercury at 80°. Sunstrokes are unknown and no injurious effects are occasioned by the heat of the summer months.

The city is steadily advancing in wealth, population and business. Real estate commands a good price, while choice residence lots bring as high as \$500—fifty feet front. The adobe, or sun-dried brick, is peculiarly adapted to this climate, and when properly finished and plastered, makes very handsome buildings. Brick of a good quality is made here, and there are many attractive residences of wood. A gray, porous rock of volcanic origin, is found near the city, and will eventually come into general use for the construction of public and private edifices. The new Catholic church will be built of this material, and when finished will be an ornament to the city. Large smelting works will soon be erected here which will purchase ores from the surrounding districts, and will not alone benefit the town but the mining interests of the county.

There are many pleasant drives in the neighborhood of Tucson. The old church of San Xavier is only nine miles up the Santa Cruz, and is a favorite resort of tourists. Fort Lowell, at the base of the lofty Santa Catalinas, is seven miles away, over a hard, smooth road. Opposite the city the valley of the Santa Cruz presents a beautiful appearance with its green fields and groves of cottonwoods. Four newspapers are published in the city. The *Star* and the *Citizen* are both dailies, and in their appearance and make-up will compare with any south of San Francisco. The *Index* is a weekly, devoted to the mining and other resources of the Territory, while *El Fronterizo* supplies the Spanish-speaking population with the current news once a week. The population is about 10,000.

Situated on the main highway between the east and the west,

with one transcontinental railway passing through it, and with branches projected, and in course of construction to the rich mineral and agricultural regions north, south, and west, Tucson has every reason to feel secure in its brilliant future. It must always be the center of trade for an extensive country. Its merchants and property-owners are showing their faith in its future by the many improvements which are being made on every side. One of the oldest towns in the Union, it has awakened from the lethargy of centuries, and entered on a new career of prosperity.

The county of Yavapai occupies the greater part of the Colorado plateau, and is the largest political division of Arizona, containing an area of 30,015 square miles, or more than one-fourth of the entire Territory. Yavapai was one of the four counties organized at the first session of the legislature in 1864. Originally it included the whole of Apache and portions of Maricopa and Gila. It is bounded on the north by Utah, on the east by Apache county, on the south by Maricopa and Gila counties, and on the west by Mohave. Its physical features may be described as an immense table-land elevated from 4 to 7,000 feet above the sea-level, and crossed in all directions by lofty mountains, adorned by beautiful valleys and grassy plains, and seamed and riven by deep cañons and rocky gorges. The San Francisco peak lifts its snow-clad crest toward the clouds near the eastern line of the county; the Bill Williams range stretch across it near the center; while the Sierra Prieta, the Black Hills, and the Bradshaws crown its south and southeastern border. These mountains are well wooded, and those south of the thirty-fifth parallel are rich in minerals of every variety.

The county is watered by the Verde, Little Colorado, Hassayampa, Agua Fria, Kirkland Creek, Santa Maria and many other small streams, while beautiful, clear springs are found in the mountains, valleys and glens. The climate is cool and bracing during the winter months, and in summer is one of the most delightful in the West. Of that portion of the county north of the Colorado, but little is known, but it is understood to be a continuation of the plateau, crossed by rugged mountains, riven by deep cañons and gorges, and generally destitute of water.

The first permanent settlements were made in Yavapai, in 1863. A party of prospectors from New Mexico under the leadership of old Joe Walker, discovered gold in paying quantities on the Hassayampa and Lynx creek. About the same time, a band of treasure-hunters from California, made the wonderful discovery at Antelope peak. Soon after these discoveries the Territorial government was established at Fort Whipple, and a rush of adventurers came from the east and the west.

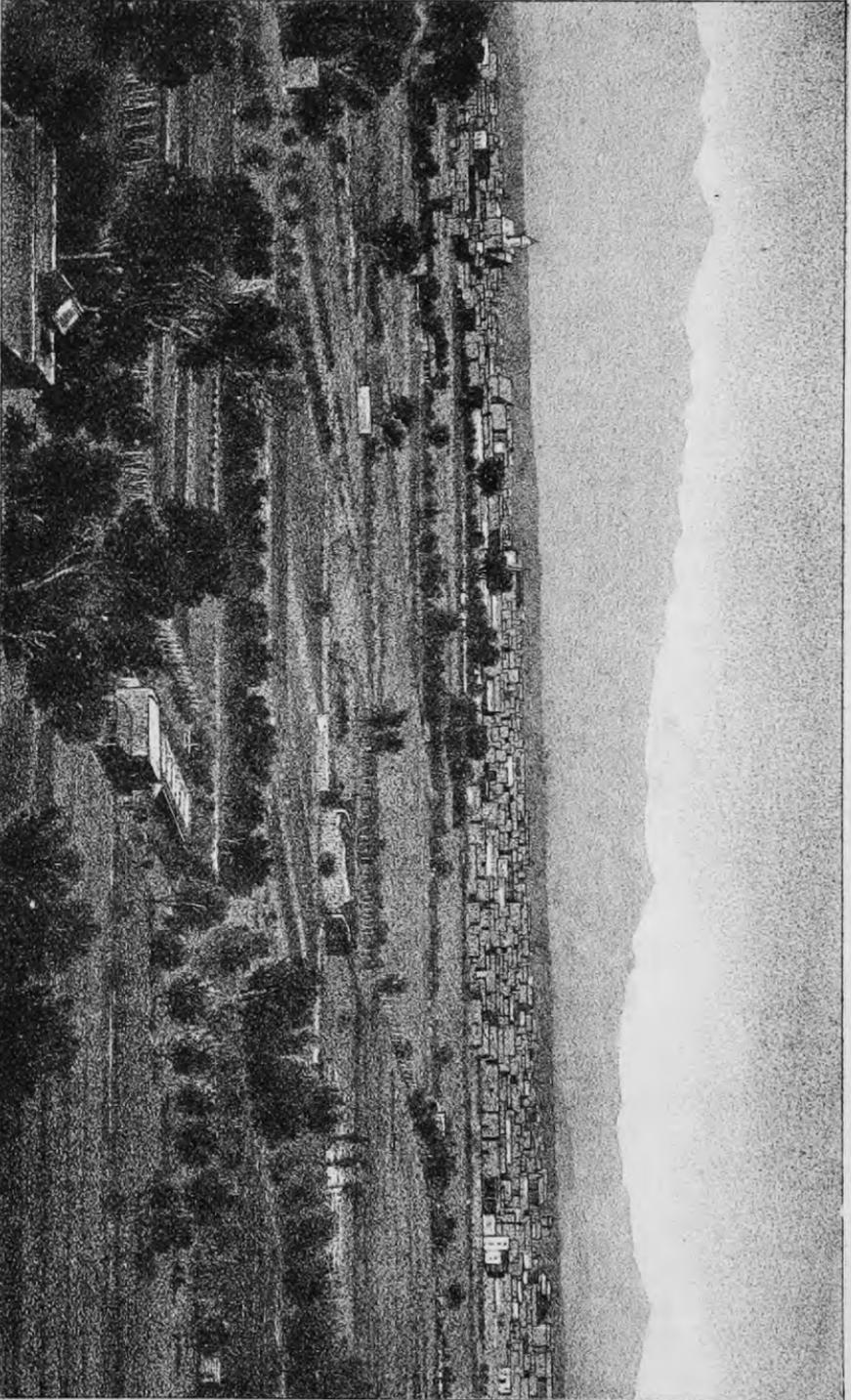
Valuable mineral discoveries were found in nearly every mountain range, ranches were taken up, quartz and saw mills were brought in and many flourishing camps were established.

But here, as elsewhere, the hostile Apache stood in the path of progress, and persistently opposed the advance of the whites. Population slowly increased until 1874, when the savages were removed to a reservation. Since then Yavapai has made rapid strides in wealth, population, and material development. Many valuable mines have been opened, thousands of cattle and sheep have been driven in, and the completion of the Atlantic and Pacific railroad has opened to the world her vast and varied resources. The population according to the census of 1882, was 27,680. The total value of taxable property is \$6,000,000; indebtedness, \$184,000; rate of taxation, \$3.25 on the \$100.

Prescott, the Territorial capital and the largest town in Yavapai county, is situated on Granite creek, in a beautiful glade among the foot-hills of the Sierra Prieta range. The town stands on a sloping bench above the creek, thus giving it excellent drainage. It is walled in on three sides by mountain ranges. To the west and south the pine-clad Prieta's bound the horizon; while to the north the massive Granite mountain, and its outlying spurs, shut in the view. To the east, rolling, grassy hills stretch away to the Black Mountains, while in the distance, the San Francisco peak, like some ghostly spectre, rears aloft its snow-capped head. The view is enchanting, and the situation of the town among the most charming to be met with in the Territory. It is in latitude $34^{\circ} 30'$, and in longitude $112^{\circ} 30'$, west from Greenwich, and is about 5,600 feet above sea-level.

The climate is delightful, and the cool, bracing air, laden with the odor of the pine woods, and the clear cold water make it a most desirable place of residence. In the center of the town is a large plaza where stands the county court-house. It is a handsome structure of brick and stone, two stories in height, with a mansard roof crowned by a handsome tower from which the "town clock" sends forth the hour, day and night. The streets are laid out with the cardinal points of the compass. The principal business is done around the plaza. The houses are principally of wood and brick, and the place has the appearance of a homelike eastern town. On the hills surrounding the plaza, many neat and comfortable homes have been built, which command a charming view of the town and surrounding country. Prescott has some large and handsome mercantile houses, built of brick, which carry heavy stocks and do an extensive trade with the surrounding country. There is also a well-arranged theatre and a public hall, where amateur theatricals are frequently given.

A public school-house, built of brick, and two stories in height, is one of the ornaments of the town, and would be a credit to any eastern city of ten times the population. There is also a bank, a handsome brick structure two stories high, a good hotel, a fine hall for the use of secret societies, two breweries, a planing mill, some eighteen stores, blacksmith and wagon shops, and



SEE PAGE 44

CITY OF TUCSON.

BANKERS' UNION - 3.5

numerous saloons. The Masons, the Odd Fellows, the Knights of Pythias, and other secret societies have flourishing lodges here. Three daily papers are published in the town, the *Arizona Miner*, the *Journal*, and the *Courier*, all devoted and untiring in their efforts to give publicity to the vast resources of northern Arizona. The *Miner* is the pioneer newspaper of the Territory, having been started in 1864. The Methodists, Catholics, Congregationalists, Baptists and Presbyterians have handsome houses of worship. Prescott is fifty-two miles south of the Atlantic and Pacific Railroad, and is the center of an extensive mineral, pastoral, and agricultural region. With a branch to the main line, which is projected and will soon be built, the trade of the town will be greatly increased and a fresh impetus given to all branches of business.

Besides being the seat of the Territorial government, Prescott also enjoys the distinction of having the headquarters of the military department of Arizona located in its immediate vicinity. Just one mile from the court-house, Fort Whipple stands on the rolling hills that overlook Granite creek. The buildings are of wood, but tastefully and substantially constructed. Here are located the residences of the general commanding, and the different staff officers, together with the commissary, quartermaster and other storehouses. The town and fort are almost united, the buildings in the former stretching up to the line of the reservation. With its charming situation, superb climate, and the vast undeveloped resources which lie all around it, Prescott is always destined to be a place of importance. Its present population is about 2,000.

Cochise county was organized in 1881, from a portion of Pima. It occupies the extreme southeastern corner of the Territory, and is bounded on the south by Sonora, on the east by New Mexico, on the north by Graham, and on the west by Pima county. Its area is 5,925 square miles, and its topography is made up of lofty mountains, wide valleys and grassy plains. The Chiricahua range crosses the eastern part of the county, while the Huachuca, the Whetstone, the Mule and the Dragoon ranges run through it on the west. The mountains are well timbered, while the valleys and foot-hills are covered with fine grasses. The San Pedro is the only running stream in Cochise. It flows through the county from the line of Sonora to the boundary of Pinal. The wonderful mineral wealth of its mountains and *mesas* have given Cochise a national reputation, while the nutritious character of its grasses have drawn within its borders thousands of cattle. One of the smallest, it is one of the richest counties in the Territory, and there are few regions that can show so many varied natural resources.

Although one of the newest of Arizona's political divisions, it has made history at a rapid rate, and can show a record of stirring events second to none. The Dragoon range, north of

Tombstone, was for years the headquarters of the famous Apache chief (who has given his name to the county) and his bloodthirsty band of Chiricahuas. From his eyrie among the crags of the Dragoon Peak, this copper-colored bandit eagerly watched for the coming of his unsuspecting victim on the plains below. Every mile of the road through these rugged mountains has drunk the blood of slaughtered men, women and children. No portion of the Territory has suffered so much from Indian deviltry, and nearly every mountain pass, trail and watering-place, has been the scene of massacre and murder.

After the removal of the Indians, the hardy prospector was not long in putting in an appearance, and the marvelous discovery of Tombstone was the result of his patient labors. The rush which followed brought with it a great many rough characters, and for a time their lawless acts gave Cochise an unenviable reputation. Its position on the border, has made of it a kind of debatable land, where the outlaws of both nations, for a time held high carnival. But, happily, those things are over. The Mexican banditti are either killed or captured, the cowboy rides no more, and peace blesses the border-land.

Cochise has entered on an era of prosperity which promises to be lasting. Her wonderful mines are sending forth their treasures, her hills and valleys are being covered with cattle, railroads are penetrating in every direction, and immigration is rapidly pouring in. According to the last census, the population of the county was 9,640. The total valuation of taxable property is \$4,500,000; total indebtedness, \$200,000; rate of taxation, three cents on each \$100.

Tombstone, the leading town of Cochise county, and the mineral metropolis of Arizona, is built on an elevated *mesa* where the northern spurs of the Mule mountains lose themselves in the rolling plains that stretch towards the Dragoons, sixteen miles away. The city has a healthy and commanding situation, with excellent facilities for drainage. To the north the rocky peaks of the Dragoons raise their jagged heads; to the west the rolling grassy plain, which stretches to the San Pedro, is bounded by the Whetstone and the dark chain of the Huachucas. Behind the town rises a series of rolling hills, dotted with hoisting works and scarred by cuts and tunnels, while to the east the rolling plain is bounded by the horizon. Tombstone is in latitude 31° 30' north, and in longitude 110° west of Greenwich. It is nine miles east of Contention station, on the San Pedro river, and about twenty-eight miles south of Benson, on the Southern Pacific railway.

The first house was erected in April, 1879, and now there is here a live, active, energetic population of 6,000. A fire in June, 1881, reduced nearly half the city to ashes; but it had scarcely been rebuilt, when, in May, 1882, a more disastrous visitation destroyed nearly all the business portion, and left the city a heap

of blackened walls and smouldering ruins. But, nothing daunted by these reverses, the indomitable energy of the people asserted itself, and to-day not a vestige of the burnt district is to be seen. Since those fires the buildings erected have been nearly all of adobe, and, except in the suburbs, the city is mostly built of that material. The streets are wide, hard and smooth, and cross each other at right angles. The houses are nearly all of one story, with roomy arcades shading the sidewalks. In the evening, when the hardy miner is off "shift," when the streets are alive with vehicles, when the saloons and stores are brilliantly lighted, and when the sidewalks are thronged by the ever-moving crowd, Tombstone has the appearance of the liveliest city in the Territory.

There are some commodious business houses, and many comfortable private residences. There is a large and well-arranged theatre, two hotels, two banks, and four churches—Methodist, Catholic, Episcopal and Presbyterian. The Methodist place of worship is a tasteful building of sun-dried brick. There is a public school, which is well attended, and a private academy which receives liberal patronage. The new county court-house is a handsome structure of brick, the foundation being of cut stone, and the corners being faced with the same material. It is two stories in height, with an ornamental tower, and cost \$50,000. The new city hall is a substantial and roomy building of brick and stone. In it are located the offices of the various city officials.

Tombstone can boast the finest water supply in the Territory, and equal to any on the coast. It is brought from the Huachuca mountains, some twenty-one miles distant. A strong dam is built in one of the canyons, which forms a large reservoir. The water is conveyed from this source in iron pipes down the grassy hills, across the San Pedro, and over the rolling country to another large reservoir on the summit of a hill, about one hundred and fifty feet above the city. From this point mains are laid through all the principal streets, and pipes carry the supply to every house. Fire-plugs are at every corner; a well-appointed and efficient department is always ready, and no fire can ever again do much damage in Tombstone. The source of supply is about three hundred and fifty feet above the city, and the force of the water is such, that a stream through an ordinary nozzle will bore a hole through a two foot adobe wall in five minutes. The water is clear, pure and cold.

The Masons, Odd Fellows, Knights of Pythias, Red Men, Grand Army of the Republic, Good Templars, and other secret and benevolent orders have flourishing lodges here. Two daily newspapers are published, the *Epitaph* and the *Republican*. They are both ably conducted, and have done much to advertise the grand resources of Cochise county.

Tombstone is the center of an immense area of rich mineral territory. It has a large and steadily-growing trade with Sonora, and the building of the line from Deming to Fairbanks will place it on the highway between the California Gulf and the Atlantic Ocean. It is a typical mining camp, active, energetic and exciting. Its growth has been remarkable, and its bullion yield has astonished the world. Its situation is admirable, and with through rail connection with Sonora it should become a large supply point for that region. That it will continue for many years to yield those treasures which underlie it, there is hardly a doubt; and the shrill shriek of the whistle, and the dull concussion from the blasts in the tunnels and stopes beneath its streets, will continue to astonish and bewilder the "tender-foot" visitor for many a year to come.

Benson is situated about half a mile from the San Pedro and at the junction of the Arizona and New Mexican railway with the Southern Pacific. It is a railroad town, built along the south side of the track of the Southern Pacific for over a quarter of a mile, and containing several stores, saloons, restaurants, and other business houses. Before the building of the Sonora branch it was the shipping point for Tombstone, and done a large business with that lively camp. Here are located the works of the "Benson Smelting and Refining Co.," who have erected large and substantial buildings and are doing a prosperous business. The company have two water-jacket furnaces with a daily capacity of seventy-five tons, and are prepared to work all varieties of gold, silver, copper, and lead ores. The works are connected by side tracks with both railroads, and bring ores from different points in the Territory, as well as from Sonora and New Mexico. Fine fire-clay is found only six miles from the works, and coke is shipped from Wales, and Trinidad, Colorado. Heretofore the bullion produced has been shipped with its base surroundings, but refining works are now in course of erection, and the product will be separated on the ground. About sixty men are employed and the yield since the first of the present year has been over 1,500 tons. The population of Benson is about 600. A weekly newspaper called the *Herald* has lately been started here, and is doing effective work to advance the interests of the town.

Bisbee is situated in a narrow gorge of the Mule mountains, and is a live, bustling mining camp, with a steady growth. The town is made up of one narrow street, above which the mountains on the south side tower to the height of over 1,000 feet, covered to their summits with a heavy growth of black and white oak, cedar and juniper. Bisbee has three stores, several restaurants, saloons, and the usual appendages of a live mining camp. The reduction works of the Copper Queen company are situated here, and rich deposits of silver and copper surround the town in every direction. The Queen Company have opened a

fine road over the mountains to Tombstone, thirty miles distant, and also to Fairbanks, on the Arizona and New Mexico railway, over which they ship their bullion and receive their supplies. Bisbee is destined to become an important and populous camp. The mines that surround it are large and rich, it has every facility for ore reduction, and is blessed with a charming situation and a delightful climate. Present population about 500.

Charleston, another busy town of Cochise, is situated on the San Pedro river, about nine miles west of Tombstone. The reduction works of the Tombstone Milling and Mining company are situated here. The town has a pleasant location in the river bottom, and has four stores, a hotel, restaurants, saloons, etc. It lies on the main highway to Sonora, and does a thriving trade with that State. The houses are mostly one-story adobes, and the weather during the summer months is a trifle sultry. The population is put at 400.

Maricopa county embraces the extensive valleys of the Salt and Gila rivers, and occupies nearly a central situation in the Territory. The western portion of the county is made up of wide plains, crossed by detached mountains, and covered by coarse grasses, with grease wood and *palo verde* growing in many places. The northern and eastern divisions are crossed by rugged mountains, and intersected by spurs from the Mazatzal, the Verde, and the Bradshaw ranges. The central portion is composed of rich and fertile valleys, bordering the Salt and the Gila. Maricopa is bounded on the north by Yavapai, on the east by Gila and Pinal, on the south by Pinal and Pima, and on the west by Yuma. It embraces an area of 9,354 square miles, and had a population in 1882, of 6,408.

The history of Maricopa county dates from 1868, when the first settlements were made in the Salt river valley, at that time a barren and uninviting waste. Since then its annals have been quiet and uneventful. Slowly but surely it has advanced on the road of prosperity, and its growth has demonstrated to the world the grand agricultural possibilities of Arizona.

For years its early pioneers battled bravely against obstacles which would have discouraged less determined men. But they held on and the fruits of their toils and privations is seen to-day in the beautiful valley, which will ever remain a monument to their enterprise and foresight. Besides its grand agricultural resources, Maricopa contains rich mineral deposits of gold, silver and copper, many of which are being worked successfully. The county is one of the most prosperous in the Territory. Population is steadily growing, and property values increasing. Most of the settlers who are finding their way to this region, come with the intention of making permanent homes. There is none of the feverish fluctuations seen in a mining camp. While, perhaps, business is not so active, it is more steady and lasting.

There is no county in the Territory with a brighter future. Its prosperity rests on that solid foundation, which, in all ages, has been the corner-stone of wealth and power—land. The total valuation of taxable property in the county, is \$2,000,000; total indebtedness, \$50,000; rate of taxation, three dollars on each one hundred dollars of valuation.

Phoenix, the county seat of Maricopa county, is situated near the center of the great Salt River Valley, about two miles north of the stream and twenty-eight miles north of Maricopa station, on the Southern Pacific railroad. Approaching the place over the dry and dreary wastes of level plain which surround the town beyond the line of vegetation, the eye is relieved by the masses of green, and the refreshing shade in which it sits embowered. So dense is the foliage that the houses are almost hidden from view, and the traveler does not realize that he is in the heart of the town until the coach pulls up before the hotel. The streets are broad and level, shaded on either side by rows of cottonwood and willow, and cooled by streams which give life and verdure to trees and shrubbery. The houses are built of adobe, brick and wood. The former material predominates, and is best adapted to this climate. The traffic of the town is principally confined to one main street, which shows many large and handsome business houses. Several of these are of brick, two stories in height, and present a solid and attractive appearance. The Catholics and the Methodists have erected churches, and the Baptists are also represented by a neat place of worship.

The public school-house is one of the finest in the Territory. It is of brick, two stories in height, surrounded by beautiful playgrounds, shaded by a dense cottonwood grove. The new county court-house, now in course of erection, will be one of the handsomest buildings in the Territory. It will be of brick, with a stone foundation, and is modeled after the Cochise county court-house. Two plazas have been laid out in the town, and present a charming appearance, with their rows of cooling cottonwoods and shady walks. In one of these plazas the new building will stand.

The secret societies are well represented in Phoenix. The Odd Fellows, Masons, Red Men, United Order of Workingmen, Knights of Pythias and Good Templars have flourishing organizations here. Two newspapers, the *Gazette* and the *Herald*, are published daily and weekly. They are well-conducted, newsy journals, and able exponents of the grand resources of the Salt River Valley. There is a flouring-mill, with a capacity of 125 barrels in twenty-four hours. It produces an excellent quality of flour from Arizona wheat, and turned out in 1882 2,200,000 pounds. The present year its product is expected to reach 4,000,000 pounds.

The town does a large trade with the surrounding valley, and has also a steadily increasing business with the adjacent mining

camps, north, east and west, and for which it is the natural supply point. Many handsome structures are being erected, and many permanent improvements made. Real estate within the city limits is rapidly advancing in price, and desirable lots on the business streets command fancy prices. Within the past year the town has taken a fresh start, and is growing rapidly. Confidence in its brilliant future is being strengthened daily by the investment of capital and the improvements going on in every direction.

Phoenix contains the most beautiful homes of any city or town in the Territory; surrounded by shady groves, ornamented with choice shrubbery and inviting grassy lawns, and embowered in a wealth of clinging vines, evergreens, and rose-bushes. From shady arbor and porch hang bunches of luscious grapes, while the orchard trees are bending beneath their loads of peach, pear, apple, pomiegranate, fig, plum and fifty other varieties. The ripple of laughing waters is heard on all sides, and the air is heavy with the perfume from flower, and tree, and shrub. The stranger, who had imagined Arizona a desert waste, while strolling by the pleasant homes of Phoenix with the beams of a summer moon glinting with its silver sheen the murmuring *acequias*, and casting a mellow radiance over grove and garden and orchard, will swear that no more charming scene of quiet beauty has rarely met his eye in older and more populous lands.

The population of Phoenix is put at 2,000, but it is rapidly increasing, and it is yet destined to be second to no town in Arizona. Situated near the center of the Territory, and in the midst of its finest body of farming land; with rich mines in the mountain ranges which surround it, its situation as a trade center is unsurpassed by any city within its borders. A branch railroad to the Southern Pacific will soon open a larger and more remunerative market for its products, and give a fresh impetus to its advancement. Rich in abundance of water; rich in a soil of wonderful fertility; rich in a superb climate; rich in fine farms, beautiful gardens, happy homes, and all the elements of permanent prosperity, Phoenix may well rest secure in its brilliant future.

Tempe, situated about nine miles up the river from Phoenix, is a beautiful village, which is fast assuming the proportions of a good-sized town. It contains several stores, a lumber yard, blacksmith's shop, and saloons. A large flouring mill, driven by water power, is located here, and the village has grown up around it. This mill manufactured during the year 1882, 2,750,000 pounds of flour, 50,000 pounds of cracked wheat, 50,000 pounds of corn meal, and 1,000,000 pounds of cracked barley. The village is built at the foot of a rocky bluff which overlooks the river. The streets are shaded with trees and cooled by running water, and the valley, in its charming beauty,

has not been inaptly named after that lovely Grecian vale, famous in song and story.

Yuma county comprises the southwestern portion of the Territory, and is bounded on the west by the Colorado river, on the north by Mohave county, on the east by Maricopa and Pima, and on the south by Sonora. It is one of the four counties into which the first legislature divided the Territory. Its area is 10,138 square miles, and its population in 1882, 3,922.

That portion of the county lying along the Colorado is traversed from north to south by parallel ranges of rugged mountains, almost devoid of vegetation but rich in gold, silver and copper. The eastern part is a high table-land, covered with a fine growth of grass and crossed in every direction by detached spurs, rocky and barren, and destitute of wood and water. The Gila river flows through the county for nearly 100 miles, forming, in its course, a rich and fertile valley. The Colorado washes its western boundary, and has large bodies of arable lands, which will be described in another place. Yuma county has rich mines and large tracts of agricultural land. Besides the railroad, it has the advantages of a navigable stream, which must ultimately develop and bring into prominence its great natural resources. The total valuation of the county is \$805,000; total indebtedness, \$80,000.

Yuma, the county seat, is situated on the Colorado, just below the junction of the Gila. The old town, and the fort on the other side of the river, from which it takes its name, have had rather a stirring history. In 1771, the Spanish fathers established a mission here which was destroyed by the Indians a few years later. The first permanent settlement on the site where Yuma now stands, was made by a Dr. Lincoln and others, in 1849. They established a ferry to accommodate the thousands who flocked to the gold regions of California, over the southern route. The Indians who at first professed peace, soon rose against the strangers and only three of the whites escaped with their lives. In 1850 the ferry was again started by Don Diego Jaeger, who still resides on a ranch near the town and is as full of life and energy as he was a quarter of a century ago. Jaeger's party was attacked by the Indians in 1851, compelled to retreat to California, and the enterprise was again abandoned.

In 1852, Colonels Heintzelman and Stoneman, both of whom afterwards rose to high distinction in the civil war—the last-named being now Governor of California—marched across the Colorado desert with a detachment of troops and established Fort Yuma. The ferry was again started and maintained until the Southern Pacific railroad threw a bridge over the Colorado, and forever put an end to its usefulness. In 1864, Yuma was made the distributing point for all the military posts in the Territory, and advanced rapidly in population and business. It was also the shipping point for Tucson and all the camps and settle-

ments in Southern Arizona. It was then a live, bustling frontier town, where business was prosperous, gambling and drinking the most popular avocations, and where "a man for breakfast," was looked upon as a very ordinary incident.

The opening of the railroad destroyed Yuma's forwarding business, but it has yet quite a brisk trade with the surrounding country. It has several stores with large stocks of goods, a hotel, (built by the railroad company), a large wagon manufactory which turns out vehicles especially adapted to this dry climate, saloons, restaurants, etc. The Sisters of Charity maintain a school here which is largely attended; there is also a public school open all the year. On a rocky bluff between the town and the river, stands the Territorial prison. It is a secure and roomy structure built of stone quarried from the bluff, and dressed and laid by prison labor. The present number in confinement is about 100. The railroad company have repair shops at Yuma and give employment to a large number of men. The *Arizona Sentinel*, a weekly newspaper, is published here and is unceasing in its efforts to bring to notice the many resources and advantages of Yuma county. The population of the town is about 1,000.

Many a threadbare joke has been perpetrated at the expense of Yuma's climate, and strangers approach it with fear and trembling in the summer season. But even then no injurious effects are experienced. The air is wonderfully pure, dry and elastic, and has none of the depressing effects seen in moist, humid atmospheres. In winter, the climate is perfection itself, and no place on the Pacific is more favorable to the cure of pulmonary diseases than Yuma. Its qualities, in this respect, only require to be known to make it one of the most popular sanitariums in the United States. The population is about 1,000.

The old fort, over which, for nearly a quarter of a century, floated the national emblem, has lately been abandoned, and the ancient landmark, in a few years, will succumb to neglect and inevitable decay. Around it cluster many interesting associations, but the advent of the iron-rail put a period to its usefulness, and the march of civilization has flanked this old frontier fortress of the southwest.

Pinal is one of the central tier of counties which embrace the largest portion of the agricultural lands in the Territory. It is bounded on the south by Pima, on the west by Maricopa, on the north by Maricopa and Gila, and on the east by Graham. South of the Gila, it is a country of open, grassy plains, dotted with clumps of barren mountains. To the north and east the Pinal, the Tortilla, the Mescal, and the Superstition, impign on the rolling plains and valleys. The Gila flows through the county from east to west, and its southeastern end is watered by the San Pedro. Its total area is 5,210 square miles, and its population 3,362. Although one of the smallest of the counties,

Pinal is one of the richest in the Territory. It possesses large and rich tracts of agricultural land, excellent grazing grounds, and some of the most valuable mines yet discovered in Arizona. Besides its ledges of gold, silver and copper, large deposits of coal have been found within its borders, which will, no doubt, yet prove valuable.

The county is in a prosperous condition, and is steadily growing in wealth and population. Its total tax valuation is \$2,000,000; its total indebtedness only \$11,000; and its rate of taxation \$2.50 on each \$100 of taxable property. Pinal county was organized in 1871, from a portion of Pima. Its growth was slow, and retarded by Indian depredations until the discovery of the wonderful Silver King demonstrated its great mineral wealth. Since then the county has advanced steadily, and, to-day, offers inducements to the immigrant not surpassed by any county in Arizona.

Florence, the principal town of Pinal, stands in the valley of the Gila and about half a mile from the stream. It is twenty-five miles northeast of Casa Grande station, on the Southern Pacific Railroad, and eighty miles north of Tucson. Like Phoenix, it sits embowered in groves of cottonwoods, and streams of clear water run through every street. The valley surrounding the town is under a high state of cultivation, and fields of waving grain and *alfalfa*, and orchards loaded down with delicious fruit, meet the eye in every direction. The place has a delightful situation, and with its pleasant homes surrounded by trees and shrubbery, its pure water and healthy climate, it is one of the most attractive spots in the Territory. The buildings are principally of adobe and generally one story high. There are several large stores with stocks of general merchandise, two hotels, two public schools, a flouring mill, brewery, restaurants, saloons, blacksmith shops and all the other accessories of a frontier town.

The Catholics have a handsome church, built of adobe. The county court-house is also of the same material, and is a plain but commodious building. The town was laid out in 1868, and has a brisk trade with the surrounding valley and the different mining camps. It has a population of nearly 1,200. The *Territorial Enterprise* is published here. It is one of the brightest papers in the Territory, and has done good service in bringing to notice the resources of its town and county. Florence is about 500 feet above sea-level, with a climate during the summer months that will rival that of its famous namesake on the Arno. With its commanding situation and great natural advantages it is destined to grow and prosper. There is room for ten times the number of people in the valley which surrounds it, and as the rich land now lying idle is brought under cultivation Florence will become one of the leading towns of the Territory.

Pinal is next in importance to Florence. It is situated on

Queen creek, about thirty-five miles northeast of the latter town. Towering above the town on the west is the lofty Tordilla peak, an immense mass of basaltic rock. A picket post was maintained at this point for several years as a protection to the farmers of the Gila valley against the raids of the Pinal Apaches. The town is built of wood and stone, and presents a solid and attractive appearance. There are several stores with stocks of general merchandise, two hotels, one bank, built of stone, with restaurants, saloons, etc. There is a handsome Methodist church, and a public school, which is well attended. The Odd Fellows and Masons have flourishing organizations here. The *Pinal Drill* is published here once a week. It devotes special attention to the mining interests of the country, and has done much to make them known abroad.

The mill and reduction works of the Silver King Mining Co. are situated at this point, and the many mines which surround the town in all directions bring a prosperous trade. Population about 600. Silver King is the only other town of importance in Pinal county. It is built up around the famous mine from which it takes its name. It is a prosperous camp, with a population of about 400. It is five miles from Pinal, and has three stores, two hotels, and many saloons.

The county of Gila was formed from portions of Pima and Pinal by the legislature of 1881. It is the smallest county in the Territory—its area being only 3,400 square miles. It is bounded on the north by Yavapai, on the east by Graham and Apache, on the south by Pinal, and on the west by Pinal and Maricopa. It is a compact mineral county, crossed in all directions by detached mountain spurs, while its rolling uplands are covered by a fine growth of grass. The Pinal range, which crosses the county south and west, is heavily timbered, while the Sierra Ancha and the Mazatzal ranges, on the north, have a heavy growth of pine, oak, and juniper. The Salt river flows through the northern portion of the county, while the Gila washes its southern border. Every mountain and peak is rich in minerals, and fine stock ranges are found in every direction, but the largest and best portion of its farming lands are found within the San Carlos reservation. The population of the county, by the census of 1882, was 1,582. Its tax valuation is \$1,000,000; indebtedness, \$15,000; rate of taxation, \$2.90 on each \$100 of valuation.

The first permanent settlement in Gila county dates from the mineral discoveries in the Globe district, in the year 1876. These were among the richest ever made in the west, and created a sensation in mining circles all over the coast. Population increased at a rapid rate, and five years later the people demanded a separate county organization. The distance to a railroad has been a serious drawback to the development of Gila's resources, but that obstacle will soon be overcome, and the county placed in direct communication with the outer world. It has

great natural gifts in the way of mineral, timber and grass, and will eventually become one of the most populous and prosperous counties in the Territory.

Globe, the county seat of Gila, is a beautiful town, situated on Pinal creek, among the rolling, grassy foot-hills of the Pinal mountains. It is 120 miles northwest from the railroad station at Wilcox, and about ninety miles northeast of Florence. The town stretches along the narrow valley of the creek, while many private residences occupy charming situations on the smooth, grassy hills which rise on either side. The houses are built of wood, neatly painted, and present a very attractive appearance. The climate is delightful all the year, the water is pure, clear and cold, and Globe is one of the healthiest places in Arizona. There are twelve mercantile houses, two hotels, restaurants, saloons, lumber and feed yards, a brewery, blacksmith and wagon shops, and the other business establishments usually found in a mining camp. There is one bank, a public school, and a handsome Methodist church, built of wood, and a Baptist meeting house in course of construction. The town sprang into existence after the rich mineral discoveries in the vicinity, in 1876. It is the supply point for nearly the entire county, and its business men do a large and prosperous trade. The population is about 1,000. Globe has two weekly newspapers, the *Silver Belt*, and the *Chronicle*. Both are generously supported, and have done valuable work in calling attention to the varied resources of Gila county. With the building of the Mineral Belt railroad, Globe promises to become one of the most prosperous mining towns in the Territory. The Masons, Odd Fellows, and United Workmen have prosperous lodges here.

Graham county was organized in 1881, from portions of Pima and Apache. It embraces the rich agricultural lands of the upper Gila, and the extensive copper deposits of the San Francisco and its tributaries. The county has an area of 6,485 square miles, and a population of 4,229. It is bounded on the east by New Mexico; on the south by Cochise; on the west by Pinal and Gila; and on the north by Apache. The Galiuro, the Graham, and the Peloncillo mountains extend through the county south of the Gila, while the Sierra de Petahaya and the Sierra Natanes cross its surface north of that stream. The mountains are generally well wooded, and the rolling plains and valleys are covered with rich grasses, which support large herds of stock. The Gila river flows through the county from east to west, forming the Pueblo Viejo, one of the finest agricultural valleys in the Territory.

Graham has the three great elements which build up prosperous communities—mining, farming and grazing. It has an abundant water supply, rich soil, fine grasses and extensive mineral deposits. It has, besides, a perfect climate whose equable temperature brings health and strength every month

throughout the year. The county is in a prosperous condition. The total valuation of its taxable property is \$800,000; total indebtedness, \$15,000; rate of taxation, \$2.75 on the \$100. The population is rapidly increasing, and many families are seeking homes in the beautiful Pueblo Viejo, while large droves of cattle are being driven in from Texas and Colorado. Its vast mineral wealth has caused the investment of a large amount of capital, and, although one of the youngest, few counties in the Territory are making more rapid advancement.

Solomonville, the county seat of Graham, is situated near the center of the valley, and is surrounded by a rich, agricultural country. The location is a delightful one, with the valley spreading like a sea of verdure to the east, west and north, with the pine-clad Graham mountain uplifting its dark and precipitous front to the south and west, and with the circling hills of the Gila and Ash Peak ranges shutting in the view to the north and east. A county court-house is now in course of construction, and several business houses and private residences are also under way. There is a large general mercantile establishment, a hotel, blacksmith shop, saloons, etc. Surrounded by a rich, agricultural and grazing region, Solomonville will yet become one of the most beautiful and prosperous towns in the Territory. Present population, about 300.

Safford, the former county seat, is six miles down the valley from Solomonville. It is a pretty little village, surrounded by cultivated fields and orchards, and containing two stores, a hotel, flouring mill, and several neat private residences.

Clifton, the largest town in the county, is built in a narrow cañon on both sides of the San Francisco river, with towering cliffs of trachyte and conglomerate rock rising precipitously on either hand. The town has all the peculiar features of a new mining camp. The houses are built of adobe and wood, and are scattered along the river at the foot of the cliffs for over a half mile. Many of the inhabitants live in tents and canvas-covered shanties. The population is about 800, and rapidly increasing. There are half a dozen mercantile establishments, two hotels, saloons in plenty, restaurants, and all the other belongings of a young, prosperous and active mining town. The place is growing rapidly, and owing to the narrow limits of the building ground between the river and the rocky walls on either side, lots command a good price. The reduction works of the Arizona Copper Company are situated here, and employ a large number of men. The narrow-gauge railroad from Lordsburg has its terminus here. Despite its unfavorable situation, Clifton will grow and prosper, and for years to come be one of the liveliest towns in Arizona. The Clifton *Clarion* is published here every week. It is a newsy journal and an able exponent of the vast resources of the district.

Mohave county occupies the northwestern corner of the Ter-

ritory, and is one of the four original political divisions into which Arizona was divided. It is bounded on the west by the Colorado river, on the north Utah and Nevada, on the east by Yavapai, and on the south by Yuma. Its area is 12,000 square miles, and its population 1,910. Mohave is a land of rugged mountain ranges, and broad valleys covered with nutritious grasses. Four well-defined ridges, the Sacramento, the Cerbat, the Hualapai and the Cottonwood, traverse the county from north to south. The Hualapai and the Cottonwood have a fine growth of timber, while all of them are mineral-bearing.

Mohave county was organized in 1864, and has been the scene of active mining operations ever since. For years its only means of communication with the outer world was by the long, tedious, and uncertain route of the Colorado river, and as a consequence the development of its resources was slow. The building of the Atlantic and Pacific railroad has changed all this, and cheap freights and rapid communication will bring capital and population to Mohave.

Mineral Park, the county seat, is situated on an elevated bench on the western slope of the Cerbat range. It stands in an amphitheatre of rugged mountains, with the rocky cone of Sherum's Peak towering over all. It is 30 miles east of the Colorado and 130 miles northeast of Prescott. The houses are mostly of adobe. There are four stores, a hotel, restaurant, five saloons, blacksmith shops, etc. There is a commodious public school-house, which is well attended. The town is the supply point for numerous mining camps and cattle ranges. Its present population is about 400, which is being rapidly increased since the building of the railroad. The station nearest the town is Kingman, situated about 10 miles distant, in the Hualapai valley.

The last, but by no means the least important, of the ten counties of the Territory, is Apache. It was formed in 1879 from the eastern portion of Yavapai, and is the second largest county in the Territory, having an area of 20,940 square miles and a population of 6,816. It is bounded on the north by Colorado, on the east by New Mexico, on the south by Graham and Gila counties, and on the west by Yavapai. The county embraces the eastern portion of the great Colorado plateau, and its elevation above sea level is from four to seven thousand feet; some of its lofty peaks attain a height of over 11,000 feet. It is a well watered and timbered region, and its elevated table lands and valleys bear a fine growth of grass. North of the Little Colorado the country is made up of elevated *mesas*, isolated mountains and cañons worn deep into the earth by the floods of centuries. In the northern part of the county is that remarkable plateau known as the *Mesa la Vaca*, a smooth table-land raised nearly a thousand feet above the surrounding country. It is covered by a growth of fine grass, and by clumps of stunted pines and cedars. Here is the great coal region of Arizona, which extends

across the county and contains fuel enough to supply the United States for ages to come.

South of the thirty-fifth parallel, Apache county is one of the most attractive portions of the Territory. The snowfall in the winter months is quite heavy, and gives rise to many beautiful, clear streams which flow out from the Mogollon and Sierra Blanca into the adjoining valleys. This region is one of the most delightful summer resorts in Arizona. Large and beautiful trout are found in nearly all the streams, and the mountains are full of bear, deer and wild turkey. With a camp by the side of a clear, bubbling spring in some grassy glade, shaded by towering pines, one can pass the summer months here as pleasantly as in any part of the great west. Since the completion of the Atlantic and Pacific railroad, the isolation which was so great a bar to the material advancement of the county has been removed, and population is rapidly pouring in. Many Mormon colonies from the neighboring territory of Utah have settled in Apache county, and reclaimed large tracts of rich lands along the water-courses. With its vast deposits of coal, valuable forests of pine, extensive stock ranges and rich farming lands, Apache has all the natural advantages to build up a rich and populous community. The taxable property of the county is \$1,663,731. Rate of taxation $2\frac{1}{2}$ per cent.

St. John, the principal town of the county, is on the Little Colorado, and about sixty miles south of Holbrook, on the Atlantic and Pacific railroad. The town has a population of over a thousand souls, and is growing steadily. It is the center of trade for a large agricultural and grazing region. There are five mercantile houses that do a heavy trade in grain, wool and hides. There is a handsome court-house, a public school, and a commodious Catholic church. A weekly paper, called the *Orion Era*, is published here, and sets forth the advantages of its town and county in an able manner. St. John has an admirable situation, and is destined to become a place of importance. The town is built principally of adobe, but there are many handsome residences of wood.

From this short sketch of the different counties which compose the Territory, it will be seen that its total population is 82,976. According to the census of 1880, the number was 41,580. These figures show that the population has almost doubled within the last two years, a more remarkable increase than can be shown by any state or territory in the Union. With the opening of the numerous branch railroads now being built and projected, there is every reason to expect a like increase during the next two years, thus giving Arizona the requisite population to entitle her to the honors of statehood. And when she takes a seat among her sisters, there will not be in that bright galaxy a fairer face crowned by a richer or rarer diadem.



MINES AND MINING.

First Attempt at Mining in the Territory—The Planchas de Plata—First Mining by Americans—The Difficulties under which it was Prosecuted—The Gold Discoveries in Northern Arizona—Variety of Minerals—Process of Reduction—Yield of Silver and Copper—Opening for Capital—The Mines of Tombstone and their Yield—Mines of Pinal, Yavapai, Gila, Pima, Graham, etc., etc.

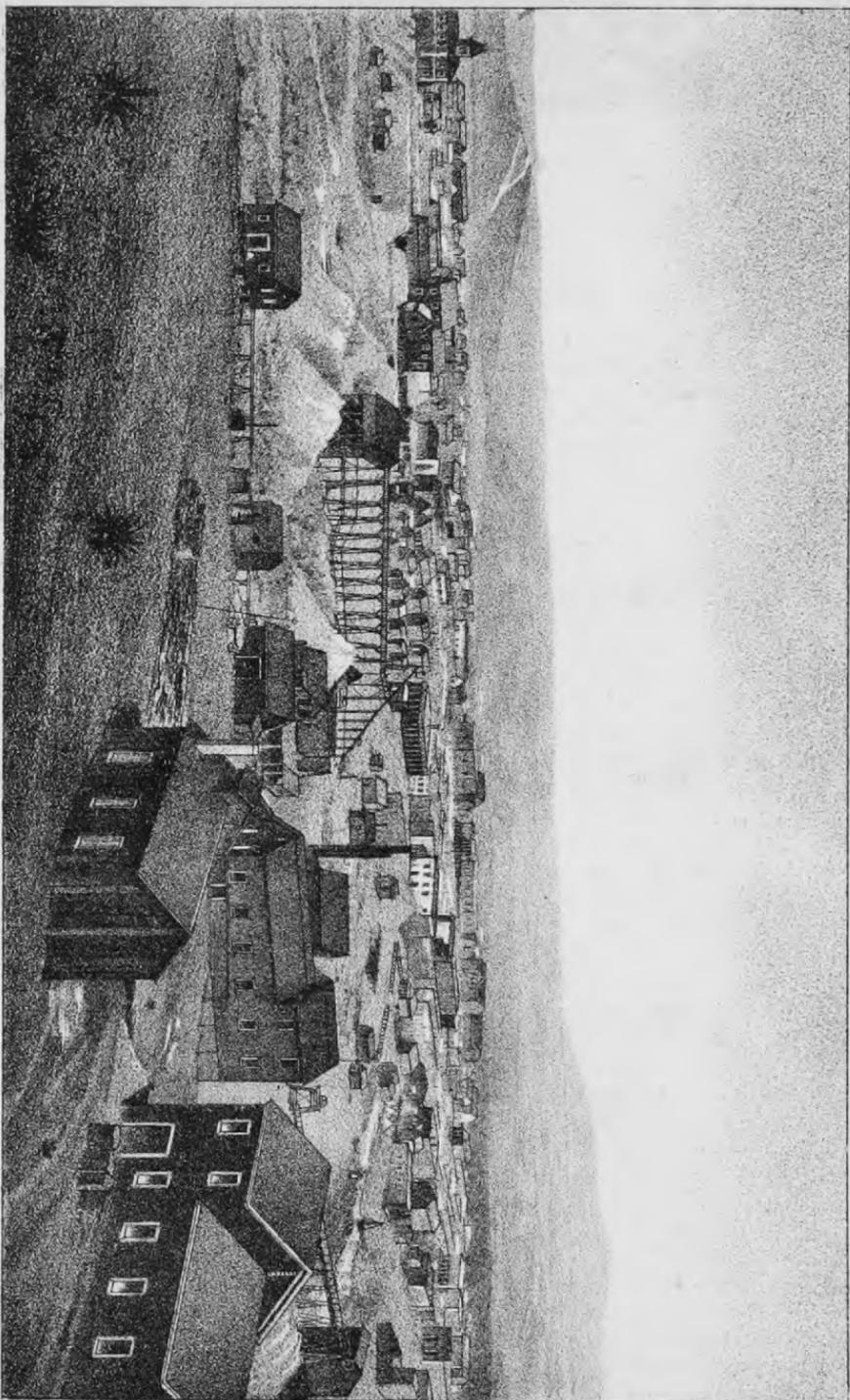
ARIZONA has been well-named a land of sunshine and silver. History and tradition have long made famous its marvelous mineral wealth, and the glamour of romance has hung about it ever since Cabeza de Vaca told his wondrous tale of the "Seven Cities," and Padre Niza embellished it with all the coloring which his zealous missionary ardor could inspire. The very name of "Arizona" is synonymous with vast treasures of glittering gold and virgin silver, hidden away in the dark recesses of rugged mountains, guarded by the fiercest of aborigines. The daring Spaniards, who braved the perils of hunger and thirst, and the dangers of death at the hands of its unconquered savages, had their imaginations fired by the tales and traditions of the Pimas, and the mystic region to the north of Mexico was to them a land "fraught with the rarest charms of romance." Its massive mountains, its jagged and fantastically shaped peaks, its vast and solitary stretches of plain and mesa, and over all, the rich, glowing atmosphere, that lent such an inexpressible charm, was to them a country where anything was possible. A country whose wonderful streams, like those

"Where Alph, the sacred river, ran
Through caverns measureless to man
Down to a sunless sea,"

had their banks "three leagues in the air," whose glowing skies eclipsed in brilliancy their own Castile, and whose every breeze wafted across mountain and desert, whispered golden tales of inexhaustible wealth.

No wonder Coronado and the daring band who followed him were ready to risk life and limb in the eager quest, and undergo

CITY OF TOMBSTONE.



any hardship, however great, to gain the prize in view. They did not find the golden treasures they expected in the Moquis towns, but the hidden wealth which they passed over in their journey thither was greater than that which Pizarro wrung from his Peruvian captive, or that Cortez found in the halls of the Montezumas. But the men who made the expedition to Cibola were not of the kind who dig and delve for gold and silver. If there was a chance to win it by the aid of their good swords and strong arms, they were ever ready to undertake the job; but when it could only be had by laborious toil they preferred that some one else should do the work. So the first white men who penetrated Arizona did nothing to demonstrate its great treasure of precious metals, and it was not until more than a century had elapsed that the first effort was made to develop the hidden wealth of this region.

The Jesuit fathers were the pioneer miners of Arizona, and the first Europeans to attempt the extraction and reduction of its rich silver ores. When or where this first mining was done we have no means of knowing; but it could not be long after the establishment of the missions at San Xavier and Tumacacori. That it was prosecuted on an extensive scale, there is reason to believe from the old shafts and tunnels which are found in the mountains surrounding these old Missions, and from the piles of slag which are yet seen in the vicinity of the ruins.

The success of the Mission fathers induced others to engage in the business. Many rich discoveries were made, and a great deal of bullion was transported from Pimiria Alta. The unearthing of vast masses of virgin silver in the Arizuma mountains, near the line of Sonora, made a tremendous excitement in Old and New Spain, and carried the fame of Arizona as a silver-producing region to the remotest corners of the civilized globe. Such masses of the pure metal were never found before. One "nugget" weighed 2,700 pounds, the largest piece of native silver ever unearthed. This magnificent lump was confiscated by Philip V., on the ground that it was a curiosity, and therefore rightfully belonged to his Majesty. Many other specimens of the native metal weighing from 200 to 400 pounds were also found, and the stories of the marvelous wealth of the region to the north, were at length being verified by tangible proofs.

Under the vice-regal rule mining was prosecuted vigorously in Sonora and Arizona, a vast amount of treasure was taken out, and a great deal of work done. The system of mining was crude and imperfect, and the appliances for ore reduction of the most primitive kind. Water and ore was packed out of the mines on the backs of peons, and nothing but ores entirely free from base metals could be worked successfully. But so rich was the grade that under such disadvantages they were made to yield handsomely. The war for Mexican independence put a stop to nearly all mining enterprises in Sonora and Arizona, and in the latter

region it never reached that degree of prosperity under Mexican rule which it had attained under the government of Spain.

When that portion of the Territory south of the Gila passed into the possession of the United States, there was not a single mine worked within the limits of the Gadsden Purchase, or in all of Arizona. Want of protection from Apache depredations had caused the abandonment of every mining enterprise, and the old shafts and tunnels, and the blackened walls of *haciendas* and furnaces, were all there was left of once prosperous mining establishments. The first mining done by Americans in the newly-acquired territory was in the Santa Rita mountains. Hon. Charles D. Poston, who was afterward elected the first Delegate to Congress, organized the Sonora Mining and Exploring Company and the Arizona Mining Company, some time in 1855. These companies secured possession of many of the old mines which had been opened in early times by the Mission Fathers, and re-commenced work upon them, aided by all the improved machinery and appliances then in vogue. Many difficulties had to be overcome, and many dangers to be met. The country was overrun by the murderous Apaches; machinery, tools and supplies of every kind had to be freighted overland for hundreds of miles, skilled labor was scarce, and the country was virtually isolated from civilization.

But against all these obstacles, operations were pushed vigorously forward. Roads were opened, buildings erected, hoisting works put in place, mills and furnaces were constructed, and the sights and sounds of a prosperous mining industry were again seen and heard in Southern Arizona. Tubac, the headquarters of the company's operations, became the most prosperous town in the Territory, and could boast a mixed population of between 400 and 500, with handsome residences, store-rooms, gardens, orchards, and many of the luxuries of civilized life. At Santa Rita, Sopori and Arivaca the reduction works were constantly at work, and a great deal of bullion was taken out. The ores were exceedingly rich and easily reduced, and, notwithstanding the constant raids of the Apaches, the work of development went steadily forward.

The breaking out of the civil war brought to an abrupt ending this effort to develop the mining industry of Arizona, and retarded for years the Territory's advancement. The garrisons stationed in the country were withdrawn, and the population left to the mercy of the Apaches. At this time camps were established at the Patagonia, the Santa Ritas, Cerro Colorado, Sopori and in the Cabibi district. The withdrawal of the troops was the signal for the savages to make their incursions more openly and vigorously. The marauding Mexicans from Sonora, believing that the government of the United States was broken up, crossed the border in large bands and carried off what the Apaches did not destroy. Exposed to constant attack, sur-

rounded by savage foes, and harrassed by semi-savage outlaws, the mining camps and *haciendas* were abandoned. Tubac was surrounded by a horde of bloodthirsty wretches, and had not a party from Tucson come to its relief, every person within its walls would have been massacred. The Apache and the Sonoraian outlaw burned, robbed and destroyed; Tubac was reduced to a mass of blackened adobe walls, and in a few short months heaps of desolate ruins were all that was left of the prosperous mining camps of Southern Arizona. Those who were fortunate to escape with their lives fled from a country which seemed accursed of heaven and a very hell upon earth.

Two years of death and desolation passed over Arizona before the mining industry was once more revived. This time it was in Northern Arizona, and gold was the glittering prize that allured thousands to the banks of the Colorado. In the year 1862, placer gold, in paying quantities, was discovered by Pauline Weaver in the neighborhood of La Paz, and within a year over 2,000 men were digging and delving after the yellow treasure in the mountains and dry gulches, east of the Colorado. A year later a party headed by the same indomitable old pioneer, discovered the diggings which bear his name, in Yavapai county, and a short time after, the whole coast was electrified by the wonderful discovery of Antelope Peak. This find attracted thousands of adventurers to Northern Arizona, and mining received such an impetus as had never been known in the previous history of the Territory. Ledges of gold, silver and copper were discovered and located, rich placer deposits were worked successfully, quartz mills were erected and a veritable "boom" appeared to have struck Yavapai and Mohave counties. The mines worked were all gold-bearing, the quartz being exceedingly rich and easily reduced.

But in the meantime the Apache was not idle. He saw his chosen domain invaded by the pale faces, and he saw the hated race receiving fresh reinforcements day after day. He saw the game ruthlessly slaughtered and his favorite mescal grounds staked off and claimed by the prospector, and he resisted the advance of *los Americanos*. By the lonely trail and the public road, behind bush, and rock, and tree, the red assassin lay in wait for his victim, and many an unsuspecting pioneer was sacrificed to his hate. Provisions and supplies of all kinds were only to be had at extravagant prices, almost everything being brought across the Colorado desert, at a cost of from fifty to twenty-five cents a pound. Under such unfavorable conditions it is no wonder that mining made slow progress in Arizona. But, nevertheless, it *did* advance. Capital was invested, many mines were opened, and a number of mills and furnaces erected, and considerable gold found its way out of the country.

The placing of the hostile Apaches on reservations, in 1874, marks one of the brightest periods in Arizona's history. Fresh

life and hope was infused into the mining industry all over the Territory; prospectors struck into the regions lately infested by the savages, and Globe and Silver King were the rewards of their toil and industry. The fame of these discoveries spread over the land; thousands of restless adventurers turned their faces southward, and millions of dollars sought investment in Arizona mines. The discovery of Tombstone, a few years later, created a grand excitement, not only on the Pacific coast but throughout the east, and the rush to the wonderful Arizona camp has only been equalled by that to Leadville. The high grade of the ores, the vast extent of the deposits, and the small cost of reduction, caused a heavy investment of capital in the bonanza camp. The steadily increasing yield of bullion has been the marvel of the mining world; has demonstrated beyond cavil or doubt the richness of Arizona's mines, and shown that her right to wear the title of queen of our mineral realm is well-founded and fairly won.

The completion of the Southern Transcontinental route in 1879, and of the Atlantic and Pacific the present year, have removed the bars of isolation, and opened the Territory to immigration and capital. All portions of Arizona have felt the quickening and progressive impulses imparted by the iron rail. The country has been drawn into close communion with the great commercial arteries of the Union, and no longer is beyond the pale of modern progress. Its vast resources are becoming more thoroughly understood and appreciated, and the mining interests of the Territory have entered on a career of prosperity never before known in its annals. Capital is seeking investment, mills and furnaces are being erected, new discoveries are being made, and new camps are springing up, prospectors are swarming through mountain and plain, a steady stream of bullion is finding its way out of the country, and Arizona is pushing her way to the front place as the leading mineral region of North America. The brilliant future which many of her ardent admirers years ago prophesied seems at last about to be realized. The legends, tales, and traditions of the past, about her wonderful wealth, are proved to be well-founded; and some of the late discoveries would show that the half has not been told about the metallic treasures of this wonderful land.

That great traveler and scientist, Baron Humboldt, is credited with the saying, "the wealth of the world will yet be found in Arizona and New Mexico." The distinguished German never uttered a truer remark about the Territory. The country is one vast mineral field. From north to south, from east to west, gold, silver, copper, lead, iron, and a score of other minerals, are found in every mountain range and in every isolated peak. Nowhere on the continent is there such a variety or such an extensive distribution of the precious metals. In other mineral-bearing States and Territories the precious deposits are found

within certain well-defined limits, but in Arizona no such distinction prevails.

The whole Territory is literally a net-work of veins and ledges. Nature, here, in a prodigal mood, scattered her treasures with a lavish hand, and neglected no portion of her chosen mineral domain. In no part of Uncle Sam's vast mining farm is there found such a variety of ores, or such a number of beautiful mineral combinations. This marked feature of the Arizona mineral field, was early noted by the explorers and scientists who visited it. Such rare specimens are found nowhere else. So beautiful in form, so rich, so dazzling with color, and so brilliant in lustre, no other country produces. Silver occurs in its native state, as a chloride, bromide, ruby silver, silver glance, brittle silver, polybasite, sulphides, carbonates, antimonial silver, sulphurets, and many other rich combinations. Gold is found in its native state in alluvial deposits, in combination with sulphurets, and in its matrix of quartz. Copper occurs in its pure state, as a red and black oxide, as a carbonate, copper glance, a malachite, and sometimes as a sulphate.

No mining region on the globe can show ores carrying so high a percentage of the precious metals as Arizona. In this respect the country stands pre-eminent. Ores which range from \$1,000 to \$5,000 per ton, are of such frequent occurrence that they create no comment; and rich chlorides, sulphides and glance, ranging from \$10,000 to \$20,000 per ton, have often been shipped out of the Territory. Before the opening of the railroad, ores that would not go \$100 per ton, were cast aside as worthless; and even now, in many of the camps, anything less than fifty-dollar "rock" is scarcely looked at. And as with gold and silver, so it is with copper. Ores ranging from sixty to eighty per cent., are of common occurrence, and those which do not average above fifteen per cent. are passed by unnoticed. So also with iron, lead and other minerals; the grade of all being higher than any other mining country can show.

Besides the extraordinary richness of its ores, Arizona offers many natural advantages for the prosecution of mining enterprises, which few other countries can show. Its climate stands unrivaled. No mountains of snow and no intense cold here interferes with the labor of the miner, and retards operations for several months in the year. Work can be prosecuted in the open air, in winter as well as in summer, and in this equable climate, miner and millman can pursue their labors day and night without interference from the severity of the elements. Wood and water is plentiful in nearly every district, and if there is sometimes a scarcity of the latter at the surface, an abundant supply can always be had by sinking a short distance. The cost of opening roads is much less than in other regions, where the mountains are higher and more precipitous; and since the competition of two railroads, the expense of getting in machinery

is much less than in many other mining regions of the west. No country can show better returns for the money invested, than Arizona. For every dollar that has been put in, it is safe to say ten dollars have been taken out. While in other States and Territories, assessments have been the rule and dividends the exception, here in Arizona the reverse has been the case.

Capital has done but little in the way of development. The intrinsic merit and wonderful richness of the mines, have developed themselves. When a mine ceased to pay for the erection of machinery, the work of exploration, meet all running expenses, and pay regular dividends to stockholders, it has generally been abandoned. While immense sums have been expended in "dead work" in other Territories, and so-called mines carried on for years without returning a dollar of the money invested, an Arizona mine has had to pay from the "grass-roots" before capital would deign to notice it. The country has never yet had justice done to its vast mineral resources, or received that aid in their development, which has been poured with so lavish and reckless a hand into other States and Territories; and yet, there is no mining country where capital has met with such encouraging results, or which offers a finer field for investment.

All mining regions are cursed, to a greater or less extent, with incompetency, ignorance and mismanagement in the conduct of operations, but it would appear as if Arizona has had more than her share of the quacks, who are such a serious detriment to the prosperity of mining countries. Many a promising enterprise has been brought to a disastrous ending, and many a fine property ruined, by the mismanagement of such men.

The mournful monuments to their incapacity and dishonesty, are seen in the abandoned mills and furnaces, in all parts of the Territory. So long as companies formed in the East, will persist in appointing men to handle their properties and spend their money, whose knowledge of mining has been learned from books, so long must they expect their money to be squandered recklessly and carelessly, and so long will the Territory have to bear the odium of disastrous failures. And yet, those gentlemen who appoint such incompetents, are, no doubt, careful business men, who would hesitate before placing in their counting-rooms or stores, men who were not thoroughly conversant with the duties to be performed. "Every man to his trade, is a safe motto in mining as in every other business, and practice is the only thorough school.

The ores of Arizona are very easily reduced. In the early days of mining, the Jesuit Fathers employed the primitive *arastra* and the rude adobe smelting furnace. From these imperfect facilities remarkable results were obtained, and in some districts both are yet used by Mexicans as well as by Americans. In the reduction of silver ores, the wet crushing

system is generally pursued. Pans and settlers are also used, and the metal amalgamated by the aid of a few simple chemicals in conjunction with quicksilver. This is the process which prevails in the Tombstone and other districts where the ores are free from base combinations. Where silver occurs in connection with other metals, the ores are first crushed dry, after which they are roasted, and then passed through pans and settlers. Smelting ores of gold or silver are not plentiful, and there are only a few establishments where the smelting process is employed. The percentage of loss is very small, and a saving of ninety-five per cent. is not an unusual result.

The reduction works in the Territory, at the present time, are not equal to the task of handling the ores which lie piled up in every district. Nearly all the mills and furnaces are kept employed on ores from mines owned by the companies or individuals who put them up. The poor mine-owner who gets out a few tons of ore is compelled to ship it to San Francisco, Denver, Omaha, or to New York for reduction. Ore must be of a high grade to stand the expense of transportation such a distance, and, as a consequence, thousands of tons that will go from \$40 to \$100 are lying idle in every district. There are grand opportunities for the erection of reduction works like those in Denver, where the poor miner can turn his ore into cash. There is room for several establishments of the kind in the Territory, and their erection will not only prove a profitable investment to their owners, but will do much toward the development of the latent resources of this great mineral region.

We have said there is here the finest opening for capital presented by any mining country in the west, and the results already achieved will justify the assertion. Although not one-twentieth part of the money has been invested in Arizona that has found its way to Colorado or California, yet the dividends from the Territory, for over a year, have exceeded those from either of those States. Although the shipments of bullion from the country, seven years ago, were but a little over a hundred thousand dollars, it now stands third on the list of producers, and destined in a short time to occupy the first place. We have seen what the building of two railroads have done for Arizona within a short few years, and it is not unreasonable to look for a corresponding improvement from the building of others. It has been clearly demonstrated that cheap and rapid communication is the chief aid which Arizona requires to place her in the front rank of the bullion-producing States and Territories, and from present appearances the day is not far distant when every county in the Territory will be provided with it.

As showing the wonderful increase in the yield of Arizona, since the opening of the Southern Pacific Railroad, we give the

figures compiled by Wells, Fargo & Co's Express, for the past four years:

Production for 1879.....	\$1,942,403
“ “ 1880.....	4,472,471
“ “ 1881.....	8,198,766
“ “ 1882.....	9,298,267

From being seventh in the list in 1879, Arizona became fifth in 1880, fourth in 1881, and third in 1882. A large quantity of rich ore and base bullion which finds its way out of the country is not included in the above, and it is safe to estimate the value of such ores and bullion as ten per cent of the figures given. There is no mining region on the coast or east of the Rocky Mountains which can make so flattering a showing. Facts speak much louder than words, and Arizona points to her record in the past as an earnest of what she will do in the future.

The copper product of the Territory for the past three years has been, as near as can be ascertained, as follows:

Production for 1880.....	2,000,000 pounds
“ “ 1881.....	5,000,000 “
“ “ 1882.....	15,000,000 “
Estimated yield for 1883.....	20,000,000 “

The value of this product has been as follows: 1880, \$400,000; 1881, \$1,000,000; 1882, \$2,400,000. Putting the price of Arizona copper for the year 1883 at fifteen cents, which is a low estimate, the value of the product will reach \$3,000,000. The growth of the copper industry of the Territory has been something remarkable. Nine years ago there was only one furnace in the country—a primitive concern in the Mexican style—with a capacity of from one to four tons per day. Now there are in active operation ten furnaces, with a capacity of over 400 tons daily. There are, besides, several lying idle, temporarily, awaiting the opening of branch roads and the cheapening of the price of fuel. At the present rapid strides which this branch of mining is making, it promises in a few years to rival silver in the value of its product.

Many mines of value have been discovered in Arizona, and many more yet remain hidden in her hills and mountains. The prospectors that are now seeking for mineral indications through her rocky ranges are daily making discoveries in localities which had been passed over time and again by their predecessors. A country so thoroughly mineralized will not be fully explored for a century to come, and long after the present occupants, and their children's children, are mouldering in the dust, rich discoveries of the precious metals will be made in Arizona.

The possibilities of such a region are simply without limit. Where every mountain and hill, and peak, and isolated butte is seamed, and crossed, and gridironed with mineral veins, fortunes

will be found centuries hence. The poor miner, with no other capital than his stout heart and strong arm, has done much to bring those treasures to light. He has suffered hunger and thirst, endured the scorching suns of the desert, and the chilling winter winds of the mountains. He has done all that an undomitable will and a dauntless energy can do, and he can do no more.

He has opened the way, and marked the road and stands beckoning for capital to follow after. He has shown the richness and extent of this vast field and pointed out the opportunities for men of means who are desirous of investing in mining properties. He has demonstrated that this southwestern corner of the United States is the treasure-house of the continent, and that vast fortunes are here waiting for men who have the enterprise and the energy to reach out after them. Here is virgin territory, as yet, hardly touched by the pick or the drill. Here, large sums are not required for the erection of costly machinery to hoist the ore from thousands of feet below the surface, and keep out the vast quantities of water constantly flowing in. Here are millions of tons lying on the surface ready to be put under the battery or passed through the furnace. Here are high-grade ores; here is an equable climate; here are properties to be had at a mere nominal figure; and here is every inducement for investment in legitimate mining enterprises.

It is not possible in a publication of this nature to give more than a passing glance at the vast mineral fields of Arizona. A volume would be required to do full justice to it, and convey to the reader a clear idea of its richness, variety and extent. In this necessarily brief *resumé* the leading mines of the Territory can only receive special mention. No doubt there are many others, equally as valuable, now undeveloped. But as the acknowledged test of the value of a mine is its bullion yield, those who have not yet made such a record cannot look for extended notice. For the purpose of conveying to the reader some idea of the mineral resources of the different portions of the Territory the mines of each county are given separately.

Cochise is the banner mining county of the Territory, and has well earned that proud distinction. In the extent of its ore bodies, their high grade, the comparative cheapness of mining and working them, and the output of bullion, it ranks with the great mining camps of the United States. It is safe to say there is no mineral region of like extent in the West that can make a better showing for the same length of time; there is none can show a larger return for the money invested, none where the dividends have been larger or more regular, and none where the assessments have been fewer.

There is no division of the Territory more thoroughly mineralized. Every hill, mountain and *mesa* within its borders is seamed with some valuable metal. The natural facilities for the

reduction of ores are not surpassed in Arizona. There is abundance of wood and water in its mountain ranges, and the San Pedro river, which flows near its principal silver belt, always furnishes a never-failing supply of the latter. The climate is as perfect as one could desire, and out-door operations can be carried on in winter as well as in summer. The topography of the country makes the principal mining camps easy of access, and two railroads running through the county give it direct communication with the outer world.

Tombstone, the leading mining camp of Arizona, and one of the most prosperous in the West, has gained a national reputation for the marvelous richness of its silver deposits and its large bullion yield. Its output during the past four years has upheld the reputation of Arizona as a mining region abroad, caused the investment of capital, and attracted the attention of moneyed men to the grand opportunities which this Territory offers.

The discovery of mineral in this portion of the territory, dates from the latter part of 1877. The region was long known to contain deposits of the precious metals, and as early as 1858 some prospecting was done near the San Pedro and the Bronkow mine discovered, but the presence of hostile savages prevented any extended development. The district was the favorite haunt of the noted chief Cochise, and his band of blood-thirsty Apaches. From his natural fortress among the rocky crags of the Dragoon Mts. he overlooked the country for miles, always on the lookout for the coming of any small party of prospectors or travelers.

When A. E. Shieffelin, a persistent prospector, announced his intention of exploring the country beyond the San Pedro, he was warned that he would find a tombstone instead of a fortune in Cochise's domain. Nothing daunted by these gloomy prophecies, the indomitable prospector left Camp Huachuca in the latter days of 1877, and directed his steps east of the San Pedro. In February 1878, his industry and energy was rewarded by the discovery of the rich silver deposits that have since gained a world-wide reputation. In remembrance of the doleful prognostications of his companions at Huachuca, he named the district "Tombstone," and thus it came that a name so "gloomy and peculiar" was conferred on this famous mining camp.

The report of the rich discoveries in Southeastern Arizona, spread like wildfire to every camp east and west of the Rocky mountains, and an army of adventurers flocked to the new Silverado. Thousands of locations were staked out and many valuable discoveries made, a city sprung into existence as if by magic, reduction works were erected, and a steady stream of bullion began to find its way out of the camp. The first stamp was dropped in June 1879, and since that time the flow of the precious metal has been steadily increasing. During this period—a little over four years—it is estimated that the district has

produced \$25,000,000, and from not more than 150 stamps. There is no camp on the coast can make so good a showing, and the work of development is yet in its infancy, the deepest explorations being but a little over 600 feet. The ores thus far reduced have been found above water-level, and it is only within a brief period that preparations have been made to tap the bodies of mineral below the water-line.

In the size of its veins, Tombstone stands pre-eminent among the mining districts of the Territory. Ore bodies of such size and richness have been found in no other portion of Arizona. The ores are generally chlorides and are very easily worked, yielding ninety per cent and upwards by the "wet" process of stamps, pans and settlers. Thus far all the ores of the camp have been reduced by this treatment, which has given very general satisfaction.

The mineral belt of Tombstone extends about eight miles east and west, and may be said to extend south to the Bisbee copper deposits, nearly twenty-five miles.

The geological features of the belt are an interesting study. Porphyry is the most widely distributed, and is the formation in which most of the large ore bodies occur. The veins and deposits are nearly all covered by a capping of lime, and in some places large chambers of ore are found in this rock. As depth is reached the lime disappears, and considerable quartzite is encountered. This also gives way as the work of development proceeds, and at the water-level a felspathic porphyry encases the ore bodies. On the western ledge of the district there is a well-defined granite formation, the veins being compact and regular with smooth walls. The country in the leading, in which the mines of the district occur, may be described as a series of rolling, grass-covered hills, being the northern end of the Mule mountains.

In the work of development, Tombstone leads all camps in the Territory, and, although a greater depth has been reached in other localities, there is none where that development has been so general, or carried forward so systematically. The leading mines are provided with the most-improved machinery, and immense pumps, capable of handling the heavy flow of water, are now being introduced. It is Arizona's representative mining camp, and well does it maintain that position. Its present output is about \$500,000 per month, and the yield for 1883 is put at over \$6,000,000.

The camp can show a brilliant record in the past, and has a bright outlook for the future. It is now undergoing the crucial test in passing through what may be termed the surface deposits to the ore chambers below the water level. That such ore bodies exist has already been proved, and there is every reason to believe they will show larger and richer than those above. When they are fairly opened up, mining throughout the

district will receive an impetus never before known, and a long and prosperous career assured to this camp. There are over 3,000 locations in the district. In this short sketch we can only notice a few of the leading bullion producers, although, no doubt, there are many yet undeveloped which will prove equally as valuable.

The Contention is the leading mine of the camp, and, considering its bullion production, is the leading mine of the Territory. Since its discovery, it has produced over \$5,000,000, and gives no sign of diminution in the size of richness of its immense ore body. Outside of the Comstock, there is no mine on the coast with such a magnificent record. As showing what development will accomplish, it may be stated, that the mine was at one time on the point of being abandoned by its original owners, and was disposed of for the insignificant sum of \$10,000. The property was first incorporated in 1880 as the Western Mining Company, which, about the close of 1881, on the consolidation of the property with the Flora Morison, and 600 feet of the south end of the Sulphuret, was changed to the Contention Consolidated Mining Company, under which name it now carries on its business.

The claim originally cost.....	\$10,000.	
The Western Mining Company paid the following dividends:—		
In 1880, 7 dividends.....	\$525,000	
1881, 12 “	950,000	
	<hr/>	\$1,475,000
As Contention Company:—		
In 1882, 11 dividends.....	\$687,500	
1883, 5 “	312,500	
	<hr/>	\$1,000,000
Total dividends to May, 1883.....		<hr/> \$2,475,000

In 1882 the company extracted a total of 25,017 tons of ore, an average of 2,086 per month. This produced 632 bars of bullion, valued at \$1,676,795.96.

In the first five months of 1883, the ore raised and treated amounted to 13,652 tons, which produced 205 bars of bullion, valued at \$553,085.91.

In this mine there are five levels; the depth of the main working shaft is 550 feet, and the amount of underground workings on all the properties, including drifts, cross-cuts, winzes, raises, intermediary levels, etc., etc., measure very nearly twenty miles.

The average number of men employed is 110. The cost of mining is only one-third of what similar work costs on the Comstock, the rock being, for the most part, soft and easily blasted; whilst, so far, the depth attained, has not been great, and not nearly as much timbering is required here as in Nevada. The ore is met with in porphyry, the walls being composed of quartzite, limestone, and shales, while the gauge is quartz. The water-level is about thirty feet below the present deepest workings,

to which a winze has been sunk from these workings. To cope with the water expected to be encountered this company have lately gone to great expense in increasing the size of their main working-shaft and erecting substantial pumping apparatus. The cost will be about \$350,000, and until operations are begun dividends have, in the meantime, been stopped. The work of raising ore, however, goes on, and the company's mill (twenty-five stamps), at Contention, is kept steadily going.

Before incurring so heavy an expenditure, the management have taken every means in their power to find, beyond doubt, that the ore body below the water-level will amply repay for such an outlay, and the engineer and acting manager, Professor I. E. James, speaks in the most sanguine manner of the outlook, and gives it as his opinion that the bodies of ore that will be opened up, as sinking goes on, will astonish the mining world, and none more so than the fortunate shareholders of this valuable property. Josiah H. White is the local general manager and superintendent.

The Grand Central Mining Company, of Youngstown, Ohio, own and control Grand Central, Leviathan, Naumkeag, South Extension, Grand Central, and other claims. The company possess two steam-hoisting works, the old hoist being now abandoned. The new hoist, one of the most complete and substantial on the Pacific coast, is with its present capacity capable of sinking 2,000 feet. There are six levels, and a total of underground workings of at least twenty miles. Depth of shaft, 750 feet, the level of the new hoisting works being fifty feet higher than the old. About 100 tons of ore are raised daily, and shipped to the company's thirty-five stamp mill on the San Pedro river, ten miles west of Tombstone. This mill started milling about March, 1881, and since then has produced \$2,893,742.65, in gold and silver bullion.

To cope with the water in the lowest levels, extensive and complete pumping apparatus has been placed in position. For the short time it was in operation, it pumped about 1,000,000 gallons per twenty-four hours, and during this period it was found that the water in the bottom of the Contention shaft was considerably lowered, when further work was stopped until that mine (Contention) could get their own pumps going. When this great work is once fairly started, it is confidently expected that, together, these two mines will be fully able to handle the water and reach the great ore bodies which are known to exist below. The water appears to lie in large basins, and when once emptied will cause no further trouble. Everything connected with the mine is of first-class make and finish. Machinery, buildings and ore-bins are most substantially constructed and put together, while the underground workings are well ventilated and timbered.

The property joins the Contention on the south, and embraces

over a mile of surface ground, all of which is mineral-bearing, and carrying, no doubt, within its lines, the extension of what is known as the Grand Central fissure vein. The Grand Central South, Naumkeag, Leviathan, Grand Dipper, Emerald and Moonlight are owned by this company, but the principal development has been confined to the Grand Central. The vein is a strong and well-defined one, and has every appearance of a true fissure. It is one of the great mines of the camp, and has been ably managed by E. B. Gage, who is general superintendent.

The Tombstone Mill and Mining Company is a New York corporation, and was among the first to commence operations on an extensive scale in this district.

The company own eleven mining claims, having a total area of 161 ½ acres. These claims were first located in March, 1878. Mining began June, 1878; and milling, in June, 1879.

From June, 1878, to March 31, 1883, the company extracted from their claims.....	73,565¾	Tons of Ore.	
Which produced in Gold.....			\$ 6,856 42
“ “ Silver.....		2,863,930	70
		Total bullion.....	\$2,870,787 12.
The total weight of which is about 98 1-5 tons, avoirdupois.			
This ore has produced in Silver, per ton.....			\$50 29
“ “ “ Gold, per ton.....			1 92
Total.....			\$52 21
Since commencement the company has paid out in the shape of dividends.....			\$1,250,000
Amount paid owners whilst incorporated under the laws of Arizona.....			400,000
Total.....			\$1,650,000

At first, the claims on which the principal work was done were the Toughnut and Goodenough mines. The bodies or bunches of ore, were found in many instances close to the surface, mostly in limestone and porphyry.

The Goodenough main-shaft is down 350 feet, while the deepest workings on the Toughnut are 268 feet deep. Latterly, owing to the litigation pending between this company and the Way Up Mining Company, for the possession of a large and valuable ore body running from the Goodenough into the Way Up ground, extensive developments have been made on the West Side Claim, showing this property to be most valuable and one of the true fissures of the camp.

The West Side main-shaft has reached a depth of 416 feet, and the work of sinking goes steadily on. There are four levels and over a mile of underground openings; the ledge being opened for a distance of over 1,200 feet. The average value of this ore, is about \$63 per ton, silver and gold. The percentage of gold in the West Side, is much larger than in either the Toughnut or Goodenough claims.

The past year has seen the cost of mining and milling sensibly reduced, viz: from \$23.96 per ton, to \$19.86 per ton; whilst the erection of a smelter and concentrating works of 100 tons daily capacity, enables the management to get the largest possible percentage of mineral from their various classes of ore.

The average market value of the ore, has risen from \$25.25 to \$31; to \$41.79, to \$52.34 per ton. The richness of that obtained from the West Side being the principal cause.

Total of ore obtained from Goodenough since commencement	41,588 tons.
“ “ “ Toughnut “ “	24,700 “
Total of manganese ore obtained from Lucky Cuss for fluxing purposes	880 “
No. of steam hoists on Toughnut, Goodenough and West Side	5
Monthly average of men employed at company's mines	125
“ “ “ “ “ mills	60

Total.....185

The Toughnut, Goodenough, Lucky Cuss and other claims owned by this company, were the first locations made in the camp by Shieffelin, and have been worked continuously since their discovery. The company have erected a smelter near their mill, on the San Pedro, for the working of the tailings. It has proved a complete success, the manganese from the Lucky Cuss, making an excellent flux, and also carrying some silver.

Professor John A. Church is superintendent and manager of this property.

The Empire is a Boston incorporation. The property adjoins the Tranquility Girard, and Goodenough. There are two shafts on the claim, one a double compartment, being down 500 feet, and the other a “whip” shaft, 200 feet deep. Both are connected by a drift 300 feet in length. Four levels have been run, 200, 300, 400, 450 feet respectively, making the total amount of underground workings about 3,000 feet. The ledge runs northeast and southwest and dips to the west. There are now on the dumps of this mine over 3,000 tons of ore, which will average \$25 per ton in silver. This is no doubt a valuable property. The situation and the surface indications are good, and the ore is easily reduced. The mine has complete hoisting works, and although operations have been temporarily suspended it is expected the work of development will soon be resumed.

The Sulphuret joins the Flora Morison and Contention on the northwest. The main working shaft is down 540 feet (which would be 650 feet in Contention), and there is an air shaft down 250 feet. There are six levels, and the total of underground workings is 10,000 feet. No ore has been milled, so far, from this property; and there is now, it is supposed, forty feet of water in main shaft. In the fall of 1881, 600 feet of the southerly portion of this mine were incorporated with the Flora Morrison and Contention, whilst the remaining 900 feet of ground are now the property of the North Sulphuret Mining Company.

The Girard Gold and Silver Mining Company was incorporated in 1879 as a non-assessable company with 200,000 shares.

It is not a full claim, only measuring 980 feet, by 600 feet in width. The main shaft is down 450 feet; from which there are four levels, viz.: at 150, 250, 279, and 349 feet. In the way of prospecting and development less work has been done here than in any of the group of mines that was started about the same time. Two thousand feet of underground openings being the entire extent. The location of the property leaves nothing to be desired, and there is a large body of ore, the extent of which can only be ascertained on further development. The ledge runs northeasterly and southwesterly, dipping slightly to east, but in the main it is nearly perpendicular. Three thousand six hundred tons of ore have been extracted, which averaged about \$60. This was mostly worked at the Girard mill, described below. An assay of the tailings, from the one worked, showed them to contain \$47 per ton silver.

An official circular shows that the company received from ore milled \$83,355.00, and a profit on purchase and sale of stock, of \$1,226.00. The expenses for milling the ore were \$64,058.00, and with other expenses exceeded the receipts. The indebtedness of the company is about \$62,749.00. The unwillingness of the shareholders to subscribe sufficient to keep things running shows the shortsightedness of non-assessable corporations. The mine, therefore, was closed down in May, 1882, and lately both mill and mine were attached and sold at sheriff's sale. The property was purchased by a syndicate of five Philadelphia men, and no doubt will soon be placed on a running basis.

The Girard mill, erected near the Girard mine, contains twenty stamps, and cost \$85,000. During the short period it was in operation it milled 15,000 tons of ore, 8,000 of which was third-class Contention ore, which yielded \$35 per ton. The Tranquility supplied it with a further quantity, the grade being from \$180 to \$90 per ton. The mill is supplied with all the latest improvements, and is one of the most complete in Tombstone district.

The Boston and Arizona Smelting and Reduction company is a Boston incorporation, and non-assessable. It has a twenty-stamp mill and a patent roasting furnace (rotary). These works, as well as the Stonewall mine, which is also the property of the company, have been worked steadily, and have paid handsomely. The improvements noticed at the mine, as well as many alterations made at the mill, entailed an expenditure of \$20,000, which, in addition to \$40,000 or \$50,000 paid in accordance with their articles of incorporation as interest on bonds outstanding, but which are in fact really to be considered as dividends, entitle this company to be enrolled as one of the dividend-paying properties of the camp.

This mill, which is situated on the San Pedro river, between the towns of Charleston and Contention, three miles from the



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MAIN STREET, GLOBE, A. T. LOOKING SOUTH.

former place and ten miles from Tombstone, have, since they started up work, reduced and treated ore as follows:

Customs ore.....	12,500 tons
Knoxville "	5,300 "
Total	17,800 tons.
Total bullion product therefrom was.....	\$1,250,000
" amount paid by company for customs ore.....	540,000
" bullion delivered to some of company's clients.....	140,000
Expenditure incurred since commencement in improvements...	20,000

The Old Guard is situated near the Ingersoll Consolidated. It has a main-shaft sunk 230 feet on the ore body, having followed the ledge from the surface. There are over 300 feet of underground workings. The last development work opened up an ore body three feet wide, averaging \$100 per ton, on the fourth level. Considerable ore has been extracted and stoped from this property. The returns from 100 tons, in June, came to over \$5,000.

The Vizina is a New York incorporation, and is non-assessable. The main shaft is 485 feet deep, including a winze fifty feet. The total underground workings amount to 5,500 feet.

No. of tons of ore shipped from this mine has been 8,022, producing in bullion.....	\$692,880
Which, for the amount of ore, is the highest average so far obtained in the camp (being \$86.38 per ton).	
The amount of dividends paid, so far, has been.....	\$140,000
Cost of claim in first instance.....	50,000
For year, ending December 1, 1882, average of ore, per ton	68.70
average net	44.85

The property is not being worked at present.

The Arizona Queen is a Boston incorporation. There are 200,000 shares, non-assessable. The developments on the claim consist of two shafts, one being 100 feet in depth, and the other twenty-five feet. Twenty-five tons of ore extracted has averaged \$100 per ton.

The Alps lies paralleled to, and west of the Grand Central. The property is opened by two shafts, one being down 133 feet, and the other 104 feet. A tunnel has been run on the side of the hill, a distance of 126 feet, which has tapped the vein, showing it to be five feet wide, containing streaks of rich ore. On the south side of the claim an incline shaft is down 110 feet. There are five other shafts on the property, making in all over 600 feet of openings. On the south side of the Alps float has been picked up, that went \$7,000 per ton, which evidently has come from a rich chimney. A working bond of this property has been given to certain parties, who are now busily at work developing it.

The Helvetia group of mines are about three miles west of Tombstone, and embrace nineteen claims and three mill-sites. On the Clara Dean there is a tunnel sixty feet, and a forty feet shaft; on the Helvetia there is a shaft seventy feet. The

Mason and the Jackson are opened by two shafts, each fifty feet in depth. On this group there is a good showing of ore, which proves conclusively that the dimensions of the main ore belt in the Tombstone camp are much larger than has been generally supposed.

The Lima Consolidated Mining Company own Lima, Green Cloud, and Old Necomis mining claims, situated on the north slope of Military Hill, directly south of the Grand Central mine. An incline-shaft has been sunk on the ledge, 270 feet. There are levels at 85, 135, 190, and 250 feet from the surface. Amount of drifts and underground workings, 250 feet. The ledge at the bottom of the shaft is four and a-half feet wide. There are 200 tons of ore on the dump that will average \$35 per ton, silver. A tunnel is now being run from the level of the road to connect with the shaft. This tunnel will cut the shaft at sixty-five feet, and from this point follow the ledge all the way. Some very fine chloride and manganese ore has been taken from the tunnel. An average of the ore has been milled, showing its value to be as follows :

First quality.....	\$180 and \$190 per ton, silver.
Second "	80 and 35 " "

The ledge is strong and well defined, with every indication of opening up a large mineral deposit with sufficient development.

This property was located in 1878, and the company incorporated in San Francisco on the 22d of June, 1881.

The Bunker Hill, Mammoth, and Rattlesnake are south of the Grand Central, and are owned by Chicago parties. The company also own the Watervale five-stamp mill which is kept steadily at work. Development goes steadily forward on these claims, and some very fine chloride ore is being extracted. At a depth of 160 feet the Rattlesnake and Mammoth have been connected by a drift over 400 feet in length. The ore body in the claims mentioned varies from four to eight feet in width. This group of mines are among the most promising in the camp, and give every indication of becoming steady bullion producers at no distant day.

The San Diego mine is owned by the Woronoco Mining company, and is about two miles east of Tombstone. The main shaft is down 490 feet, from which several levels have been run. The ore carries considerable galena and a smelter has lately been erected for its reduction which is said to give good satisfaction. Some of the ore reduced in the smelter has gone \$400 per ton.

The Eden Lass is situated about three miles southwest of Tombstone. There is a shaft 100 feet deep, showing a small but very rich vein of chloride and carbonate ore, which has milled as high as \$400 per ton.

The Ground Hog, one of the oldest locations in the camp, runs paralleled to the Eden Lass, and has much the same

character of ore. The vein is four feet wide and will mill, by assorting, \$75 per ton. Both these claims are owned by an Eastern company who are vigorously prosecuting work.

The Prompter is one of the most promising mines in the camp. The vein is well defined and continuous carrying considerable chloride, and in places shows over forty feet in width. The formation is porphyry and quartzite. Shaft No. 1 is down 210 feet. The ledge has been crosscut at the bottom, and shows a width of forty-three feet. There are three pay streaks, five, seven, and nine feet respectively. The average of the ore milled from each has been \$35 per ton, silver. Shaft No. 2 is 450 feet east of No. 1, and is down fifty feet. A crosscut shows the ledge at this point to be thirty-five feet wide, with ore of the same character as in No. 1. Shaft No. 3 is 300 feet east of No. 2, and is down fifty feet, all the way in ore worth \$40 per ton. Shaft No. 4 is 200 feet east of No. 3, and is ninety feet in depth. This shaft is on a spur from the main ledge. At a depth of seventy feet a cross-cut connects it with shaft No. 5. In running this cut a body of carbonate ore has been encountered, eight feet wide, assaying \$100 per ton. Shaft No. 5 is down 340 feet, and has three levels run. Work is pushed forward vigorously, and the Prompter promises to become one of the great mines of the camp.

The Way Up joins Goodenough, Empire, and Gilded Age. The discovery shaft is down 280 feet, and the main double compartment working shaft, 180 feet. These two shafts are connected by a drift 435 feet in length. The ore incline, which commences on the 100-foot level, runs to the 200-foot level, a distance of 250 feet. No. 2 shaft is down 155 feet. The various underground workings are about 1000 feet. Since the commencement of operations the quantity of ore raised has been from 700 to 800 tons. Amount of bullion shipped, \$62,000. The average of ore smelted yielded \$310 per ton; milled, yielded \$100 per ton. Twenty-eight tons of ore shipped some time back to San Francisco returned a gross yield of \$3,551. This mine has been shut down for the last twenty-six months, owing to litigation with the the Tombstone Milling and Mining Company, the latter claiming the valuable ledge which runs from Goodenough into Way Up ground. The late decision is in favor of the Way Up company, but the case being hotly contested, will likely be carried to a higher court.

The Mountain Maid is a San Francisco incorporation, (assessable) incorporated in 1881. The claim covers a portion of the town of Tombstone. The main shaft is on Allen street, and is 160 feet deep. No. 2 shaft is between Second and Third streets, and is 140 feet deep. The Combination shaft is on Fifth street, and was sunk by this company and the Tombstone Mill and Mining Company, on Toughnut ground. Several stringers of rich ore have been encountered. There are about 700 feet of underground workings.

The C. O. D. is a property adjoining the Luck Sure, and in the neighborhood of the Lucky Cuss. The main shaft is down 172 feet. The east drift, on the seventy-foot level, has struck a fine ore body. On the surface the ore seems mixed with hard, flinty quartz, which in the shaft disappears. No. 2 shaft is fifty feet deep, and still sinking.

The Blue Monday adjoins the Ingersoll Consolidated. The claim has been opened by two shafts, each 200 feet in depth, besides which there are 300 feet of other openings. The average value of ore shipped has been \$83 per ton, silver, while twenty tons of select ore has yielded \$156 per ton.

The Randolph is owned by a non-assessable company, incorporated under the laws of Illinois. The mine has been opened by three 100-foot shafts, and by over 1,000 feet of drifts, cross-cuts and other underground workings. It is estimated there are over 200,000 tons of ore in sight in this mine. The ore is not of high grade, but is easily reduced, and with proper management should pay. About 300 tons of select ore has milled at the rate of \$40 per ton. The claim is now lying idle, but it is certain that such a valuable property will not long be allowed to remain so.

The Contact is a fine-looking property, lying in a formation between lime and porphyry. The main shaft is down 170 feet, showing a vein about three feet wide, which gives assays from \$40 to \$100 per ton. There are 400 tons of ore on the dump, and work is going on regularly.

The Ingersoll is west of the Tombstone Mining Company's properties. It has produced large quantities of ore that milled \$100 per ton. The vein is a strong one, and the mine has been opened to a depth of over 400 feet. Complete hoisting machinery has been put in, and the work of development goes steadily on.

The Sydney is west of the Grand Central, and has been opened to a depth of 150 feet. Work is carried forward regularly, and it is supposed the Grand Central vein runs through this property, and will be struck at a certain depth.

The Big Comet is east of the Rattlesnake. There is a forty-foot shaft on the ledge, showing the vein to be from two to three feet in width, which assays \$60 per ton, silver.

The Mamie is about three miles west of Tombstone, on the road to Charleston, and has produced some of the richest ore taken out in the camp. There is a shaft on the property 250 feet deep; and the claim is further opened by drifts and levels. The ore is a chloride and carbonate. A lot of fifty-three tons lately worked at a custom mill, yielded \$4,000. The property is now being worked under a lease. In the neighborhood of the Mamie are a number of claims which have produced rich ore, and on which a great deal of work has been done. Among the most prominent are the Juniata, Bonanza, Blue Jacket, and several others.

The Stonewall is a strong vein, situated on the western edge of the ore belt. It has been opened to a depth of over 300 feet; has a total of 3,000 feet underground workings; and shows a strong, well-defined ore body, which has yielded about \$75 per ton. This claim has turned out over \$300,000, and is one of the finest properties in the camp.

On the western line of the district there are a number of fine-looking properties, upon which but a limited amount of development has been done. The formation here is granite, and the ledges have every appearance of permanency. The most prominent are the Monitor, Merrimac, True Blue and Argenta. The Monitor has a five-foot vein, of free milling ore that will go \$30 per ton, silver. It is opened by a shaft 120 feet deep. The Merrimac shows four feet of ore, some of which has milled \$60 per ton. The Argenta is west of the Monitor, and is a strong and regular vein four feet across. Assays have gone as high as \$600 per ton, silver. There is a shaft eighty feet deep.

Near the San Pedro river there is a group of mines which have produced very rich ore. The Bradshaw is the principal claim of this group. It is opened by several shafts, and has yielded over \$50,000, but is not being worked at present. The Bronkow, the first location in the district, is in this neighborhood. It is notable only for the number of men who have been killed in the contest for its possession—some seventeen having met with violent deaths from this cause.

BISBEE, the great copper camp of Cochise, is in the southern end of the Mule mountains, about thirty miles directly south of Tombstone. The copper-bearing belt embraces an area of about five miles in length by from two to three in width, and is situated on a spur which strikes easterly from the main range. The large ore bodies are found in lime and quartzite, but there is also considerable porphyry. The camp is easy of access, the ores are of high grade and easily reduced, and there is abundance of wood and water.

The Copper Queen is the leading mine of the camp, and one of the great copper mines of Arizona. It was discovered in 1877 by Hugh Jones, and re-located in 1878 by George Warren, Ray, "Kentuck" Edelman and others. They gave an interest to George Anschutz for doing the assessment work, in 1880. In the same year Warren bet his interest on a foot-race and lost it, the winner being G. W. Atkins. In 1881 James Reilly bonded the mine for \$28,000. It was purchased by the company who now own it, and who have since developed it into the valuable property it now is. The original discoverer, Jones, gave it up, as he could see nothing in sight but some "copper-stained" rock, and Warren threw away a fortune in a drunken frolic. The mine has once changed hands for \$1,250,000, and to-day could not be bought for double that amount.

The mine is opened to a depth of over 300 feet, and by many

levels, cross-cuts, drifts, etc. The ore body at the 300-foot level is found to be 150 feet in length and eighty feet in width. The ore occurs in immense chambers in the limestone. It is composed of carbonates and oxides, and carries sufficient fluxes for smelting. The quantity of ore extracted up to September 1st has been over 65,000 tons, worth \$3,000,000.

The dividends have been \$1,000,000. The present daily output of ore is 100 tons.

The daily output of bullion is twelve tons, 96.5 fine. The bullion has a fineness equal to the best Lake, and is three-fourths of a cent higher in the market than any other Arizona product. Two smelters, with a combined capacity of 100 tons daily, have been put up near the mine, and the ore is being hoisted on an incline and dumped on the smelting floors. The present inflow of water in the mine amounts to 125,000 gallons daily, which is raised by a pump with a capacity of 500,000 gallons every twenty-four hours. The company use Cardiff coke, which is brought in wagons from the Arizona and Sonora railroad, some twenty-five miles distant. The number of men employed is about 150. The Queen is one of the great mines of Arizona, and gives assurance of continuing for years a regular dividend-paying property.

The Atlanta is south of the Queen, and paralleled to the latter. It shows some rich ore on the surface, and it is supposed the ore body of the Queen pitches into the Atlanta ground. A tunnel has been driven on the claim 300 feet, from the bottom of which a shaft will be sunk to tap this ore body. Work is carried forward steadily.

The Copper Prince is situated west and partly paralleled to the Queen. Although but little work has been done, it shows a large and rich ore body. The Copper Queen Company claimed this was a part of their vein, and brought suit to prevent the Prince people from working it, but the courts decided against such a claim, and it is expected this valuable property will now be worked on a large scale. It is certainly one of the finest-looking prospects in the camp.

The New York is one mile east of Bisbee. It joins the Mammoth, and is a portion of that immense ore body. The outcrop shows 127 feet in width, and assays go from five to sixty per cent. copper, and as high as \$100 in silver. The ore is self-fluxing, carrying iron, lime, etc. There is a fifty-foot shaft and several openings, showing good ore everywhere.

The Mammoth is about one and a half miles south of Bisbee. It is opened by two forty-foot shafts, and shows a strong vein in both. It is said the ore will average sixteen per cent.

The Neptune is about 3,000 feet southeast of the Queen. It is explored by a shaft seventy-three feet deep, and carries copper glance ore of a high grade. Work has lately been resumed on this property, and the outlook is most encouraging.

The Uncle Sam and the Hayes are owned by the company

who control the Neptune. The former has a shaft 150 feet deep, with a fine dump of rich ore. The Hayes has been opened to a depth of forty feet. Both claims are fine-looking prospects.

The Black Jack is near the southeast end of the Neptune. It shows a strong body of high-grade carbonate ore, and has two shafts, forty feet each. The Copper King adjoins the Queen on the west, and is one of the finest prospects in the camp. Although but little work has been done, it shows rich ore wherever opened. The property is at present idle, pending the issue of a suit for its possession.

The Iron Clad is an immense outcrop of hematite iron ore, carrying copper. It adjoins the New York, and gives promise of becoming a valuable property.

The Hendricks is southwest of the Queen. It has a tunnel fifty feet, and also a fifty-foot shaft. The ore is a carbonate of lead, carrying silver. This is the first claim north on the silver and lead belt which extends west of the copper belt and runs paralleled with the same. Several locations have been made upon it. The ore carries about thirty per cent. lead.

The Copper Monarch, Empire, Belle Isle, Rucker, Delamack, Galena, and numerous other fine copper prospects are in the Bisbee camp. There are few places in the Territory which offer better opportunities for the investment of capital.

About seven miles east of Bisbee are a group of silver-bearing ledges, the most prominent being the New Eldorado. It is opened by an incline shaft 100 feet deep, and shows a small vein of rich chloride ore which yields from \$100 to \$500 per ton.

COCHISE district is situated in the northern spurs of the Dragoon mountains adjacent to the line of the Southern Pacific railroad. It has a good supply of wood and water, and one of the most delightful climates in the Territory. The principal mine in the district is the Peabody. The claim is in the low rolling hills, seven miles north of Summit Station, on the Southern Pacific railroad. The ore is copper-bearing, but it also carries some silver. A smelter has been erected, and has been in operation for over a year. Regular bullion shipments are made, and the mine is thoroughly opened by shafts, drifts, levels, etc. The company are a close corporation, and not disposed to give any information in regard to their business.

Eight miles east of Summit station, and a few miles south of the track, is situated the Golden Rule gold mine. It is controlled by an Eastern incorporation who have opened the property by several shafts, drifts, etc. The deepest workings at present are about 150 feet. The vein is a strong and well-defined one, and the ore is said to be high-grade and easily reduced. Six miles from the mine, in the Sulphur Spring valley, the company have erected a ten-stamp mill, which will soon commence operations. The situation and surroundings of this

company are all that could be desired, and the prospects for a successful mining venture are very flattering. There are many other fine prospects in this district well worthy of inspection by those seeking opportunities for investment.

Winchester mining district is west of Cochise. Some very rich ore has been found here and considerable work has been done. At present operations have been temporarily suspended.

DOS CABEZAS.—This district is situated in the Chiricuhua range, in the northeastern part of the county, and a short distance south of the Southern Pacific railroad. The camp has abundance of wood and water, and every natural facility for ore reduction. The ledges are large and regular, carrying gold and silver. A ten-stamp mill has been erected in the district, and has turned out a good deal of bullion. The Silver Cave, Juniper, Silver Cave South, Murphy, Bear Cave and Greenhorn are the leading claims. The first-named contains three veins, running from seven to three feet wide, which have yielded \$35 per ton, gold. The Juniper shows a four-foot vein, select ore from which goes \$150 per ton, gold and silver. Although undergoing a temporary depression, Dos Cabezas will yet become a prosperous camp.

The Huachucas and also the Whetstones, are rich in gold, gold, silver and copper, and possesses in abundance those important factors in mining operations, wood and water. Although no great amount of work has yet been done in the Huachuca range, the development is sufficient to show the merit of its mines. The Black Bear is a fine copper property, which has been opened by some shallow workings. The ore is of high grade, and the ledge a large one. In what is known as Hartford district, in the northern end of the range, there are some very promising prospects. With every facility for mining and milling, and with an unrivaled climate, the Huachucas will yet become the scene of an active and profitable mining industry.

TURQUOISE district embraces the southern end of the Dragoon range, and is about eighteen miles north from Tombstone. There is plenty of water and sufficient wood for all necessary purposes. The ores are smelting, and yield from \$40 to \$300 per ton, silver. The Mono is a strong vein, averaging about three feet wide, and assaying about \$80 per ton. There are over 600 feet of shafting and drifting on the property. The Defiance shows a large ledge of carbonate ore, which assays \$75 per ton, silver. The Dragoon, Belle, Bodie, Star and Challenge are fine prospects. With large veins of ore, easily reduced, and an admirable situation, Turquoise district offers a fine opening for the investment of capital.

CALIFORNIA DISTRICT.—This district is in the Chiricahua mountains, twenty miles south of the Southern Pacific railroad. The camp is well wooded, and there is a plentiful supply of water. The ores are a galena and carbonate of lead, carrying

silver. A smelter was erected in the camp two years ago, but, owing mainly to poor management, it proved a failure, and the district received a severe set-back in consequence. But it is sure to come to the front. It is situated near a railroad, has large ore bodies, plenty of water and wood, and will yet become a steady bullion producer. The Texas shows the most development of any mine in the camp. It has been opened to a depth of 100 feet, and by many levels and drifts. On this property the smelter was erected which is now lying idle. The Eclipse is a fine copper property, which has been exposed at several points on the surface, showing a strong vein of high-grade ore. The Hell claim has been opened to a depth of 100 feet, showing a fine vein of silver-bearing carbonate ore. The Silver Creek, Ophir, Humming-bird, Drum, Josephine and Tower Hill are among the principal claims in the district.

Yavapai county has long been noted for the great richness and variety of its mineral deposits. For years it was the leading mining region of the Territory, and before the opening of the Southern Pacific railroad the largest bullion producer. No portion of Arizona is so abundantly blessed with those two important factors in mining operations—wood and water. The ledges are regular and well-defined veins in the primitive rock, and generally free from the surface displacements, so noticeable in other localities. Silver is found in its native state as a chloride, a sulphuret, a carbonate, and in nearly every other possible condition in which the metal occurs. The great richness of some of the deposits found in the county has been something phenomenal. Quantities of chlorides and sulphides, ranging from \$5,000 to \$25,000 per ton, have been taken from many of the districts, and ores assaying from \$500 to \$1,000 per ton are of common occurrence.

Yavapai county has always been the leading gold producer of Arizona, and has yielded more of this metal than all the rest of the Territory combined. It is also rich in copper of a remarkably high grade, as an oxide, carbonate, malachite, glance, and as a sulphuret.

The history of mining in this county dates from the discovery of the rich placers on Weaver creek, in May, 1863, and the remarkable deposit on Antelope Peak. Those discoveries attracted a large number of adventurers to Northern Arizona; several mills were erected, and successful progress made in working the free quartz, but when sulphurets were reached the primitive appliances at hand were not equal to the task of reducing them, and nearly all of the mills suspended operations. Bad management, together with ignorance and dishonesty, combined to bring about this result, and have always been a serious drawback to the progress of mining in Yavapai. But against all the disadvantages of isolation and mismanagement, the county has gone steadily forward. The value and permanency

of the mines has been proved beyond doubt, and the completion of the Atlantic and Pacific railroad is sure to draw capital from the East and from the West. With a climate unsurpassed for salubrity, with plenty of wood, and an abundant water supply; with rail connection to the monied centres of the continent, there is no good reason why Yavapai county should not become one of the leading bullion producers of the Territory. Some twenty mining districts have been organized in the county, of which the following are the most prominent:

PECK DISTRICT.—This rich camp is thirty miles southeast from Prescott in the northern foot-hills of the Bradshaw range. The finding of the famous ledge, after which it is named, was one of those accidents to which many great mines owe their discovery. In June, 1875, E. G. Peck, T. M. Alexander, C. C. Bean, and William Cole, were prospecting in the neighborhood, and had established a camp not far from the mine. Mr. Peck took his gun and went out to find a deer. Passing the immense croppings of the ledge, which now bears his name, he stopped to quench his thirst at the spring which bubbled out below them. While stooping over, his hand rested on a rock which he picked up, and found to be dark-colored and heavy. He carried it to the camp where it was submitted to a blow-pipe test, and found to be rich sulphide of silver, worth \$10,000 per ton.

Claims were at once staked off and work commenced. The first ten tons of ore taken out were sold in Prescott, for \$1,300 per ton. A mill was put up and the mine worked successfully until 1879, when the original owners became involved in a law suit, which ended by the property passing out of their hands and into those of California parties. It is estimated that the mine produced over \$1,250,000 during the short period it was worked. Some of the ore was among the richest ever found in the Territory, and masses of chlorides and sulphides, ranging from \$1,000 to \$20,000 per ton, were of frequent occurrence. The formation that encloses the vein is a quartzite and a porphyry. The rich vein will average about a foot. The croppings are masses of quartzite, the rich stringers of ore being covered by the debris which has fallen over. Owing to continued litigation, the mine has lain idle for nearly four years, but the present owners have lately commenced operations, and made preparations to thoroughly develop the property. A shaft has been sunk 400 feet, and four levels, aggregating 1,400 feet, have been opened. A fine ten-stamp mill, with a roaster attached, has been put up near the mine. The Peck is a strong, well-defined vein, and with proper management will again become one of the leading bullion producers of the Territory.

The Peck belt extends north and south for several miles, and is located all the way. The Alta is south from the Peck, and shows a foot vein of chloride ore, which has assayed from \$100 to \$5,000 per ton. The Evening Star is south of the Alta. It is

opened by several shafts and drifts, and shows ore similar to the latter, and equally as rich. The Fares claim is still farther south and shows a strong vein of carbonate and chloride ore assaying high in silver. The Asa Buffum is north of the Peck location, and has produced ore that went \$1,000 per ton. The Kautz is also a northerly extension, and is opened by a tunnel, 100 feet in length. The Alexander and many other locations are on the Peck vein, north of the original location. But little work has been done on any of them, although some rich ore has been taken out. South from the Peck claim locations have been made for several miles.

Scarcely half a mile east of the Peck a large parallel vein occurs, and is known as the Silver Prince. The Prince has produced over \$150,000, the ore being nearly of the same character, and almost as rich as that of the Peck. The mine is opened by several shafts and drifts, and by a tunnel over 600 feet in length. The vein is a strong one, the rich ore bodies occurring in pockets and chimneys. It is now the property of a New York company.

The Black Warrior is south from the Prince, and is supposed to be on the same ledge. It is a large and well-defined vein, showing an ore body from two to three feet in width. The ore is different from the Peck and Prince, being composed of sulphurets, galena, native and antimonial silver, which gives an average yield of over \$100 per ton. The mine is the property of the company who own the Prince. Work is being pushed forward vigorously. The vein is opened by a shaft to a depth of nearly 300 feet, and by tunnels. It is one of the finest properties in the county. The ore is now being reduced at the Tuscumbia mill.

South of the Warrior, and presumably on the same ledge, are many locations which give a favorable showing for the amount of work done. The Doyle, Lone Juniper, and a dozen others are in this locality. North of the Prince are the Curtin, New York, and many other locations, on some of which considerable work has been done. The Peck district has every advantage in the way of wood and water, and a fine climate.

TIP TOP—This camp is about fifty miles in a southeasterly direction from Prescott, and about forty-five north of Phoenix, in the southerly spurs of the Bradshaw range. Discovered and formed in 1875, it has been worked continuously ever since, and has produced more bullion than any district in Yavapai county. It has been the best chloriding camp in the Territory, and many a poor miner has made a "stake" from working the small but rich veins which abound there. The formation is a micaceous granite, and the veins, though small, are well-defined and regular. Chlorides, carbonates, sulphides, and sulphurets are mainly the qualities of the ore.

The Tip Top, the principal mine of the district, was dis-

covered in 1875, and has been worked steadily ever since. The property was purchased from the original locators by a California company, who have taken out over \$2,000,000. The size of the vein runs from ten to eighteen inches, and is found solidly imbedded in the hard country rock. The ore is a sulphuret carrying large quantities of ruby silver, and giving an average yield of over \$200 per ton. The ledge has nearly a northerly and southerly direction and crops on a high, narrow divide. It is opened by a working shaft, now down 800 feet, and by several drifts and adit levels. From the surface down there has been no apparent change in the size of the vein or the grade of the ore. About 100 men are steadily employed. New hoisting works have lately been put in place. On the Agua Fria, about nine miles from the mine, a ten-stamp mill and roaster have been erected, and have handled the ore very satisfactorily. If we judge from the bullion yield, the Tip Top must be accounted the leading mine in the county. Its production has been nearly double that of any other, and it promises to pour out its silver stream for many a year to come.

The Crosscut is west of the Tip Top some four miles. It crops boldly, is traceable across the country for several miles, and is the largest mine in the district. It is located nearly all the way, and shows some promising claims, among which are the Foy, with a two-foot vein assaying from \$50 to \$200 per ton. This claim has a shaft, 180 feet, and several shallow cuts. The Pearl, south of the Foy, is a large ledge of good milling ore. It has been sunk upon to a depth of sixty feet. The Seventy-six is a small vein of rich chloride ore, as are also the Silver Museum, El Dorado, Camp Cole and Argus. These claims are now being worked profitably, the ore being shipped to reduction works outside the Territory. The Virginia No. 2, situated on Tula creek, four miles from Tip Top, is another small but exceedingly rich vein, which has produced a great deal of ore worth over \$1,000 per ton. There are many other fine prospects, well worthy of mention, many of which are paying their owners good wages.

TURKEY CREEK.—This district, which has lately been brought into prominence by the discovery of the wonderful deposits of almost pure silver, is situated on the eastern slopes and foot-hills of the Sierra Prieta range. The camp has a bountiful supply of wood and water, and a climate among the most delightful in the Territory. The formation is granite, porphyry and slate, and the distance from Prescott twenty miles, in a southeast direction.

The Pine Spring mine, whose recent discovery has created such a stir all over the Territory, is one of those mineral marvels peculiar to Arizona. From a small shaft not more than twenty feet in depth, \$50,000 have been taken. The ore—if, indeed, nearly pure silver can be called such—yields from \$2,000 to \$25,000 per ton. Such masses of horn silver were never before found in the Territory—chunks weighing sixty pounds, and worth

\$14 a pound, having been taken out. The vein, as exposed in the shaft, shows in places two feet of chlorides that will go \$5,000 per ton. The mine was discovered by an old pioneer named Billy Gavin, who was prospecting on a "grub stake" when he happened on the buried treasure, in June of the present year. There are no indications on the surface, and the discovery was made by "tracing" the dark, metallic pieces of float found on the hillside, some distance below. The financial condition of the finder was at a low ebb when he "struck it." To-day he has a fortune in sight, and refused an offer of \$150,000 when down only three feet. The mine is being worked steadily, and gives promise of proving one of the great mines of Arizona. That there are scores of other such bonanzas throughout the Territory, as yet undiscovered, there can scarcely be a doubt.

The Goodwin is the oldest location in the district, and is claimed for several thousand feet. The Holmes' claim is opened by a tunnel, 200 feet in length, and by a shaft eighty-five feet deep. The ledge will average three feet wide. The ore is a rich, gray copper, and antimonial silver worth from \$50 to \$1,800 per ton. The Hatz and Collier claim is north of the Holmes. It is owned by a Chicago company, who have a force of men at work opening it. The vein is from two to three feet wide, the ore being of the same character as that in the Holmes. There is a shaft 200 feet, and a tunnel 250 feet.

East of the Goodwin, the Hidden Treasure Mining Company are at work on a number of claims. On the Quick Relief they have erected hoisting works, and have a shaft down 150 feet. The vein is small, but carries some good ore. The Gold Note Mining Company, of Chicago, own a number of claims near the head of the creek. The most promising is the Gold Note, on which a shaft has been sunk 200 feet. The ore is smelting, and the company are preparing to put up reduction works. On lower Turkey creek a company are operating on the Franklin. The claim is opened by a shaft 200 feet deep, and by a tunnel. The ore is an iron sulphuret, carrying lead and silver, the vein being from one to two feet in width. The Trinity, Compton, Sultana, Peerless, Succor, McLeod mine, Nevada, Yankee Boy, Tuscumbia, and many other fine properties are in Turkey Creek district.

LYNX CREEK.—This, one of the oldest districts in Yavapai county, is six miles east of Prescott, and embraces a stretch of pine-covered hills and spurs on the northern slopes of the Sierra Prieta. Lynx creek has been the richest gold-bearing stream in Arizona, and is yet mined successfully when water can be had. It is estimated that over \$10,000,000 has been taken from the gravel beds of this creek. No spot in the territory is better supplied with wood and water. The ores, while rich in the precious metals, carry large quantities of base material. This has been the great drawback to the camp's prosperity, but, at last, the difficulty has been overcome.

The Howell Mining and Smelting Company have lately erected extensive works in this district, and are prepared to handle ores of every kind and quality. The smelter has a capacity of thirty tons daily. Attached to it is what is known as the Howell Chloridizing Furnace. The ore is first broken, and carried by an elevator to the furnace. In this furnace, the ore passes through a flame which destroys the sulphur and other base compounds. After leaving the furnace it is cooled, and then, in connection with lime and iron, which are used as fluxes, it is put through the smelter.

By this mode the most rebellious ores can be successfully worked. Although in operation but a short time, the process has proved a complete success, and at present, is turning out five tons of base bullion per day, worth about \$250 per ton, in silver and gold. The company are buying ores from mines throughout the district, and have made arrangements to enlarge their works to meet the increased ore production of the camp. In connection with the smelter, a five-stamp mill will soon be erected for the treatment of free-milling ores, and those that are dry and will not smelt readily. If base, they are first passed through the furnace, then crushed and treated by the pan process.

A refinery is also being put up, where the product of the mill and furnace will be treated and the pure metal extracted, the litharge being again used to smelt dry ores. The works, when finished, will be as complete as any in the West. The enterprise has been of great benefit to the mining interests of Northern Arizona. It has solved the problem which so long has puzzled the miners and millmen of this section of the Territory, and shows that the base ores of the Sierra Prieta region can be worked successfully and profitably. About 100 men are at present employed, and quite a lively camp has sprung up near the works.

Besides the ores purchased from the miners of the district the company own the Belle mine, situated about two miles from the smelter, on the divide, between Lynx Creek and Big Bug. This is a fine property, and is opened by two tunnels, which pierce the vein on the side of the steep mountain, on which it is located. The combined length of both is over 1,200 feet and the distance between them is 100 feet. They both follow the vein, and are connected by winzes and shafts, from the apex of the hill. The main shaft is eighty feet below the floor of the lower tunnel, and 380 feet from the surface, with good ore in the bottom. The ore body, wherever exposed, shows the same well-defined and continuous vein, averaging over eighteen inches in width. It is a heavy galena, which smelts readily, and is said to average \$50 per ton, of which \$30 is gold. It is estimated there are 15,000 tons now in sight. The vein is encased in solid granite walls.

The Hamilton and Poland adjoin the Belle on the south. There are two shafts on the former, one sixty feet, showing an ore body similar to that in the Belle. On the Poland there is a shaft 100 feet, and a body of ore fully as large as the Belle, and of the same character.

The Shelton is one of the most valuable claims in the district. It has been opened by a tunnel driven on the vein, 150 feet, and by a shaft. The vein is strong, well-defined, and continuous. It will average four feet wide, and has assayed as high as \$600 per ton. The ore is a carbonate of lead, with iron pyrites, and carries gold and silver.

The Pine Mountain shows a two-foot vein, that assays \$200 per ton, gold and silver. It is opened by a shaft fifty feet deep. The Kitty is a strong vein, showing an ore body similar to the Belle, and fully as rich. A shaft has been sunk upon it to a depth of 100 feet. The Mount Vernon is an exceedingly rich gold ledge, carrying quartz worth \$200 per ton. The claim has produced over \$20,000. The Accidental shows more development than any mine in the district, and has produced some very rich ore. This mine has yielded over \$75,000.

The Gray Eagle, Mountain Lion, Orion, Hirshel, American Flag, Real del Monte, Mark Twain, Eureka, Champion, Hidden Treasure, and scores of other fine prospects are in this district.

AGUA FRIA.—This district is sixteen miles east of Prescott, in the foot-hills bordering the stream of the same name. The ores are silver of a very high grade, and the veins are found in a contact between slate and granite. The Silver Belt is the principal mine of the district, and one of the richest in the county. It has already produced over \$150,000. It is opened by three shafts, the deepest being 300 feet, and by many drifts and winzes. The ore is a carbonate, carrying large quantities of chloride, and yielding over \$250 per ton. A rude furnace has been erected on the Agua Fria, four miles distant, where the ore is reduced, and the base bullion shipped to San Francisco. Hoisting works have lately been put up on this property, and the work of development is being pushed forward vigorously. The Kit Carson, Silver Flake, Agua Fria, and Raible and Hatz claim, are all very fine prospects, showing rich ore.

WEAVER.—This is the oldest district in the county, and famous as the scene of the discovery on Rich Hill. A Mexican, in the employ of Jack Swilling, who was mining on Antelope creek, in crossing over the mountains to the Weaver camp, happened on the wonderful deposit. In a depression on the summit of the mountain, about 6,000 feet above tide-water, the coarse gold was found lying on the bare bed-rock. Pieces of the pure metal, worth several hundred dollars, were picked up, and over \$500,000 was taken from about an acre of ground. Butcher knives were used to dig the gold out of the seams in the rock, and it was not an uncommon thing to find from \$1,000

to \$5,000 under a small boulder. How the gold was deposited in such a place is a mystery which has not yet been solved. The gulches and ravines running down from the mountain contained considerable treasure, and are worked by Mexicans up to the present time. It is estimated that Weaver has produced over \$1,000,000 in placer gold. The ledges are nearly all gold-bearing. The Marcus, two miles west of Antelope peak, has produced sulphurets that yielded \$1,000 per ton. It has a shaft over 200 feet. The vein is two feet wide. The ore from this mine has been shipped to Newark, New Jersey, for reduction. The Leviathan is a large ledge of gold-bearing quartz, and has yielded ore that worked \$50 per ton in *arastras*. It is opened by a tunnel, which cuts it 100 feet below the surface. It is estimated there are a million tons of ore in sight in this immense vein. The Metallic Candle, the Sexton, the Buckeye, the Emerald, and scores of other promising claims are in this district, which is one of the foremost gold camps of the Territory.

HASSAYAMPA.—The first discoveries were made in this district in 1863, and the creek has been worked for gold ever since. It is estimated that over half a million dollars have been taken out. The district adjoins Lynx Creek on the south, and embraces the best wooded and watered portion of the Sierra Prieta range. During the summer months its beautiful glens and grassy glades are among the most delightful spots in the Territory. The ores of the district are a free gold quartz on the surface, which changes into sulphurets and a high percentage of silver, as depth is reached.

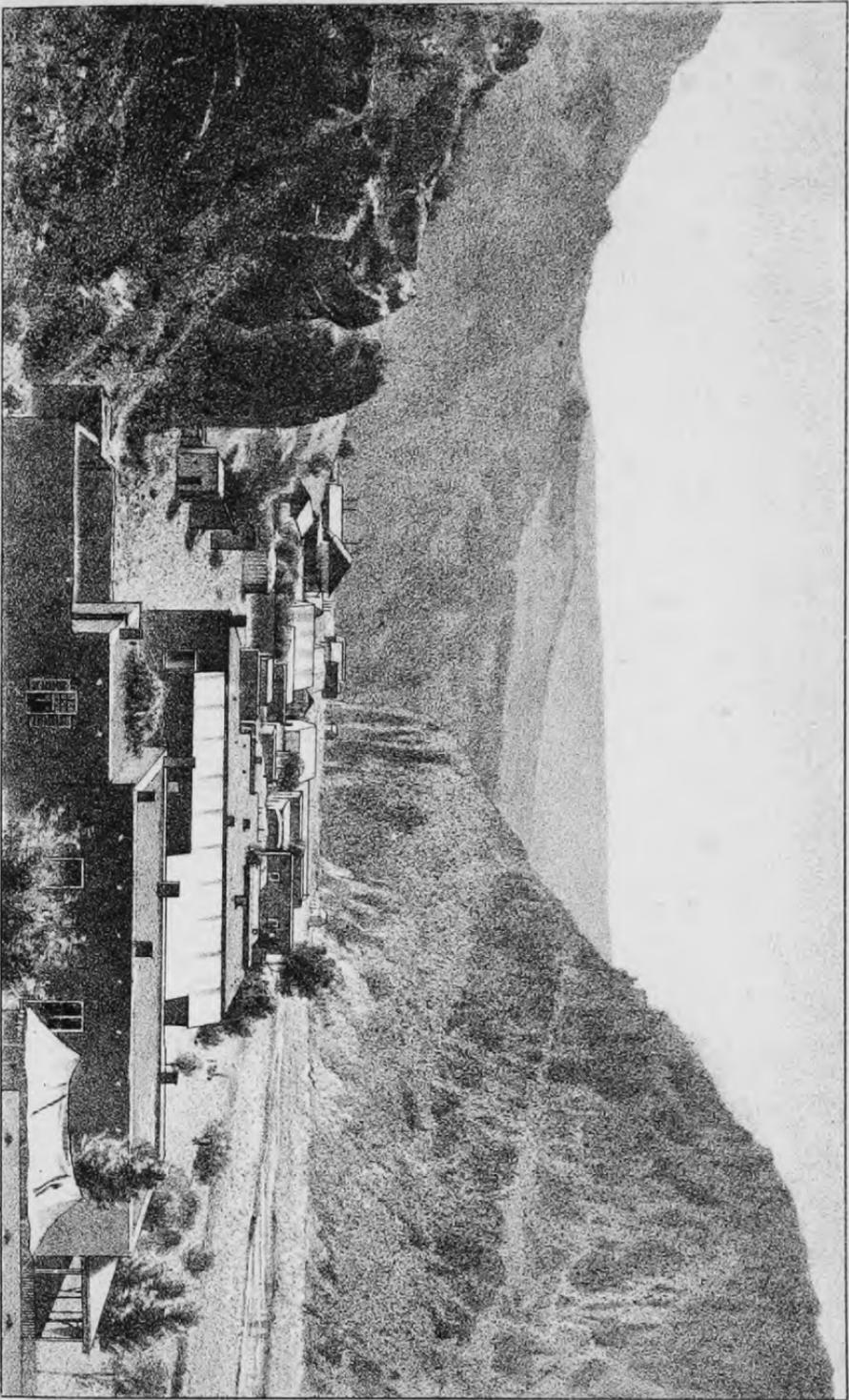
The Senator has been worked extensively, and has produced \$150,000 in gold. A ten-stamp mill has been erected, which is now lying idle, solely on account of bad management. The vein is from two to four feet wide—copper and iron sulphurets—and has yielded from \$20 to \$40 per ton. There is a shaft 250 feet in depth.

The Davis is about four miles south of the Senator, on the eastern side of the Hassayampa mountains. It is a large vein, carrying gold and silver, traceable on the surface for many miles, and located all the way. The original location has a tunnel driven on the ledge, over 200 feet in length. The vein will average five feet in width, and has produced ore that yielded \$300 per ton. Considerable work has been done along the vein, and wherever opened it shows remarkably well.

Southwest from the Davis are a group of mines discovered within the past two years. The Dosis is the principal location, and has produced ore worth \$1,000 per ton. It is now being worked, and the ore shipped east. As admittance to the mine was denied, its present condition cannot be stated. The vein is said to be very narrow, but rich. The mine is opened by several shafts and tunnels.

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TOWN OF CLIFTON, ARIZONA.



BANCROFT - UTH - S. F.

The Blue Dick is west of the Dosoris. It is opened by two tunnels, and shows a small vein of rich silver ore. The Mark Twain is south of the Blue Dick, and is a very encouraging prospect.

The Ruby is east of the Davis, and runs parallel with that mine. It shows a strong vein of high-grade sulphuret ore, averaging over a foot in width, and yielding over \$200 in gold and silver. The sulphurets contain copper and iron, and are easily reduced. Two tunnels have been driven on the vein. One is over 200 feet and the other 160 feet. The vein is strong and continuous all the way, and this discovery promises to become very valuable. There are over 100 tons on the dump. The ore is shipped to Denver, and also worked at the Howell smelter.

The Dunkirk is east of the Ruby. It is opened by two shafts and a short tunnel, and shows a ledge two feet wide. Selected ore has gone \$250 per ton. As depth is reached, the ore promises to be of the same character as in the Ruby.

The Crook is three miles east of the Hassayampa, and has produced over \$50,000 in gold. It is opened by shafts, tunnels and open cuts. A ten-stamp mill was erected, but as the ore changed to sulphurets, it failed to save the gold. East of the Crook is the Summer, a remarkable vein of micaceous iron, some of which is richly impregnated with silver. Ore from this mine has assayed as high as \$2,000. West of the Hassayampa, and about eight miles from Prescott, is the Perry claim. It shows a large vein of sulphuret ore, and some assays show \$500 per ton. It has a shaft 200 feet. The Sterling is an old location, and had a ten-stamp mill erected on it in the early days. It yielded some very rich quartz near the surface, but when sulphurets were encountered the gold could not be saved. These sulphurets assayed \$200 to the ton. There is a shaft on the property 100 feet deep, now partly filled with water. With proper appliances for treating the ores, the Sterling will again become a bullion producer.

The Grub claim, Pine Tree, Savage, Grovanor, Madison, Delaware, Montgomery, Silver Trail, General Sherman, and hundreds of other encouraging prospects are met with in Hassayampa district.

TIGER DISTRICT.—This camp is thirty-five miles southeast from Prescott, in the southern spurs of the Bradshaw range. It has every natural facility in the way of wood and water for ore reduction. The formation is granite, the veins are large and regular, and carry silver and gold. The Tiger mine, which has given its name to the district, is a large ledge, being in places over seventy feet between smooth and regular walls. It has been opened to a depth of 400 feet, and is supplied with steam hoisting-works and a ten-stamp mill. The ore is a sulphuret, carrying considerable quantities of native silver. The property is at present idle, but with proper management should be made to yield a profit.

The Tiger has produced nearly \$200,000. The vein is a true fissure and has been located for several miles. The Riggs and Hammond claim adjoins the discovery on the south. It is a strong ledge carrying some high grade ore, and is opened by several shafts and tunnels. The Linn claim, north of the discovery, shows a large ore body and is explored by several shafts and open cuts. The Grey Eagle is two miles east of the Tiger. It is a large vein of sulphuret ore carrying gold and silver. Assays give from \$40 to \$150 per ton. The Oro Bonita lies between the Tiger and Grey Eagle. It has been worked for several years by steam *arastras* yielding \$80 per ton, in gold. The vein will average two feet in width.

The Eclipse and Cougar are two miles east of the Tiger. They are good-sized veins, and carry some rich chloride ores. The latter claim has a shaft 100 feet deep and 300 tons of ore on the dump. The Lorena is supposed to enter the Eclipse nearly at right angles from the east. It shows a vein eighteen inches wide which, it is claimed, will go \$200 per ton. The ore is a black sulphuret carrying horn silver. Work is being steadily prosecuted on this mine. The Benton and California are supposed to be northern extensions of the Tiger. Both show considerable development and have produced some rich ore.

In what is known as the "Basin," north of the Tiger, are many fine prospects, surrounded by an extensive timber belt. The Buckeye is a small vein which has produced some rich gold and silver ore. The Union, formerly known as the Kansas, is south of the Buckeye. It has been explored by a tunnel 175 feet in length, and by a shaft seventy feet deep. The Espcranza is a two-foot vein of sulphuret ore, carrying gold and silver. A ten-stamp mill was erected on this property some years ago, but failed to save the gold in the sulphurets. It is now worked successfully by Mexicans, who grind the ore in *arastras* and then smelt it in a rude furnace. It is said the ore yields as high as \$400 by this process.

North of the Basin, in what was formerly known as Pine Grove district, there are many fine properties, on some of which a large amount of work has been done. Among them are the War Eagle, which has been developed by several shafts, and has produced over \$50,000, the Del Pascoe, Bradshaw, Basin Rock, Red Rover, Union, and many others, all carrying gold and silver.

BLACK HILLS.—This camp is twenty-five miles east of Prescott, on the eastern slopes of the mountains, after which it is named. It is well supplied with wood and water, and has a delightful situation. For over three miles in width and one mile in length, rich deposits of copper are found in this district. The geological features of the range are eruptive rocks on the north end, and limestones, metamorphic slates, syenite and

quartzite in the center, and granites and porphyry on the southern end. Near these limestone zones in beds of porphyry and slate, the copper is found. The United Verde Copper Company, an incorporation formed under the laws of the State of New York, are now prosecuting operations on an extensive scale in this district. They have built a road through the range which taps the farms on the upper Verde, and from which supplies of grain, hay, and vegetables can be drawn. This road has cost \$25,000, and is one of the best mountain grades in the Territory. By this new route the distance to the railroad at Ash Fork is only fifty-four miles, and freight on bullion and coke is greatly reduced.

The company own the following mines: Eureka, Wade Hampton, Hermit, Chromo North, and Chromo South, South Azure and North Azure, Venture and South Venture.

The Eureka is an immense mass of copper ore, being at one point over 100 feet wide. A tunnel has been run on the ledge 274 feet, which taps it 190 feet below the surface. The ore body can be traced for over 500, and at no point does it appear to be less than twenty-five feet in width. The character of the ore on the surface is a green carbonate, and a red oxide, and at the end of the tunnel an oxide carrying large quantities of iron. The entire body will average twenty per cent. Some 700 tons have been taken from the running of the tunnel. The matrix of the ore is iron and the country rock that encases it metamorphic slate. The ore is self-fluxing, carrying all the lime and iron required.

A shallow gulch separates the Hampton from the Eureka, and some consider it a continuation of the same deposit. The ore is similar, and the formation the same besides its strike is towards the Eureka. There is a shaft on the claim 67 feet, which exposes a body of ore sixteen feet wide. Careful tests have shown that this will go fifteen per cent. in copper. The ore is as easily reduced as the Hampton, and promises to become equally as valuable.

The Hermit is a quarter of a mile east of the Eureka. A tunnel has been driven which struck the vein at a distance of seventy-one feet. A winze was then sunk on the ore body to a depth of eighty feet. The vein is regular and will average over four feet in width. The ore is a red oxide, carrying iron and lime, and large masses of oxidized copper glance. The ore averages twenty-five per cent., and with development the claim promises to become a valuable one.

The Venture is situated about two miles southeast from the Eureka. It is a well-defined and compact vein, encased in porphyry and slate. The ore body will average about three feet, and is very rich in metal, yielding as high as thirty-five per cent. The character of the ore is a malachite, an auzerite, an oxide and a glance. There is a shaft down 100 feet. This

mine promises to become a most valuable property with development. The Chrome South and Chrome North adjoin the Eureka on the east. The ores are a carbonate and a silicate, and the veins will average from two to four feet in width. Although but little work has been done, they show fine ore bodies. The Azure North and Azure South are very encouraging prospects.

Near the Eureka the company have erected a water-jacket furnace, which is now in successful operation. The ores from the Eureka and the Hampton are brought to the smelter on cars propelled by hand. The works are erected just below the road, and a tramway leads from the floor of the furnace to the rich croppings on the Eureka, which are used to flux leaner ores. The furnace is supplied with a Blake crusher, and is a most complete affair, with a capacity of forty tons daily. The present output of bullion is eight tons per day. The ore is rapidly running into silver, the bullion produced being worth from \$400 to \$500 per ton in that metal. The ores smelt readily, and no difficulty has occurred since the start.

The water to supply the works is brought in iron pipes from a spring two miles distant. The tanks, with a capacity of 5,000 gallons each, receive the water, and the supply is abundant for all purposes. This water also supplies the prosperous camp which has sprung up near the mines, and which contains several stores, saloons, restaurants, etc. All the supplies and material for the reduction of the ore are hauled from Ash Fork, coke costing, at the works, \$32 per ton. This enterprise promises to be of great benefit to the copper interests of Northern Arizona. It is the first intelligent effort made to handle the rich ores of that portion of the Territory, and it has proved a most flattering success. The company own some of the finest copper properties in the Territory. The situation, in the midst of a well-wooded and watered region, is all that could be asked, and a long and profitable run is assured. The management is in the hands of experienced men, and a brilliant success is assured. Something like 100 men are at present employed in this camp, and no other in all Arizona presents a brighter outlook.

The high percentage of silver in the ore is a most agreeable feature, and makes the property one of the most valuable in Arizona. The average of 125 tons of copper bullion produced in August and September was \$450 per ton, in silver. The copper runs from ninety-four to ninety-eight per cent. fine. The works are running to their full capacity night and day, the only difficulty so far, being the lack of transportation.

CHERRY CREEK.—This district is in the southern end of the Black Hills, has plenty of wood and water, and a desirable situation. The ores carry gold and silver, and are easily handled. The camp is thirty miles east of Prescott, and ten

miles from the Verde river. A mill has been erected in the district, but ignorance and incompetency caused it to prove a failure. Recently, however, some new investments have been made, and the camp has taken a fresh start. The principal mines are the Mammoth, with a shaft 125 feet; 350 tons of ore from this mine milled \$20 per ton, while the tailings assayed \$16. The Conger Mining Company, of Canton, O., own four or five claims on the Verde slope of the mountain, which they are now developing. On the Conger they have sunk a shaft, and are taking out some very rich quartz. The vein is from twelve to eighteen inches wide. On the Cactus a tunnel has been driven 100 feet, showing a vein with two feet of fine ore. The company have hoisting works on the ground, and propose to erect a mill, on the Verde river, five miles distant, to be driven by water-power. The Gold Ring and the Potomac are fine prospects. The former has been explored to a depth of 100 feet. A mill test of 100 tons yielded \$100 per ton. The St. Nicholas, Gold Queen, Joe Johnson, and many other flattering prospects are in this district.

Walnut Grove district embraces the southeastern end of the Antelope range, and the foot-hills adjacent. A ten-stamp mill has lately been put up by a Kansas company, to work the ores from the Josephine mine, and a ditch constructed to bring the waters of the Hassayampa to the rich deposits of Placerito creek. The ledges of the district are gold-bearing, and have produced some high grade ore.

Black Cañon district is twenty-five miles east of Prescott, and extends from the foot of the Bradshaw range to the Agua Fria. The veins are principally gold-bearing. The Iconoclast and the Black Mesa are the prominent claims. They have both been explored by shafts and tunnels, and their ores have yielded handsomely in *arastras*, for several years.

TONTO BASIN.—This district has a delightful situation in the southeastern part of the county, and between the Mogollon and the Mazatzal ranges. There is an abundance of wood and water. The ledges are well-defined, the formation being principally granite and porphyry. On the Gowan mine, a ten-stamp mill has been put up, and is running steadily. The ore is a gold quartz, and is said to yield handsomely. A great deal of development work has been done on the property. The Excursion is a large vein, assaying well in gold and silver. It is opened by several shafts and drifts. The Zulu, Last Chance, Osceola, Dougherty, and many other valuable prospects, are in Tonto Basin. This mineral-bearing region embraces a large area, but its isolated position has hitherto been the chief obstacle to its advancement. With rail connection it promises to become one of the leading camps of the Territory.

GROOM CREEK.—This pleasant camp is six miles south of Prescott, in one of the very best timbered and watered sections

of Arizona. The climate in summer is unequaled. The ledges carry gold and silver, and are found in a granite formation. Although not large they are rich in gold and silver. The Lone Star has a two-foot vein of galena, which assays \$100 per ton. It is explored by a tunnel, 160 feet in length. The Dauphin shows a four-foot vein of milling ore, carrying gold and silver. The Nevada has a vein twenty inches wide, worth \$100 per ton. Select shipments of ore from the Minnehaha have yielded \$300 per ton, in San Francisco. The Golden Chariot, Mountain, Maribile, What Cheer, Surprise, Heathen Chinee, and dozens of other fine prospects, are to be seen in this district.

BIG BUG, one of the oldest camps in the county, is east of Lynx creek. A great deal of gold was taken out here in the early days from the free quartz found near the surface, but as depth was reached, sulphurets were encountered and operations ceased. The district contains some very high-grade sulphuretted ores, which only require the proper treatment to make them valuable. The Dividend, Galena, Big Bug and Eugenia have been worked extensively, and have produced considerable bullion. They are all patented. The Belcher, Lottie, Champion, Mesa and Oury are all encouraging prospects, but have little work done upon them.

Crossing the Sierra Prieta range, which walls in Prescott on the west, the traveler reaches what is known as Copper Basin. This basin is at the foot of the range, and is formed by the mountain spurs that lie between it and Skull and Kirkland valleys. It is composed of low rolling hills, crossed by shallow ravines, and covered by a growth of scrub oak, juniper and pine. Near the center of the basin two prominent knolls rise above the surrounding hillocks, each of which is literally seamed by small, but rich veins of copper ore. These knolls, and the country in every direction, for nearly half a mile from them, is thoroughly impregnated with the mineral, and as depth is reached, the ore bodies grow stronger and richer. The geological features of the basin show evidences of great surface disturbances. Granite, of a very coarse variety, porphyry, syenite, quartzite, lime and felsite are found jumbled together in a confused mass.

By the foot of the knolls mentioned, and along the little valleys formed by the washes on each side of them, huge masses of coarse conglomerate are found lying in a horizontal position, and thoroughly impregnated with copper. This conglomerate extends over the basin for nearly a mile square. Wherever found, it is rich in copper, and when a few feet are sunk on any part of the level territory around the knolls, it is encountered. It shows the action of fire and water, and evidently received the metal by precipitation.

The extent of the copper territory in this singular locality is about two miles north and south, and one mile east and west; but the heaviest bodies of mineral are embraced in areas of about

2,000 by 1,800 feet, and of which the knolls are the center. The ore is a green carbonate, an auzerite, and a black and red oxide. The oxides are found in the small veins already mentioned, while the auzerite seems to be the most generally distributed, and has stained the country in every direction. Careful estimates put the quantity of ore in sight, on the surface, at 20,000 tons, which will average over twelve per cent. In fact the basin may be considered a vast mineral farm, there being over 600 acres that show ore wherever sunk upon. As yet little development has been made upon this great deposit. Several shallow holes have been dug, and two tunnels started to tap the ore bodies supposed to be contained in the knolls. The beds of conglomerate are in places five feet thick, and have been traced to the wall of the Sierra Prieta, from which the flow has evidently come. There is an immense deposit of ore here, and with the facilities at hand for its reduction, it ought to be mined and worked successfully. A smelter will soon be erected, and an effort made to garner the ripened harvest in this vast mineral farm. It is the most remarkable copper deposit in Arizona, and its development will be watched with interest.

Before closing this sketch of the mines of Yavapai, mention should be made of the group of silver mines on the western slope of the Black Hills. The Black Hills and the Homestake are the leading claims. They have been opened by several shafts, and show large veins carrying free milling ore of a good grade. On Cataract creek, near the Ave Supie village, a horizontal deposit of galena ores have been made in the rocky wall of the canyon. Considerable work has been done, and assays of the ore give a yield of from \$30 to \$80 per ton.

Graham county has rapidly developed within the past two years as the great copper camp of Arizona, and to-day it has more capital invested in this branch of mining than any county in the Territory. Besides its vast copper deposits, it also contains gold in ledges and in alluvial deposits, likewise silver and coal. There is a large portion of the county within the San Carlos reservation that has not yet been prospected, but which is known to be rich in the precious metals. Wood and water is abundant in this region; the ores are of a high grade, and the climate, the year round is superb. The first mineral discoveries, in what is now Graham county, were made by a party of prospectors from Silver City, N. M., in the fall of 1871. They discovered the Longfellow, the Detroit, and the Metcalf group. Bob Metcalf, the discoverer of the Longfellow, gave the Lesinsky Bros., of Las Cruces, N. M., an interest in the property, and in the early part of 1873 they erected a crude Mexican furnace, and worked the ores successfully for nearly a year, when they erected a water-jacket on the San Francisco river. In a short time the original locators were bought out, and the Lesinskys became the sole owners. They worked the

property until September, 1882, when it was purchased by a syndicate composed of Scotch capitalists.

During the time the mines were worked by Lesinsky Bros., it is estimated they produced 20,000,000 pounds of copper bullion, and this under many disadvantages. The nearest railroad station was at La Junta, Colorado, nearly 700 miles from the mines. Roads had to be opened to Silver City, the nearest supply point, and coke was brought from the Burro mountains, eighty miles distant. All material and supplies cost enormously, but against all those obstacles, the richness of the ore left a handsome profit. Since the mines passed under the control of the present owners many important improvements have been made, and a large sum expended in opening the several groups. Not the least of these improvements is the building of a narrow-gauge railroad from Lordsburg, on the Southern Pacific, to the furnaces at Clifton, a distance of seventy miles. The cost of grading and equipping this road will be \$20,000 per mile, or \$1,400,000 for the entire road. This railway will effect a great saving in the cost of material and supplies, and will make it possible to work very low grade ores. The opening of the road will also be a great benefit to the district, and many a mine now lying idle can be worked to a profit, when fuel and supplies are cheapened.

Two furnaces (water-jackets) are in operation near the San Francisco river, seven miles from the mines. These furnaces are run by the abundant and never-failing water-power of the stream, which is here a strong and rapid torrent at all seasons of the year. The company will shortly erect five furnaces, with a united capacity of 150 tons daily. Water from the river, equal to 100 horse-power, will turn a turbine wheel which will run all of them. This fine water-power is an important factor in ore reduction, and those of a much lower grade can be handled than if the motive power was steam. The mines owned by the company are situated on the spurs and summits of steep mountains, on both sides of Chase gulch, a tributary of the San Francisco. To bring the ore from them cheaply and expeditiously, a narrow-gauge road (twenty-inch track) has been constructed up this gulch, and a small engine brings down car-loads of ore and carries back supplies. A great deal of heavy grading and cutting had to be done on this road, and the cost (seven miles) has been over \$200,000.

Leading up the steep hill-sides to the different groups of mines on each side of the track, inclines have been built, and the loaded car coming down brings up the empty one. Ore houses are built at the foot of these inclines, where the ores are dumped, and then dropped by a chute into the cars which carry them to the smelter at Clifton. The grade on portions of this road from the smelter to the mines is 300 feet to the mile. The incline to the Longfellow is 2,200 feet in length, that to the Metcalf group

is 1,400 feet, while that to the Coronado group leads up the side of a rocky precipitous wall and pierces its jagged peak a distance of 3,200 feet, and from there, by a gradual descent on the other side, to the mine. This dizzy track is at an angle of 32° , and is probably the longest incline in the United States over which cars are run by their own specific gravity.

The company have at present in their employ 450 men, one-half being Mexicans and Chinese. There are two incorporations. One, under the laws of Arizona, known as the "Arizona Copper Company," own the mines and reduction works, but the entire property, including the railroad to Lordsburg, is owned by the "Arizona Copper Company, Limited," of Scotland. But one furnace is now running, the product being 8,000 pounds of ninety-six per cent. copper daily. When the railroad is completed and the new furnaces built, the output will lead all Arizona. This is the most complete plant for the reduction of copper in the Territory, and few countries can show so heavy an outlay by one company. When the railroad from Lordsburg is finished, there will be expended, in improvements and the purchase of the mines, nearly, if not quite, \$4,000,000. But the magnificent ore bodies fully justify this heavy outlay, and will yet return it twenty-fold.

The Clifton copper belt extends from the San Francisco river to Eagle creek, some ten miles east and west, and nearly twelve miles from north to south, or 120 square miles of copper-bearing territory. The general formation of this immense ore belt is porphyry, quartzite and lime. The larger ore bodies are found in felsite and lime. They occur in large chambers and deposits, but there are some, like the Coronado and the Queen, that give indications of being regular veins. The ore bodies are found in the steep and rocky spurs of the Peloncillo range. These mountains are much broken and cut by deep cañons and gorges. They are covered with oak, juniper and pine, and there is always an abundant supply of water in the San Francisco, Chase gulch, and Eagle creek. Conglomerate beds of volcanic origin surround the district on nearly all sides, which effectually shut off the ore bodies. This volcanic flow is a portion of that which once rolled down the Mogollon range from the great cone of the San Francisco. The gold belt seems to lie all around the copper deposit, being between it and the eruptive rocks. The country shows, in every direction, the traces of a mighty upheaval, and of powerful volcanic action. The entire area mentioned is seamed with copper veins, and the waters of Chase creek are highly impregnated with the metal. The ores are of a high grade and easily reduced, and with its fine, natural advantages and railroad facilities, Clifton is destined to become one of the great copper-producing regions of the United States.

The Longfellow is the principal mine of Clifton camp, and since its discovery has produced over 20,000,000 pounds of cop-

per. The mine is about five miles from the smelting works, on the west side of Chase creek, and near the summit of a rugged mountain, which rises over 1,500 feet above the level of the creek. The property is worked by a tunnel, which taps the ore body about 200 feet below the apex of the mountain. Some 200 feet below the present tunnel another has been started, and both will shortly be connected by winzes. The ore is found in beds of felsite, resting on layers of lime, and occurs in large deposits, or chambers, some of which are 100 feet in length, by eighty feet in width. As far as explored the ore body appears to be about 600 feet in length, by 500 feet in width. Throughout this entire space the ground is honey-combed in every direction, by drifts, crosscuts, winzes, levels, stopes and inclines, making altogether, over five miles of underground streets and alleys.

The ore is always found near the lime belts, which sometimes cut it off; but by driving through these dykes it is again encountered beyond. The entire ore body will average fifteen per cent. It is mostly a red oxide, and an auzerite. No ore has yet been discovered outside of the felsite and lime, and the mineral deposit seems to be confined to the space mentioned by the porphyry zone, which bounds it on the north and east. In the early history of the mine no regular system was observed in its working, and the pillars of ore left standing to support the roof proved inadequate to the task, and a cave has occurred in one portion of the workings. The damage, however, is not serious, and is being rapidly repaired. The extent of the ore body in the Longfellow has not yet been determined. It seems to extend through the mountain to the Detroit Company's ground, and for a depth of 400 feet good ore has been encountered. It is certainly the grandest copper deposit yet opened in Arizona.

The next group of mines owned by the company are known as the Metcalf group and are about three miles from the Longfellow, up Chase creek. The mines are on the sides of a steep mountain, 1,200 feet above the bed of the creek. The Little Annie, Little Giant and Oriental are the principal claims. The Annie shows the most development, the ore being taken from a series of open cuts along the ledge. The mineral occurs in pockets and chambers in a formation of lime and porphyry. It is a glance, with red oxides, carrying a high percentage of copper, and is covered by an iron capping, which also carries some copper. A tunnel has been started below the present workings to tap the ore bodies supposed to exist in the hill. It is now in 1,000 feet. Two tunnels have pierced the croppings, one being 230 and the other 400 feet. Good ore has been taken from each, and there is every indication of its depth and permanency. The Oriental adjoins the Little Annie on the east. It is a large ore body, and shows traces of old Indian workings, the savages having evidently resorted to the deposits of chrome iron and bromide, for their paint. The Hughes and Shannon claim is north of

the Annie. It is not owned by the company, but is surrounded by their properties. It shows a bold out-crop, and is opened by several shafts and cuts, all in good ore.

The Queen group of mines are about two miles above the Longfellow. They include a half dozen in all, but the Queen is the only one opened. Four adit levels have been run on the ledge, being respectively, 200, 250, 200 and 225 feet in length. These levels are connected by winzes, and show a vein about eighteen inches wide that goes twenty per cent. The Queen has the appearance of a regular vein. It is encased in porphyry walls, and has a dip of 45°. The mine has, heretofore, been worked in primitive style by Mexican labor, but under the new management it is expected a different order of things will prevail.

The Coronado group are on the summit of a steep and rocky range on the west side of Chase creek, and about eight miles from Clifton. The mine is approached by an incline from the railroad in Chase creek, which has already been noted. After passing over the summit of the rocky hill, the track is carried down a gradual incline, for over a mile, until it encounters the mountain on which the mine is situated. A tunnel has been driven through this mountain, following the vein, 1,200 feet. The track is laid through this tunnel, and the ores on the upper levels are let down by shutes into the cars, while those below will be raised by steam. Above this level two others have been started, and will follow the vein through the hill. The levels have been connected by winzes, and large ore bodies exposed. After passing through the mountain, the track will be carried around on the hillside above the other claims on the vein, which will be connected with it by inclines. This railroad and incline system of the Coronado group is a fine piece of engineering, and is one of the sights of the Clifton camp.

The Coronado is a well-defined vein, averaging ten feet between smooth walls. The ore occurs in chambers, or swells, and is said to average fourteen per cent. It contains large quantities of silica, and requires to be mixed with other ores to smelt readily. There are six locations on the Coronado, some of them being opened by shafts and tunnels. Wherever opened the ledge is strong, continuous, and well-defined, and has more of the appearance of a regular lode than any claim yet discovered in the district. With the present elaborate appliances for developing it, the Coronado promises to become one of the leading mines of the camp. The company own some forty claims, in all, but the above are the present ore producers.

The Detroit Mining Company of Arizona is another successful enterprise in Clifton district. The reduction works of this incorporation are situated on the San Francisco about four miles below Clifton. Here two water-jacket furnaces, with a daily capacity of seventy-five tons, have been put up. One furnace is running

steadily and turning out five tons of bullion—ninety-eight fine—every twenty-four hours. The power to drive the machinery is furnished by the San Francisco river. The ore is a carbonate and oxide, with some copper glance, and smelts very easily. The mines are about seven miles from the river, the ore being hauled that distance in wagons at a cost of \$2.50 per ton. English coke is used, and it is found that one ton of it will smelt seven tons of ore. The works have been in operation about one year, and have already produced 3,580,000 pounds of copper. This copper is known as the "Anchor" brand, and always commands a high price.

The claims owned by the company lie adjacent to the Longfellow, and are named the Yankee, Montezuma, Copper Mountain, and Arizona Central. The Yankee is on the other side of the hill from the Longfellow, and is a continuation of the same ore body found in the latter. A shaft has been sunk 150 feet, from which two levels have been run on the ore. Lateral drifts from these levels show it to be over 100 feet in width. North from the shaft, there is also a fine body of carbonate ore, which shows a width of twenty feet. On the surface, directly over this body of ore, the out-crop is 200 feet square, nearly all ore. North of the main shaft, 400 feet, another has been sunk to a depth of fifty feet, all the way in copper glance, of a high grade. From the bottom two cross-cuts have been run, twenty-five feet each way, both in ore. Average assays give eighteen and one-half per cent.

The Montezuma is south of the Yankee and has ore of a similar character. It is opened by a fifty-foot shaft and several open cuts. The Copper Mountain is about 500 yards from the Yankee, and is opened by an adit level 600 feet in length, following the ore. At the mouth of this level a shaft has been sunk which cuts the ore at a depth of eighty feet; from the bottom of this shaft a level has been run 600 feet, the entire distance in ore. Lateral drifts have also been opened, from which ore is now being extracted. It will average twelve per cent, and is a carbonate with a manganese gangue, and a red oxide with an iron gangue.

The Arizona Central is east of the Copper Mountain, and is opened by two shafts, eighty-four and fifty feet, respectively. The ore is a green carbonate with some copper glance and will go twenty per cent. The ore from this mine when mixed with that from the Copper Mountain makes a fine smelting material. These ores are all found in large chambers and deposits in beds of felsite. The beds lie horizontally, pillars being left standing to support the roof. The company employ about 125 men, two-thirds of whom are Mexicans.

The Clifton Copper Company, a New York incorporation, own a group of mines northeast from the Arizona Company's properties. The principal claims are the Lone Pine and Keystone,

both of which show large ore bodies that give an average of from twelve to twenty per cent. They are opened by several shallow shafts, the deposit showing about twenty feet wide, and being capped with iron croppings from ten to thirty feet in depth. On the western side of Chase creek, and about eight miles from Clifton, there are a group of claims upon which some work has been done. The Bon Ton, Mountain Lion, Lulu and Capitan are the most promising. The Lulu carries galena, which assays 240 ounces to the ton, in silver. The Bon Ton is opened by over 400 feet of tunnels, and has on the dump over 300 tons of ore, which is said to go twenty per cent. copper. Although but little work has been done on these properties, they show extremely well.

The Copper King Company own a group of mines on what is known as Greenle Gold mountain district, about five miles above Clifton, on the San Francisco. They are on a steep mountain, 1,500 feet above the river bed, and are known as the Union No. 1, Union No. 2, New England and Montezuma. But little work has yet been done on these properties, but wherever opened they show strong, well-defined veins in a granitic formation. The ore is an oxide and a copper glance, some of it going as high as twenty per cent.

The Great Western company own the Ollie and the Great Western, situated westwardly from the Copper King company's claims. They are in the same formation, and the ore is of the same character. There is a seventy-foot shaft on the Ollie, which has yielded ore that went thirty-seven per cent. There is plenty of timber near these properties, and water power in abundance in the San Francisco.

About four miles above Clifton, on the San Francisco, large gravel deposits are encountered. These gravel beds are all gold-bearing, and careful tests have proved they will pay. The Clifton Hydraulic Company have brought water in iron pipes a distance of four miles, to these beds. They have sunk shafts and driven tunnels and thoroughly exploited the ground. The gravel is on both sides of the river, will average in depth from ten to thirty feet, and has an estimated area of 3,000 acres. Gold is found all through this gravel, from the surface to the bed-rock. The company have expended a large sum in getting ready for work. They have the latest improved hydraulic machinery, a splendid fall from the San Francisco, and everything in good shape for a long and successful run. High up on the mountain-side, above the gravel deposits, are a group of gold-bearing quartz ledges. These veins are from two to six feet in width, in a formation of granite, and can be traced for several miles across the country. A few openings have been made, and some ore worked that produced over \$20 per ton. With the fine water-power to propel machinery so near at hand, very low-grade ores can be worked, and a prosperous gold camp will yet spring up here.

Mayflower district is south of Clifton, and east of the Gila. It contains some promising ledges of silver and copper, upon which a little work has been done.

Lone Star district is north of the Gila, opposite the town of Safford. It has some small but exceedingly rich copper veins.

Pinal county is, at the present time, next to Cochise, the largest bullion producer in the Territory. Its ores have long been noted for their extraordinary richness, and for the variety of their mineral combinations. The ledges are large and well-defined, and the formation in which they are found gives every assurance of permanency. The Gila river, which flows through the mineral belt, affords an unlimited supply of water, while wood is found everywhere in sufficient quantities for ore reduction. The formation of the Pinal ore belt has many of the complex characteristics peculiar to the geological structure of Arizona. In many of the mountain ranges the remains of former volcanic action are seen in the masses of conglomerates, lava-rock and sand-stones, yet found in many places. Limestones, quartzite, syenite, granite and porphyry are found everywhere, the last two generally containing the ore bodies.

Every mountain range in the county seems to be thoroughly mineralized, and gold, silver, copper, lead and iron are met with in every hill and peak. No county has produced such magnificent native silver specimens, and none can show such immense masses of native copper. Except Cochise, no county has made a better record in the past, and none has a brighter outlook for the future. It has the ores in abundance, has an ample supply of wood and water, and is blessed with a perfect climate every month in the year.

PIONEER DISTRICT.—In the year 1871, the present governor of California, who was then a colonel in the regular army, commanding in Arizona, established a picket post near where the town of Pinal now stands. The Apaches were very troublesome at that time, and were constantly raiding the farming settlements on the Gila from their fastnesses in the Pinal Mountains. A road was also constructed over the mountain into the higher valleys of the Pinal range, which is yet known as the "Stoneman Grade," and is the main traveled route from Pinal and Silver King, to Globe. A soldier, named Sullivan, employed in building this road, when returning from his work, one evening, sat down to rest on a ledge, near the camp. Seeing some black-looking pieces of rock, he picked them up and attempted to break them, but he found that they flattened out like a piece of lead. He knew nothing about silver ores, but he put them in his pocket and wended his way to camp.

Shortly after his term of service expired and he drifted to the ranch of Charley Mason, on the Gila River. Sullivan remained here some time, and frequently showed the black ore (pure sulphide of silver) to Mason and others, but would tell no one

where he found it. One day he suddenly disappeared, and was not heard of for years. He was supposed to have been killed by the Apaches, or to have perished on the desert in the attempt to return to the place where he found the black nuggets.

For several years prospecting parties explored the Pinal range in search of Sullivan's find, but without success. In the search, a party of four farmers from the Gila valley penetrated to where the town of Globe now stands, and located the rich copper mine after which the town is named. In 1875, Chas. G. Mason, Benjamin W. Regan, William H. Long and Isaac Copeland started for the Globe mines with a train of animals to bring in some of the ore. On the way back they camped for the night a short distance from the present hoisting works on the King. Next morning when preparing to start, it was discovered that one of the mules was missing. Copeland went out to hunt the animal, and after a short search, found him standing on the top of a "little brown hill" near the foot of the Stoneman grade. Going up to secure him, Copeland stumbled over the croppings of the great mine which has since become famous as the Silver King. Sullivan's secret was a secret no longer, and they had at last found the long-sought treasure. The discovery was made on the 22d of March, 1875, and it was the first claim staked off in what was afterwards known as Pioneer District. Thus was the famous Silver King discovered, and it is recorded that the mule who played so important a part in making it, was turned out to graze in green pastures, and never more carried saddle or *afarejo*.

The mine was worked by the original locators until June, 1876, when Copeland sold his interest to Mason. Previous to this a great deal of rich ore had been shipped to California. A short time after Long sold his interest to Regan, and he and Mason became the sole owners. In January, 1877, Mason sold his interest to Col. James M. Barney, and on the 9th of May, 1877, the Silver King Mining Company was incorporated under the laws of the State of California, and the work of development began in earnest. A twenty-stamp mill was put up on Pinal creek, five miles from the mine, and later on concentration works were added.

The total yield of this mineral wonder, since its discovery, has been over \$4,000,000; \$1,500,000 of which has been paid to stockholders, and to-day, at a depth of over 800 feet, it looks better than at any time in its history. The mine crops on a little conical hill, at the foot of the Pinal mountains. The formation enclosing the ore is porphyritic, but there are also many indications of quartzite.

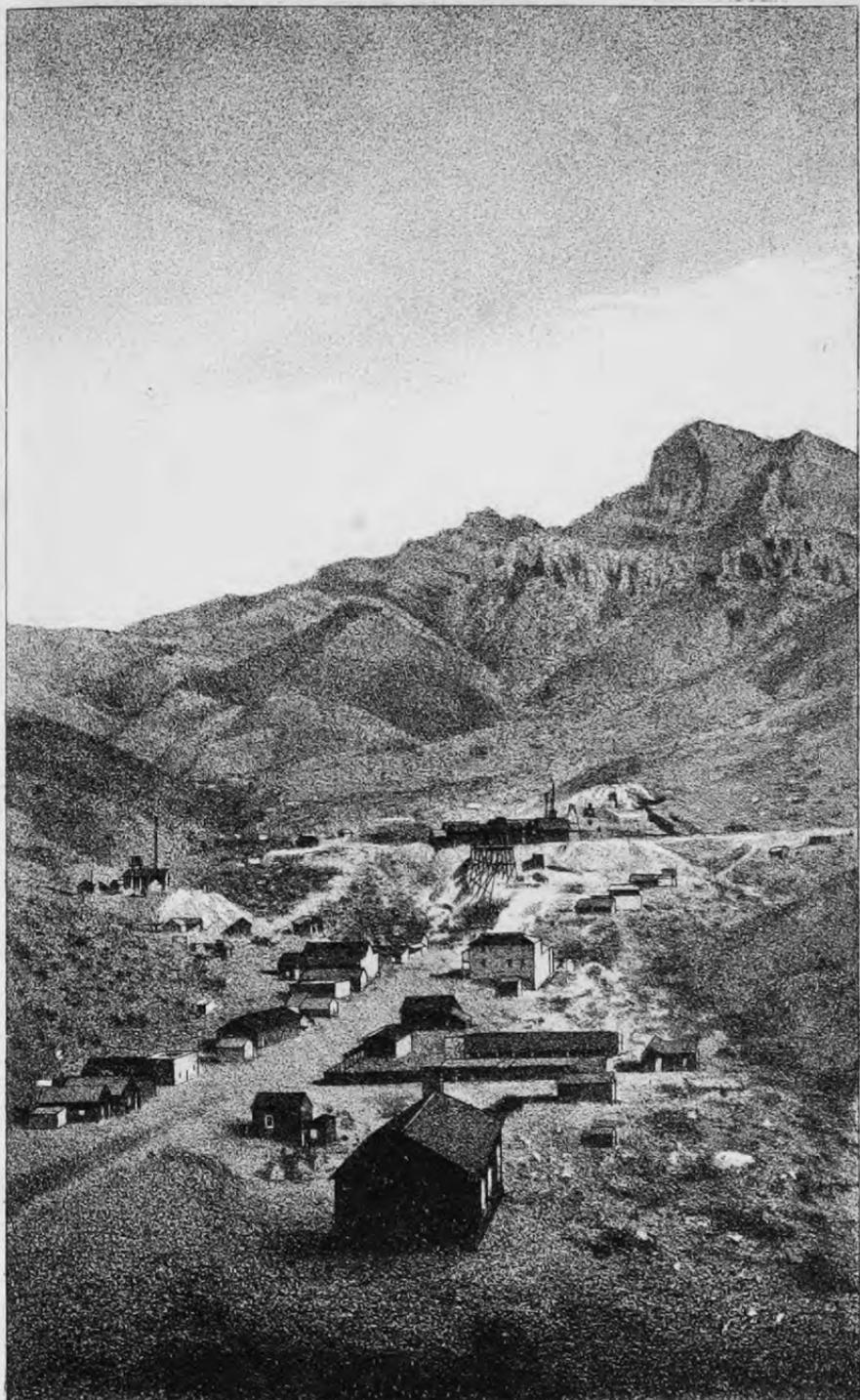
The vein formation of the King mine is different from anything yet found in Arizona, and has long been an interesting study for scientists. To quote from Professor Blake's description, "this quartz-vein, instead of forming a sheet-like mass, or

filling between parallel walls, is approximately *cylindrical* or columnar in its form, filling a nearly vertical, spirally-formed cavity, as if it had risen as smoke rises in a chimney, but circling about the riven rocks, until it reached the surface by many outlets." This is the Silver King; an immense circular deposit of ore, with thousands of veinlets running into the country rock which surrounds it. These veins reticulate and cross each other in every conceivable direction. Along the western side of this immense ore-chamber an irregular mass of white quartz, of a circular shape, and some eighty feet in diameter, is found all the way to the deepest workings. This body of quartz carries bunches of rich ore, and has never yet been thoroughly explored. In fact, to quote the language of Mr. Phillips, the superintendent, "the ore-limits of the mine are not known in any direction underground."

So far as explorations have extended, no well-defined boundary to the ore has been found. Wherever the little veinlets are followed beyond the main chimney ore is found, and as there is nothing like a wall, the size of the ore body cannot be determined. Seven levels have been opened. The seventh, or lower level, is the largest. It is an immense chamber, 200x100 feet, and which has already produced nearly 20,000 tons of ore. Following around the walls of this immense chamber, the native silver, and the other beautiful mineral-combinations, reflect back the light of the candles in a thousand brilliant flashes. Wherever penetrated, the small veins are still found running into the porphyry from the rich ore body in the center. The floor of this level is the richest yet found in the mine, and fairly sparkles with native silver in every direction.

From this level, and from those above it, there is now enough of ore exposed to keep the works running for the next three years. About sixty tons are sent to the mill daily. The ore is concentrated, and the product shipped to California. The ore, as it comes from the mine, is not assorted, and consequently a great deal of waste rock is put through. The average for 1882 was \$61 per ton. From fifteen to twenty tons are concentrated into one. The mine pays its regular dividends of \$25,000 per month, which could easily be trebled by increased reduction facilities.

The richness and variety of the ores of the Silver King have made it famous throughout the mineral world. Such beautiful clusters of native silver no mine on the continent has ever produced. It is estimated that before the reduction works were put up, \$1,000,000 were shipped to California, and that this ore averaged \$1,000 per ton. The general character of the ores in the deep workings are sulphides of lead, zinc, and copper, highly impregnated with silver. Among the minerals found in this mine are argentite, zinc blende—in large quantities—barite, copper glance, horn silver, auzerite, and a dozen other varieties.



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TOWN OF SILVER KING, A.T.

BARRETT-LITTON & CO.

Nowhere, throughout the mineral regions of the west, has Nature set up such another laboratory. The native silver is found in beautiful forms of leaf and wires, and also in threads as fine as hair or silk, and of a dazzling whiteness. It is said that one-fourth of the bullion has occurred as native silver. A railroad from the mine to the Gila river is in contemplation, and will, no doubt, be built at an early day, and extensive reduction works put up at that point.

Whether we consider its singular geological structure, the wonderful richness and variety of its ores, its immense deposit, or its yield of bullion, the Silver King must be rated among the great mines of the world. It stands alone in its original and distinctly marked features; alone in its wealth of virgin metal and unapproachable in the extent, grandeur and almost unlimited possibilities of its future. It has been rightly named, and is a worthy monarch for Arizona's vast mineral domain. No other can show such a treasure-house of silver gems, and there is none in either continent that has so brilliant a future.

PIONEER district extends ten miles each way from the Silver King location, and includes many valuable mining properties, which have produced exceedingly rich. North and south from the King, and for miles along the western slope of the Pinal range, the country has been located for miles. West of the Silver King, and adjoining that property, are the Bilk and Mowry locations. On the Bilk a perpendicular shaft has been sunk to a depth of over 1,000 feet, and is still being pushed down. It is understood that the pitch of the great ore chamber in the King is to the west, and the owners of the Bilk hope to strike it within the limits of their claim at a depth of 1,200 feet. The ground they are sinking in is similar to that which encloses the great bonanza, and they have strong hopes of cutting the deposit.

Southerly, a company called the South Silver King, are also sinking with the hope of finding the great ore body. They are now down over 400 feet. On the North King and the Eastland locations, situated north and east, respectively, from the Silver King, shafts have been sunk with the hope of finding the great chamber, but without success.

In the vicinity of the King are the Last Chance and Mount View owned by the Windsor Consolidated Mining Company. The former has a shaft 400 feet, and has produced ore worth \$100 per ton. It is a four-foot ledge. The Mount View is a three-foot vein, which has yielded \$100 per ton. The ores are an argentiferous galena, and are worked at the company's five-stamp mill at Pinal. The Josephine mine is one mile north of the King. It is a large vein, and has been located for over two miles. The principal claims on the ledge are the Pike, Union East, Lost Prize and Rosalie. Ore from the Pike has yielded \$50 per ton.

The West Union has a shaft 240 feet, and shows a two-foot vein of antimonial silver that assays from \$50 to \$200 per ton. The Monarch of the Sea is one mile from the King. It is a small vein, but exceedingly rich. There is a tunnel on the ledge 340 feet. The Washington is 1,200 feet north of the King. There is a continuous ledge, the entire length of the claim, eight inches wide, that goes from \$100 to \$700 per ton. The First Chance, an extension of the Mount View, Big Pete, Alice Bell, Fernandez, Flagstaff, and many others in this neighborhood, are very promising properties. The Fernandez has five or six locations on it. The Redeemer runs parallelled with the Fernandez, and four locations, the Amador, Norway, Scotland and Black Cloud, have been made upon it. These claims are owned by the Terra Rica Mining Company, of Pinal, are from two to four feet in width, and assay from \$50 to \$100 per ton.

The Silver Queen is about two miles south of the King. It is the first location in the camp, and carries silver and copper. The Wanna Whatta adjoins the Queen. It is opened by several shafts and tunnels, and has produced a great deal of ore that has yielded \$400 per ton. The Athens is north of the King, and has produced some of the richest ore ever taken out of the district. The Copper Top adjoins the Silver Queen. It has a shaft 200 feet. The Web-foot adjoins the Wanna Whatta, and shows a five-foot vein of galena that yields \$30 per ton. There are scores of other claims within a radius of three miles from the King, showing some development, good ore, and well worthy of mention here.

Some ten miles south of the King, at the Hastings camp, are a group of mines upon which considerable work has been done. The Surpriser has been opened by a tunnel 800 feet in length, and by several shafts. A fine twenty-stamp mill was erected on the property, but, owing to some misunderstanding among the members of the company, the property is lying idle. The Gem, adjoining the Surpriser, has a ten-stamp mill, and has been opened by several shafts and tunnels, but it is also idle. The Arco, Lewis, Queen Creek and many other claims are in this section. A great deal of work has been done, and some very rich ore taken from them.

About five miles south of Pinal are a group of mines that are looking extremely well. The Savage, Emma, Hope, and Hayes, are the most prominent. The first named has produced ore that has gone \$800 per ton. The Continental group are situated about six miles from Pinal on the road to Florence, and embrace the Europe, Asia, Africa, America, and Australia. They are all on one immense ledge which stretches across the country for several miles. This vein will average over six feet wide and is thoroughly mineralized. The ore is mostly free milling, but there is, also, considerable galena. Two parallel veins run along on either side of the main ledge and unite with it at the south-

ern end. This massive vein, which seems to be the mother lode of the country, has been explored by several shallow shafts and short tunnels, and wherever opened shows a strong vein of good ore. The formation of this portion of the district is mica schist and talcose slate. Happy Camp is situated about three miles northeast of Pinal. The veins which are found in granite and quartzite are small but rich.

Rodgers district is in the Superstition range twelve miles north of Pinal. There is abundance of wood and water, and while the ledges are not large the ore is a rich carbonate. The World Beater is the principal ledge, and has produced ore that yielded \$1,600 per ton. A small furnace has been erected on this property, and is now turning out considerable bullion. Coles district is to the west of the Rodgers camp, in the same range. It is a beautiful country, and its ledges are producing very rich carbonate ores. Box Cañon camp is six miles southwest of Pinal. It has some fine-looking properties, the Bruiser being the principal vein. It shows a six-foot vein of galena worth \$30 per ton, silver.

BELLE AIR DISTRICT, is situated about fifteen miles east of Florence, and about six miles north of the Gila river. The formation is porphyry, and the ore is a galena and carbonate of lead, carrying silver. The veins are large and there is abundance of water and wood at the river. The Silver Belle and Columbia are the principal mines of the camp. Both claims are situated on a steep mountain and are worked by adit levels. The Belle shows an ore body thirty feet wide, galena and carbonates. It is opened by a 300-foot tunnel which taps the vein at a depth of 225 feet. From this level a winze has been sunk 100 feet to connect with the Columbia. Over 5,000 tons have already been taken from this mine, which has yielded over \$160,000. The Columbia joins the Belle, and is opened by a tunnel 200 feet in length. It is fully as large a vein as the former, and carries ore of the same character and equally as rich.

These properties are owned by the Pinal Consolidated Mining Company, who have erected a water-jacket furnace of twenty tons capacity at Butte, on the Gila, six miles from the mines. Here, the ores are run into base bullion, worth \$250 in silver, which is shipped to San Francisco. The works are complete in all respects, and include five large kilns for the burning of charcoal. Offices, boarding-houses, etc., have been erected and quite a little village has sprung up at Butte. The company also purchase rich ores from the surrounding camps, and its bullion shipments go forward as regularly as clock-work. The Martinez, Blue-bird, Guild, and many other valuable properties are found in Belle Air district.

MINERAL HILL DISTRICT, is situated in the foot-hills of the Pinal mountains, fifteen miles from Florence. The Specie Pay and the Alice are the principal locations. The former shows a

vein from five to ten feet in width. The ore is an argentiferous galena, and smelts readily. The Specie Pay joins the Alice, carries ore of the same character, and shows a ledge fully as large. It is opened by a tunnel which taps the vein at a depth of 250 feet. Work is now being prosecuted on these mines, and some very fine ore is being extracted. The ledges occur in the contact between granite and slate.

MINERAL CREEK.—This district is about twenty miles east of Florence, on a tributary of the Gila. The ores are copper-bearing, and the ledges are among the largest and richest in the Territory. The Ray Copper Company own the following claims: Ray, Copper Bell, Clifton, Copper Bottom, St. Julien, Reed, Melrose, Burnside, Esperanza, National, Lily, Ida Bell, Tibbets, Monday, Monroe, Bilk and Scorpion. The company is an unassessable one, incorporated under the laws of the State of New York, with 500,000 shares, with a par value of \$10 per share. Geo. H. Sargent, of Boston, is president, and Louis Zeckendorf, of Tucson, secretary. The mines are near the Gila river, and on the line of the proposed narrow-gauge railroad from Tucson north, now under course of construction.

A thirty-ton furnace has been erected on the banks of the Gila, and is steadily producing bullion. The work of development is being vigorously pushed on the Ray, Scorpion and Bilk, and about forty men are regularly employed.

The Ray is one of the most remarkable mines in the Territory, and appears to be an immense mass of native copper, in a formation of decomposed syenite. The mine has been opened to a depth of over 100 feet by tunnels and shafts. A cross-cut at the fifty-foot level shows the vein to be over thirty feet, consisting of native copper, oxides and glance, which assay from thirty to seventy per cent. Not a pound of waste has yet been hoisted, and there is ore enough in sight to supply the smelter for two years. The Ray is certainly one of the most valuable copper properties in the Territory.

The Bilk is opened by a 100-foot shaft, and a drift 160 feet. The vein is from three to four feet wide, the ore being a carbonate of copper, averaging eighteen per cent.

The Scorpion has a shaft 120 feet, and shows a strong vein, yielding at the rate of eighteen per cent. copper. But little work has been done on the other claims owned by the company, but they all show fine surface indications.

The Keystone, one mile northeast from the Ray, shows large croppings of copper ore, sixty feet wide, on the surface. It is opened by several cuts and short tunnels. The ore is said to average sixteen per cent. The Dreadnought, Burnside, and many other very promising claims are located here, and with development the camp promises to become one of the largest copper producers in Arizona.

Between Mineral creek and Butte there are a number of fine

copper properties, the most prominent being the Copper Belle, which has lately been sold to an Eastern company, who are now prosecuting work upon it.

Some five miles east of Dripping Springs station, on the road to Globe, and near the line of the San Carlos reservation, the Tweed copper mine is located. It is a large ledge, carrying very high grade, and although but little work has been done, it promises to become one of the leading copper properties of the county.

In Saddle mountain district, near the junction of the Gila and San Pedro, are some large silver-bearing ledges, on which considerable work has been done. There is an abundance of wood and water in this camp, and the climate is delightful. The veins are from two to four feet wide, and assay all the way from \$50 to \$500 per ton.

BUNKER HILL DISTRICT contains some very fine copper properties. The Kentucky Giant has a tunnel over 100 feet, and a shaft 50 feet. The formation is porphyry, granite and lime. The ore body is large and will average from 15 to 20 per cent. The ore is a carbonate of copper, and is found associated with iron in large quantities.

The Owl Heads camp is thirteen miles north of Red Rock station, on the Southern Pacific railroad. The formation is porphyry and syenite. The ledges are well-defined and crop out strongly on the surface. Water is found in springs, and mesquite and palo verde grow on the hillsides. The Jessie Benton is the principal mine. It is opened by a shaft 100 feet in depth, and shows a vein of chloride ore, two feet wide, which yields 200 ounces to the ton. The Desert adjoins the Jessie Benton, carries the same character of ore, and is opened by several shafts and tunnels. These properties are owned by the Jessie Benton Mining Company, who have erected a five-stamp mill, and are making regular shipments of bullion. There are a number of fine-looking prospects in this camp which are idle at present.

CASA GRANDE DISTRICT.—This district is twenty miles south from Casa Grande station, on the Southern Pacific railroad. The principal mine is the Vekol. It was discovered by a Papago Indian, and has produced remarkably rich chloride ore. There is no regular vein, the ore being found in the chambers and caves of a limestone hill. Three tunnels have been driven into this hill, the longest being over 300 feet, and from these tunnels cross-cuts have been run in all directions, so that the hill is literally honeycombed in the search for the ore. For a distance of 600 feet along the length of the location, and for 300 feet in width, ore is found in streaks of from three inches to eight feet wide. The ore bodies have been tapped by a winze from the main tunnel, 150 feet below the surface. In fact, wherever opened, rich rock has been discovered. The ore is a chloride, containing

large nuggets of metallic silver. It is assorted, and the richest shipped to the Pinal smelter. Since the opening of the mine 300 tons have been worked, and have yielded at the rate of 250 ounces per ton. There are now over 3,000 tons on the dumps, which is estimated at \$50 per ton. The property has paid its way from the start, and with reduction works on the ground would become one of the leading bullion producers of the county. The entire hill seems to be one immense bed of ore, whose length, breadth or depth has not yet been determined. Abundance of water is found one mile from the mine, and there is wood sufficient for all purposes on the surrounding hills.

Six miles south of the Vekol there is a group of copper ledges, the principal claims being the Coporosity and Welshman. A forty-foot shaft has been sunk on the Welshman, and a cross-cut made, exposing a body of ore nearly twenty feet wide, rich in oxides, carbonates and glance. This vein, it is claimed, will go eighteen per cent. copper, and it is certainly one of the finest copper prospects in the Territory. The Little Chief, Silver Monarch and White Flag, and several other large copper and silver bearing ledges, are in this neighborhood.

The Reward copper claim is in a spur of the Vekol range, and some six miles east of that mine. It shows large croppings on the surface, and has been opened by a tunnel 175 feet in length. Large bodies of ore are on the dump, and the ledge is a strong one. It is owned by a Boston company, who are doing work on a well in order to secure a water supply. The ore carries large quantities of iron.

The Jack Rabbit is ten miles east of the Vekol, in one of the isolated ranges which cross this country in every direction. The vein is found in contact between lime and porphyry, is small but exceedingly rich. The average of the shipments to the Pinal smelter is over 300 ounces to the ton. The deepest shaft is ninety feet. The claim has paid its way since its discovery, and is emphatically a poor man's mine. The Silver Bell, Providence, Pacific, and scores of other very promising claims are in this region, which is known as the Papago county. Water is somewhat scarce, but an abundant supply can be had by sinking. They are easy of access, convenient to the railway, and a large and prosperous camp will yet spring up here.

Gila county, the smallest political division of the Territory has long been famous, both at home and abroad, for the richness of its ores. It is one of the most thoroughly mineralized regions of Arizona, and every hill and mountain within its borders is crossed and seamed with ledges of gold, silver, copper, iron and various other minerals. With the Salt river flowing through it on the north, and the Gila washing its southern border, it is as well provided with a water supply as any county in Arizona. The masses of native silver, which have been found in Gila have been equaled only by those famous *Planchas de*

Plata of the early days. For years it has been one of the leading bullion producers of the Territory, the output for 1882 being over \$500,000. Its isolated situation, and the cost of material and supplies of all kinds, have been a serious hindrance to its advancement. Wilcox, the nearest point on the Southern Pacific, is 120 miles from Globe, and over this long distance everything has to be hauled in wagons.

But the projected railroad from Winslow to Benson will pass through the heart of the county, and open up as rich a mineral region as can be found in North America. Gila was once the retreat of the Pinal Apaches, who guarded long and well the treasures of their mountain home. Many attempts were made to penetrate it, and as early as 1871, an expedition numbering 300 men, under the lead of the then Governor of the Territory, explored a portion of this region, but as the quest was for placer gold, they discovered none of the rich silver lodes over which they passed. The first location made in the county was the Globe copper ledge, found by the men who were searching for the Silver King. The discovery of the famous Stonewall Jackson, and the silver nuggets in Richmond basin in 1875, led to the organization of the Globe district, and the establishment of the town which bears that name. At that time the large portion of the district was within the lines of the San Carlos reservation, and even now, some of the richest mineral lands of the county are set apart for the use of those savages.

The geological structure of the county is made up principally of granites, porphyry, and slates. Limestone occurs in many places, and there are also masses of conglomerates and lava rock, which would indicate volcanic action at some remote period. Of wood there is an abundant supply in the Pinal mountains, and in the spurs and detached ranges along the Salt river. The ores of the county are noted for their high grade and variety of mineral combinations. In the Pinal mountains the silver ores are generally a sulphuret, requiring to be roasted. In the vicinity of Globe, Richmond Basin and McMillenville, they are a chloride, and easily worked by the wet process. The wonderful richness of the ores shipped from the Globe camp in the early days of its discovery created a furor all over the coast. Tons and tens of tons, sent to San Francisco, went from \$1,000 to \$20,000 per ton, and the magnificent specimens of native silver from the Stonewall have scarcely ever been excelled.

Until two years ago, very little attention was paid to copper mining in Gila county. Now it leads gold and silver in the value of its product and the amount of capital invested. The copper ores of this portion of Arizona are found to be remarkably rich, extensive, and easily reduced. Four smelters, with a combined capacity of nearly 300 tons daily, have been erected, and it is estimated the yield for 1882 was nearly 4,000,000 pounds. But the cost of coke and other supplies has greatly retarded this

development, and none but high grade ores can be worked to a profit. Coke, shipped from Cardiff, Wales, costs, delivered at the furnaces, \$65 per ton. Owing to this state of affairs, three of the furnaces have stopped, preferring to wait until freights are reduced to a more reasonable figure, before working their ores. When that time comes, and appearances indicate that it is not far off, the Globe country will be one of the great copper-producing sections of the Territory. As near as can be ascertained this copper belt is over eight miles in length, and over a mile in width. The ore bodies within this area, occur in veins and in immense deposits, and are generally found between lime and syenite. They are mostly carbonates, oxides and copper glance. Some of them are silicious, but there is abundance of fluxing material in the neighborhood.

Owing to a variety of causes, principally its remoteness from a railroad, the silver mines of the county have not made very rapid advancement. The rich surface ores having been exhausted, those of a lower grade cannot be worked under the present conditions with any profit to the owners. Where everything that has to be used or consumed costs so high, silver ores below \$50 per ton are practically valueless. There are scores of mines with this grade of ore all over Gila county now lying idle, awaiting the time when cheap and rapid transportation shall solve the problem, and give their owners a chance to realize some profit from the working of them.

The Construction and Development Company of the proposed Mineral Belt railroad have under contemplation the erection of immense reduction works on the Salt river, to be driven by the abundant water-power of that stream. If this is done, there are hundreds of mines in the county carrying large bodies of low grade ores which can be successfully worked, and the stream of silver bullion which will flow out of Gila county will be larger than at any time in its history.

But little deep mining has yet been done in Globe district, and with few exceptions the development is confined to mere surface-scratching. The Mack Morris mine, in Richmond basin, about fourteen miles north of Globe, has been sunk upon to a depth of 800 feet, and has produced over \$700,000. The surface ores of this mine were wonderfully rich. A ten-stamp mill is kept running steadily on Pinal creek, five miles away. In this basin, situated on the western slope of the Apache mountains, were found the nuggets of silver which attracted thousands to the Globe country in early days. It is calculated that nearly \$100,000 in pure silver was picked up on the surface, and a few feet below it. The Silver Nugget, so called from the *planchas*, which were found a short distance from it, has produced some rich ore. The East and West Richmond are strong veins, carrying low grade ores, which, with the coming of a railroad, can be made to pay handsomely. There are many other

promising properties in this part of the district which are not being worked at present.

MCMILLENVILLE.—This camp is twenty miles north of Globe, and eleven miles south of Salt river. The famous Stonewall, mine is located here. This was the richest discovery ever made in the district, and at one time shipped to San Francisco nine tons of ore which yielded nearly \$200,000! This rich ore, two-thirds native silver, came from a small vein which entered the main ledge at nearly right angles. Portions of this vein, three and four inches wide, were actually pure silver. The Stonewall ledge is an immense fissure which cuts across the country for several miles. It has been developed to a depth of 700 feet, and the work sinking is still going on. The Democrat and the Little Mack are on another spur which enters the main vein. They were extremely rich near the surface and produced over \$100,000 in native silver. A little five-stamp mill has been erected on this vein which it is said has produced over \$300,000.

The Hannibal, Washington and R. E. Lee are on the Stonewall ledge, and have been developed to a considerable extent. The country north, east and west of the town of Globe is a perfect net-work of veins. Many of them are small but extremely rich, and have produced a great deal of high grade ore. Several of them are also large and strong ore bodies of medium grade, which cannot now be worked owing to the cost of material. Careful estimates show that there is now on the dumps of mines in the district 6,000 tons of ore that will work from \$40 to \$50 per ton, and the quantity in sight in stopes, drifts, and tunnels is almost unlimited.

Many of the small, rich veins are being worked by poor miners, who ship their ores or have them reduced at some of the mills. These "chloriders" earn good wages by this method, but are careless about making any systematic development. The Silver Fame is one of the richest of these veins, its ores being pure chlorides and sulphides. It is opened by a shaft and several tunnels, and has already produced several thousand dollars. What is known as the Tidwell claim, near the Chrome mine, is also turning out a great deal of bullion. A five-stamp mill has been erected, and is running steadily.

The Irene is a strong vein, and is opened by a shaft 300 feet deep. The shaft shows four feet of ledge matter, which has yielded \$100 per ton. The Stonewall No. 1 is a ledge that crops in places twenty feet above the surface. It carries some rich chloride ore, and is opened by a shaft 100 feet in depth. The California has two feet of \$50 ore, and is opened by several shafts and tunnels. The Miami has produced over \$30,000. The Golden Eagle has yielded over \$80,000. It is thoroughly opened by shafts and tunnels. A ten-stamp mill has been erected on Pinal creek to work the ores from this mine, some of which have gone as high as \$5,000 per ton. The Centralia

Emeline, Champion, Chromo, Townsend, Independence, Anna, Cox and Copeland, Blue-bird, Buckeye, Empire, Imperial, Rescue, McCormick, and scores of other claims are in the immediate vicinity of Globe. Many of them show considerable development, and nearly all of them have produced rich ores. The prospect of the speedy completion of a railroad has caused a renewal of work on many of them, and a great deal of ore is being piled up awaiting the time when cheaper milling and mining will make it profitable to reduce it.

PIONEER DISTRICT.—South from Globe, on the southern slope of the Pinal mountains, a lively mining camp has sprung up, and a great many discoveries have been made. Wood and water is abundant in this region, and the ores are of a high grade. Two mills have been erected, one of five and the other of ten stamps, with roasters attached, the ores being mainly sulphurets. The formation is a granite and porphyry, the ledges being strong and compact. The Pioneer, South Pioneer and Howard are the leading mines. Work is being prosecuted steadily, and the properties are thoroughly opened by shafts, tunnels and levels. We have been unable to get any definite information in relation to the grade, and the amount of bullion produced. The claims are owned by incorporated companies. The Howard and the Pioneer are at present producing bullion, and the mines are said to be looking well. There are many claims in Pioneer district which show good-sized veins and some high grade ore, but few of them are being worked at present.

The Globe copper mine, the first location in the district, is about one mile north of the town. The ledge shows immense cropings on the surface, and is opened by two shafts—320 and 100 feet respectively. There is an incline 150 feet deep. At a depth of 200 feet a level has been run on the ore body, and connections made with all the shafts. Two cross-cuts have been made, which show the mass of ore to be 186 feet in width. The foot-wall of this great deposit is syenite, the hanging-wall lime. The foot-wall is smooth and well-defined, and maintains its regularity all the way. The ore is a red and brown oxide, mixed with carbonates, and carries sufficient lime and iron to make it self-fluxing.

The total output of ore up to June, 1883, has been 12,000 tons, and the average grade has been $15\frac{1}{8}$ per cent. The daily output at the present time is 100 tons of ore, which could be readily doubled if necessary. It is estimated there is now opened up and in sight, 20,000 tons of ore not including the immense outcrop which carries from 3 to 10 per cent, copper. The strike of the vein is to the south, and its pitch about 35° .

A quarter of a mile from the mine, on Pinal creek, the Company have erected three water-jacket furnaces, with a combined capacity of 150 tons, daily. Two furnaces are in opera-

tion constantly, one being kept in reserve. English coke is used, and the bullion produced is 98 per cent. fine.

The works have been in operation since June, 1882, and have produced up to June, 1883, 2,000 tons of copper. The company is known as the Old Dominion Copper Company, and is incorporated under the laws of the State of New York. Like all the other copper companies operating in this camp, the great cost of fuel and supplies is a serious obstacle to the successful working of the property; and if it were not that the ores carry their own fluxes and were of a high grade, they could not be made to pay under the present condition of things. With a railroad to the camp, the Old Dominion will become one of the great copper producers of the United States.

The ore supply seems inexhaustible, and it appears to steadily improve as depth is reached. Besides the Globe ledge the company own the Old Dominion, about two miles down Pinal creek, and also the Keystone. Those claims have produced over 1,000 tons of ore which has yielded from twenty to twenty-five per cent. The company have another group of mines about five miles west of Globe, from which over 500 tons of ore have been taken, which has averaged eighteen per cent.

The Tacoma Copper Company own the Tacoma, Big Johnny, and O'Doherty, situated about two and a half miles northwest of Globe. The first named is opened by two shafts and a tunnel. Shaft No. 1 is down 140 feet, and shaft No. 2 200 feet. The tunnel is in 220 feet. The shafts are 700 feet apart, and it is designed to connect them with levels which are now being run. The ledge will average four feet wide, and carries oxides, carbonates, and some very rich copper glance. Some of the latter has yielded as high as fifty per cent. The Big Johnny and the O'Doherty are also well-defined veins, showing very high grade ore. The company have leased a smelter of sixty tons daily capacity, situated on Pinal creek. The ore requires a considerable admixture of iron and lime to smelt it. Owing to the high rates on freight the company have suspended operations at the furnace for the present, but the work of development goes on in the mine.

The Buffalo and Mark Twain are situated north of the Globe ledge, and are supposed to be a continuation of the same vein. On the Buffalo a tunnel has been driven 800 feet, which taps the ore 150 feet below the croppings. The ledge is found between lime and quartzite, has all the marks of a regular lode, and runs from four to fifteen feet in width. The ore is composed of carbonates, silicates, and oxides, and averages from twelve to fifteen per cent. To be smelted it requires a flux of iron and lime. A water-jacket, with a capacity of thirty tons, has been erected on Pinal creek to work the ores from this mine. It has produced 600,000 pounds of copper, ninety-eight per cent. fine. Owing to the cost of transportation it has been

compelled to shut down. The Buffalo is one of the finest properties in Globe district, and under favorable conditions will become one of its leading copper producers.

The Long Island Copper Company is another Eastern incorporation, operating in Globe. It has put up a smelter some distance below the town, and turned out some bullion, but owing to the heavy tariff on freights, has been compelled to suspend. Its mines are situated near the town, but no data in regard to them was obtained. The copper interests of Globe district are yet in their infancy, but enough has been done to show they are among the richest in the Territory. With direct railroad connection, their output promises to be enormous. If there were no other resources to be developed, these mines alone would be a sufficient inducement for the construction of the road.

The county of Mohave is pre-eminently a mining region. Every mountain range within its borders contains mineral. Its agricultural lands are limited, and mining and grazing must always be the leading industries of its people. Gold, silver and copper abound in its hills and mountains. The geological formation of the county is composed, mainly, of primitive rocks; the ledges are clearly defined, and the ores of a high grade. There is abundance of wood for the reduction of ore, and where water is scarce at the surface, a supply can always be had by sinking. The ores of Mohave county carry many metallic combinations, and generally require roasting before the precious metals can be extracted. In the southern part of the county free-milling, silver ores are sometimes encountered, but they change into sulphurets at a short distance below the surface.

The history of mining in Mohave, by Americans, begins in 1858. In that year a party of prospectors explored a portion of this region, but it does not appear that they made any locations or done any work, their search being for placer gold. In 1863, a portion of that swarm who were drawn to Arizona by the discovery of the gold deposits, at La Paz, drifted into Mohave county. Many locations were made, and a great deal of work was done. The hostility of the Hualapai Indians, who were then on the war-path, prevented any real development. These savages attacked small prospecting parties, wherever the opportunity presented itself, and several miners were killed, while at work in their shafts, and their bones left to moulder in the graves which they had dug for themselves. In 1871 began the work of steady development in Mohave, and since then mining has been prosecuted with varying success throughout the county. Several mills and furnaces have been put up, and a large amount of bullion has been shipped from the country. A great many mines have been opened, and the richness and extent of the mineral belt fully demonstrated.

But Mohave county, like all other portions of the Territory,

has had to struggle against many disadvantages. First among these drawbacks was the cost of material and supplies. Isolated and cut off from the outside world, its only means of communication was by the slow and uncertain route of the Colorado river. For years, nearly everything used or consumed in the county was shipped by water from San Francisco to the mouth of the Colorado then transferred to light-draft boats and brought up the river. By this tedious mode of communication, goods and material were sometimes months in transit, and the cost, when delivered at the different camps, was simply enormous. For years a pound of flour, bacon, sugar or coffee, was worth from seventy-five cents to \$1; and powder, steel, and all other mining material in like proportion.

The want of reduction works necessitated the shipping of ores to San Francisco, and so heavy were the freight charges that scarcely any profit was left to the miner on ore that would not go over \$500 per ton. Under these adverse conditions it is no surprise that mining in Mohave county has made slow progress, or that capital has not sought investment within her borders. Yet despite every obstacle and drawback which her remote situation naturally entailed, the faith of those who thoroughly understand her great mineral resources has never wavered, and with an energy and perseverance which no failures or disappointments could dampen, they have waited patiently for the dawn of that brighter day when Mohave should take her place as one of the leading bullion producers of the Territory.

Their years of weary waiting are over at last, and the completion of the Atlantic and Pacific railroad heralds the dawn for the mining interests of this portion of the Territory. This road passes through the heart of the richest mineral regions of the county, gives them direct communication with the centers of capital, east and west, and men of means are no longer compelled to travel hundred of miles by buckboard to visit and inspect a mining property. This railroad will prove of incalculable benefit to the mines of Mohave, and hundreds of claims, which for years have lain dormant, will awaken to new life and activity under the quickening impulse of cheap and rapid transportation. The thousands of tons of low-grade ores found in every district of the county, will have a value, and the work of development will be stimulated and encouraged by the cheapening of supplies and material.

Capital will seek investment in a region long famous for the richness of its ores, blessed with so admirable a climate, and possessed of such perfect railroad facilities. The "boom" for this part of the Territory, so long delayed, is near at hand, and the county will, in a short time, become one of the foremost mining regions of the Territory. Already the signs of renewed activity are visible all along the line, and the sound of the pick and the drill is heard in many a camp where undisturbed solitude has reigned for years.

HUALAPAI DISTRICT.—This district, which includes the town of Mineral Park, is situated in the Cerbat range, about thirty-five miles east of the Colorado river. The Atlantic and Pacific railroad passes down the valley on the east of the range, and the different camps are from ten to fifteen miles distant. There is an abundance of wood for milling purposes, and in nearly all the principal veins water is found as depth is reached. The formation of the district is generally a granite and a porphyry. The ore is of high grade, and the veins compact and regular. The Lone Star, near Mineral Park, has been opened to a depth of 200 feet, and has produced \$75,000. The ore is a sulphuret, and very rich. The vein is small but regular. The Keystone, in the same neighborhood, is a ledge of a similar character. It has been opened by several shafts, the deepest being 250 feet. The ore has worked \$100 per ton, and it is said the mine has yielded over \$100,000. The Fairfield is on the same vein as the Keystone. It has been opened by a tunnel over 1,200 feet in length. The Ithaca, southeast from the Keystone, shows a ledge two feet wide, from which has been taken chloride ore that has gone \$70 per ton. It is opened by several shafts, drifts and tunnels, and has produced more than \$15,000. These, and many other valuable claims, are in the vicinity of Mineral Park. About four miles north from the Park is the camp of Chloride, which has yielded a great deal of rich ore. The Connor shows a two-foot vein that has assayed \$100 per ton. It is opened by a 100-foot shaft, and has produced \$20,000. The Dorohue and the Rodgers, very promising properties, are opened by several shafts, and have turned out more than \$18,000 each. The Empire carries rich sulphurets, and has produced some \$10,000. The Valley View is a large vein, from four to eight feet wide, with an ore body that averages \$40 per ton. The Schenectady, San Antonio, and many other fine prospects are in this camp, which is well worthy of inspection by those seeking mining investments.

Todd's Basin is south of Mineral Park about four miles. There are a number of fine-looking properties which show only a limited amount of development. Among them may be mentioned the Oro Plata, with a tunnel over 100 feet, and a four-foot vein of milling ore going about \$50 per ton. The Todd is a foot-ledge, carrying sulphurets worth \$50 per ton. The Paymaster is a fine-looking property; the vein being three feet in width, and the assay value \$50 per ton. The veins in this camp are large, and have every mark of permanency.

Cerbat camp is seven miles south of Mineral Park. The ores are of high grade, the ledges are regular, and well-defined, and there is sufficient wood and water for their reduction. The camp has produced a great deal of bullion, but its isolated position has brought mining almost to a standstill. Now that the railroad is completed the work of development is being renewed,

and Cerbat promises to become one of the liveliest camps in Mohave. It would occupy too much space to mention all the meritorious properties located here, therefore allusion can only be made to a few of the most prominent. The Fontenoy has produced over \$30,000. It has been opened by two shafts, one being over 100 feet. The vein is two feet wide, and assays \$100 per ton. The Cerbat is a strong vein of sulphuret ore and has yielded over \$25,000. It is opened by several shafts.

The Seventy-eight carries some very rich chloride ore. The mine has produced nearly \$300,000, the average of the ore shipped to San Francisco has been \$350 per ton. The claim is more thoroughly developed than any in the camp, showing more than 1,000 feet of shafts and tunnels. The Flores carries gold and silver, and has yielded over \$40,000 from the *arastra* process. It is opened by 300 feet of shafting and tunneling. The Black and Tan is opened by a 250-foot shaft. It shows a two-foot vein and has yielded over \$25,000. The Silver, Vanderbilt, New London, Bay State, and Tulare are all fine prospects. Cerbat has paid its way from the start. Nearly all the ores taken out have been shipped to San Francisco by poor miners, who had no capital except muscle and determination.

Stockton is three miles east of Cerbat, on the wooded slopes of the range above the wide Hualapai valley. It has a delightful situation, and is not over seven miles from the railroad. The veins are silver-bearing and the formation granitic. There is plenty of wood, and no scarcity of water. As in Cerbat, the ores from this camp have been shipped to San Francisco, there being no reduction works in the vicinity. Some of the shipments have been marvelously rich, and it is estimated the Cupel has produced \$150,000, by this mode of working. It shows a two-foot ledge, and is opened by 500 feet of shafts and drifts. The Little Chief is a small but very rich vein. The ore shipments from this claim have gone from \$400 to \$1,200 per ton, and the total yield has been over \$50,000. The Tigress shows an eighteen inch vein, that assays over \$100 per ton. It has yielded more than \$25,000. The Prince George, IXL, Infallible, Silver Monster, and dozens of other encouraging prospects are met with here.

MAYNARD DISTRICT is in the Hualapai range on the east side of the Hualapai valley, through which the Atlantic & Pacific Railroad passes. The mountains are covered with a heavy growth of pine, oak and juniper timber, and the water supply is abundant. The ores are a sulphuret, and of high grade. The American Flag is opened by over 2,500 feet of shafts, drifts and tunnels. It has produced over \$80,000 from ore shipped to San Francisco. The vein is not large, but the product is very rich. The Dean is a large ledge carrying sulphuret ore. It is opened by 600 feet of tunnels and 200 feet of shafting. The Antelope is also a strong ledge, averaging

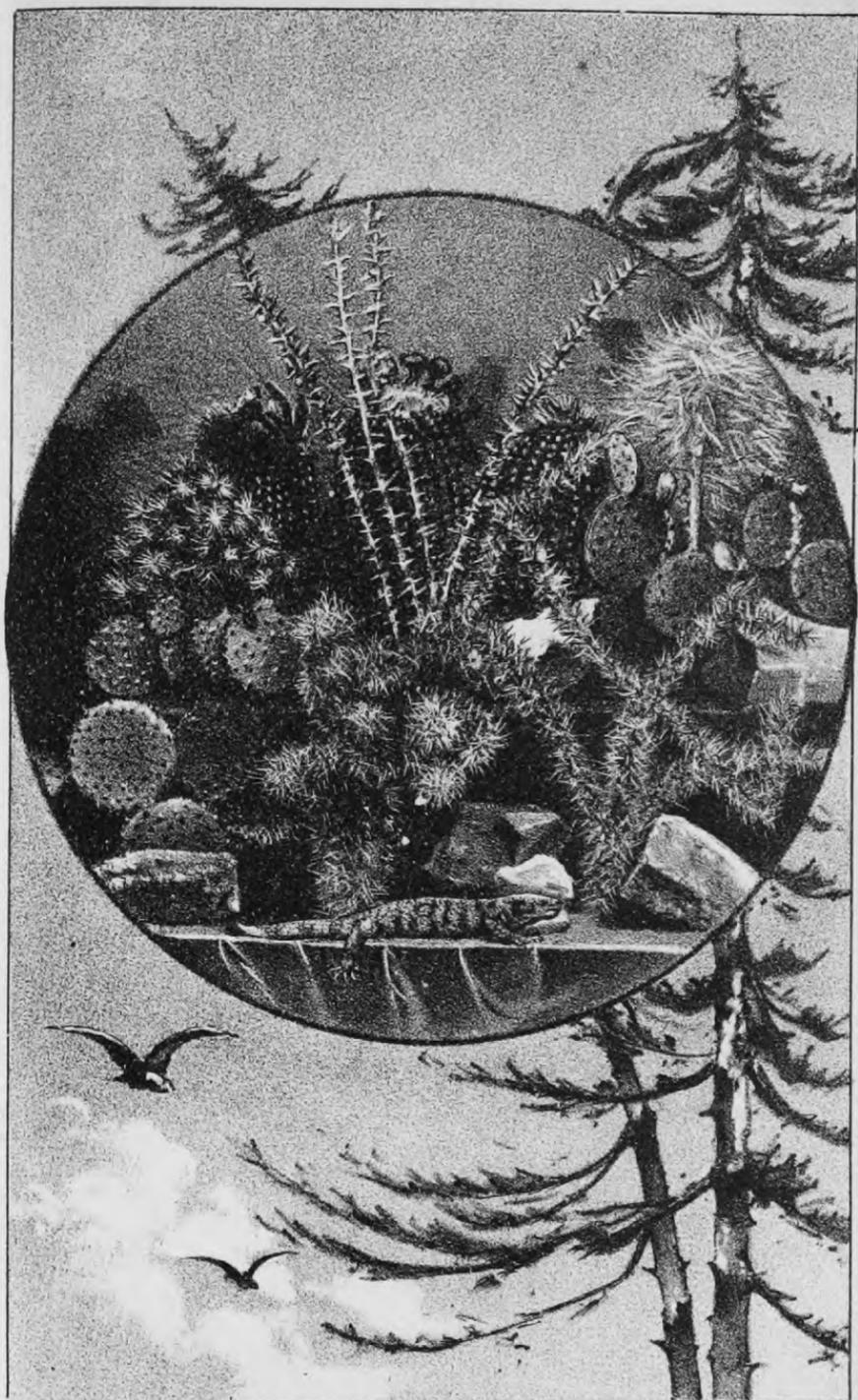
four feet in width, and opened by 400 feet of shafting. It has produced \$20,000. There are many more fine properties in this district, which is only ten miles from the railroad, and has, besides its wood and water supply, a perfect climate.

HACKBERRY.—This camp is in the Peacock range, about three miles from the railroad. The discovery of the Hackberry mine attracted a large number of miners and prospectors to this point, some years ago, and for a long time it was the most prosperous spot in Mohave county. A ten-stamp mill was erected on the mine and ran successfully for several years, producing over \$300,000. The Hackberry ledge is nearly forty feet wide in a formation of granite and porphyry. The pay-streak is confined to about eighteen inches, which has averaged \$200 per ton. The mine is opened by nearly 1,000 feet of shafting. The property has been idle for several years, but work has lately been resumed and is being pushed forward with a large force of men. The mine has long been considered one of the leading properties of Mohave, and under proper management will again become a regular bullion producer. The Hester and the Hackberry South are extensions, and have produced over \$30,000.

Gold Basin is some forty miles north of Mineral park. The ledges are large, gold-bearing dykes, the ores being of a high grade and free from base surroundings. A five-stamp mill has been put up in the district and has turned out a considerable amount of bullion. Water is scarce, but an abundant supply can be had at the Colorado, some thirty miles away. A narrow-gauge road from the mines to the river has been projected and will doubtless be built. The supply of ore seems inexhaustible, and with cheap facilities for reducing it, Gold Basin will become one of the most productive camps in the Territory. The Northern Belle, Golden Rule, El Dorado and Indian Boy, are among the principal claims.

OWENS DISTRICT.—This district is situated in the southern part of the county, near the line of Yuma. The discovery of the McCracken mine, in the latter part of 1874, created a lively excitement, not only in Arizona, but outside of it, and a "rush" ensued to this part of the Territory. The McCracken lode, which cuts across the country for several miles, is one of the great mines of the coast, and wherever opened, shows from five to forty feet in width. The ores are mainly chlorides and bromides, with some sulphides and galena. In the extent of its ore body the mine has few equals on the coast. A large amount of work has been done, and the fact demonstrated that it is a permanent fissure. For several years the McCracken was one of the leading bullion producers of the Territory, and the yield during the period of its activity reached \$1,000,000

The property is owned by a San Francisco company, who put up two mills, one of twenty, and another of ten stamps. The cost of supplies and the heavy charges on freight compelled



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SOME NATURAL PRODUCTIONS.

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the owners to suspend operations, and for several years nothing has been done. The deepest workings are about 400 feet, the vein at that depth showing a large and regular lode. There are thousands of tons in sight in this mine and on the dumps, which will yield \$30 per ton. Now that the railroad lessens the cost of material it is expected that work will again be resumed on this fine property. East of Owens district, on Burro creek, is the Burro mine, a vein over thirty feet wide, and carrying ore that assays from \$5 to \$300 per ton. There is a shaft 250 feet and several open cuts.

SAN FRANCISCO DISTRICT is in the Union Pass range, ten miles east of the Colorado river. Here is located the famous Moss mine, whose extraordinary richness created such an excitement some years ago. The noted frontiersman, John Moss, after whom the mine is named, was guided to it by a Mohave Indian. The mine has produced some magnificent specimens of gold quartz, and has yielded over \$200,000. It has been worked at intervals, since its discovery, in 1863, but no attempt at systematic development has been made. Drifts, cross-cuts, and coyote holes have been run in search of the rich pockets, leaving the larger ore bodies untouched. The ledge will average nearly thirty feet in width and is said to yield \$10 per ton. With such an immense mass of free-milling ore, and with the water-power of the Colorado only ten miles distant, this should yet become a valuable property.

CEDAR VALLEY DISTRICT.—The mining camp of Cedar Valley is sixty miles east of the Colorado, and about the same distance south of Mineral Park. There is a good supply of wood, and all the veins carry water. The formation is a granite, the ledges being regular and continuous. The ore is a sulphuret of silver. A ten-stamp mill has been put up in the district, and many of the mines show a large amount of development. The camp has produced over \$60,000, with very crude and imperfect appliances for ore reduction, and with careful and intelligent management promises to become a steady shipper of bullion. The Hibernia, Hope, Silver Queen, and Bunker Hill are the principal mines.

Pima county is the oldest mining region of the United States, and before a pound of ore was worked in any other State or Territory of the Union, silver bullion was produced here. At what time the first discoveries were made is a matter of conjecture, but it is known that the Jesuit Fathers opened mines in this region as early as the latter part of the seventeenth century. When the bells of Independence Hall tolled out the immortal Declaration, mining was prosecuted with vigor in this remote corner of the continent, and in the Baboquivari, the Santa Rita, Arivaca and Patagonia, silver bricks were being manufactured and many mines worked. On the borders of Pima county were found the famous *planchas de plata*, the largest lumps of the

pure metal ever discovered. The causes which brought to an ending this prosperous industry in Pima, have already been alluded to, and it was not until after the American occupation that it began to revive. In 1856, American capital was enlisted in the development of the rich silver veins in the Santa Rita and Arivaca districts, and the venture was meeting with marked success, when the breaking out of the civil war brought the enterprise to an abrupt ending.

For more than ten years thereafter, but little mining was attempted in Pima, and it was not until after the hostile Indians were placed on reservations, in 1874, that operations were again resumed on a scale of any magnitude. The opening of the Southern Pacific railroad gave a marked impetus to mining in this county and throughout southern Arizona. A large amount of capital sought investment, and many valuable claims were opened up. Ignorance and dishonesty in the management of mining properties have done much to retard the advancement of the county, and injured its reputation abroad. But despite these drawbacks, the industry is in a healthy condition, and is steadily advancing. Gold, silver and copper are found in almost every hill and mountain range.

Outside of the Papago country there is abundance of wood and water, and even there a sufficient supply of the latter can always be had by sinking. Granite and porphyry are the prevailing formations, but lime, slate and eruptive rocks occur in many places. The ores are of high grade, and the ledges generally compact and well-defined.

EMPIRE DISTRICT.—This district is seven miles south of Pantano station, on the Southern Pacific railroad, and twenty-five miles east of Tucson. The ores are found in a formation of limestone, and are large and rich. The Total Wreck is the leading mine of the camp, and has been one of the foremost bullion producers of the Territory. The ore body will average six feet wide, and has been opened to a depth of 360 feet by an incline shaft, which follows the foot-wall. Levels have been run every fifty feet, and a tunnel from the surface taps the shaft at a depth of 200 feet. The mine is worked through this tunnel. A great deal of stoping has been done, and the mine is thoroughly opened by winzes, crosscuts, etc. The ore is a chloride, carrying considerable carbonate of lead, manganese and iron, the average mill test being about \$60 per ton. One hundred yards from the hoisting works a fine twenty-stamp mill has been erected. It is furnished with all the latest improvements, and has a capacity equal to three and a-half tons per stamp, in twenty-four hours. The ore has been worked to eighty-four per cent. and the tailings concentrated and saved. It is estimated the cost of mining and milling does not exceed \$8 per ton. Water is brought to the mill from a spring about four miles away. At this point a pump has been put in place,

which raises the water 500 feet to a reservoir on the summit of a hill, three miles distant. From this reservoir, which overlooks the mill, the water is conveyed in pipes. During a run of five months the mill produced \$450,000. It is now stopped, for what cause is not known, as work still goes on in the mine, and large ore bodies are in sight.

The Forty-nine claim is about three miles west of the Total Wreck, and on the same lime-belt. It is opened by an incline shaft, 116 feet in depth. The vein will average eight feet in width. It is of the same character as the Total Wreck. Average assays, across the vein, give \$40 per ton. The mine is patented, and has 350 tons of ore on the dump. The Empire shows a good-sized ledge of argentiferous galena. It is also patented.

ARIVACA DISTRICT, is about sixty-five miles south of Tucson, and is one of the oldest mining camps in the Territory, having been established long before the settlement of the country by the Americans. It has a delightful situation among the rolling, grassy hills bordering the valley of La Aribac, has a fine climate, and abundance of wood and water. Two or three mills have been erected in the district, but for some cause they are not running at present. The veins are strong and regular, and the ores of a high grade. There has been a good deal of mismanagement in this camp, and to this cause more than to anything else must be attributed the present condition of affairs.

The famous Cerro Colorado is about ten miles north of Arivaca. It was one of the first mines worked by the Americans in Arizona, and has produced over \$2,000,000. At the breaking out of the Civil War the Apaches destroyed the buildings and hoisting works, and compelled the abandonment of the property. Large quantities of ore have been stolen from this mine by the Mexicans, and it is said the town of Saric, in Sonora, was built up on the proceeds of the plunder. There is a large number of patented mines in the district, upon which considerable development has been done. Among the most prominent are the Arizona Consolidated, with a 200-foot shaft; the Arkansas, with a shaft 150 feet and a four-foot vein of chlorides and sulphurets of silver; the Longarine, assaying \$80 per ton, with three shafts, the deepest being 100 feet; the Union, a four-foot vein of milling ore worth \$50 per ton. The Silver Queen is a new discovery, and a very encouraging prospect.

The Albatross is one of the most promising mines in Pima county. It has been incorporated under the laws of the State of New York, under the name of the Inca Gold and Silver Mining Company. The place of business is Tombstone, and the directors, L. B. Pomeroy, Alpheus and Robert A. Lewis. Several shafts have been sunk on the property, the deepest being 120 feet, showing an ore body from five to twelve feet in width at the bottom. There is an adit level on the vein which con-

nects with the shaft at a distance of 195 feet. There are between 300 and 400 tons of high-grade ore on the dumps. The ore is a chloride carrying gold, the average assays being \$88 in silver and \$34 in gold. The owners will soon commence extensive developments on this fine property.

In the Baboquivera range, west of Arivaca, there is a number of fine prospects, assaying from \$50 to \$100 per ton, silver. The most promising are the Black Hawk and the Silver Chief.

ORO BLANCO.—This district is seven miles southeast of Arivaca, and contains many good mines. The ores carry silver and gold, and there is abundance of wood and water for reduction purposes. The San Jose is opened by 400 feet of shafts, drifts and tunnels. The ledge is nearly 100 feet wide, the ore occurring in seams. Some of this ore has assayed as high as \$15,000 in silver per ton. Over \$10,000 has already been taken out, and the work of development is being pushed steadily. The Yellow Jacket has been opened to a depth of 120 feet, showing good ore all the way. A cross-cut on the eighty-five foot level shows the vein to be twenty-five feet wide. Large quantities of ore are in sight, estimated to be worth \$15 per ton. The mine has produced over \$25,000. The Old Stiff has produced 100 tons of ore, which yielded at the rate of \$100 per ton, at the Arivaca mill. As yet but little work has been done on this property. The Montana is an immense vein, 100 feet between walls, and is opened by several hundred feet of drifts, shafts, etc. The St. Patrick has over 100 tons of ore on the dump, worth \$150 per ton. The Warsaw is a vein from three to four feet wide. The ore has worked \$80 per ton, and the mine has produced over \$30,000. The Nil Desperandum shows a strong vein of free gold, that has yielded \$40 per ton. The Ostrich, Wateree, Herman, Idaho and California, are all fine prospects. The Orion mill, so long idle, is being overhauled and will soon start up on the rich ores of this camp.

HARSHAW DISTRICT.—This district is about seventy miles southeast of Tucson, in the Patagonia mountains, and was one of the most active camps in the county two years ago. The Hermosa mill was then running and the mine being worked. It is estimated this property has produced over \$700,000. The mill is idle at present, but some work is being done in the mine. The ledges of this district are large and the ores generally easily reduced. Patents have been obtained to the following claims: American, Blue Nose, Garfield, Iron Cap, Commonwealth, Cosmopolitan, Salvador and Bluff. With plenty of wood and water and large bodies of milling ores, Harshaw must again become a prosperous camp.

Washington Camp is nine miles south of Harshaw, and has a delightful situation in a heavily-timbered region overlooking the valley of the Santa Cruz. The ledges are large, but the ores are low grade, carrying a heavy percentage of lead. There is abundance of water at the Santa Cruz, four miles away.

The Old Mowry Mine is in this neighborhood, and was worked extensively before the breaking out of the war, employing, it is said, at one time over 400 men. The Apaches destroyed the buildings and reduction works, and all that remains of a once prosperous camp is the tall brick chimney which yet stands a monument to the energy and enterprise of Lieut. Mowry. A great deal of development has been done here and several attempts made to work the ores, but, owing mainly to bad management, these ventures have not proved a success. But the opening of the Arizona and New Mexican railroad has considerably lessened the cost of material, and no doubt many of the mines now idle will start up. The leading mines are the Davis, opened by several shafts, Belmont, San Antonio, Holland, Blue Jay, Grasshopper and scores of others. With its water and wood facilities and immense veins, this camp should yet become a steady bullion producer.

PAPAGO DISTRICT.—This district lies southwest of Tucson. It contains some large ledges of copper and silver ores, which show very encouragingly, as far as developed. The Pichaco mine shows a vein four and a half feet wide, carrying silver, copper and lead. The Montezuma is a three-foot vein of copper and silver ore. There is a fifty-foot shaft on the property which has been patented. The Silver Crown is also a promising property, but has only been developed sufficiently to obtain a patent; it carries gold, silver and copper.

CABABI DISTRICT, is west of the last-named mines, and embraces a large area of the Papageria. It has produced some exceptionally rich ore, large quantities of which were packed on mules to the reduction works in Northern Mexico, before the American occupation. The Pichaco mine was worked many years ago by Mexicans, and a great deal of high grade ore extracted. This ore carries silver and copper, native silver occurring in considerable quantities. The mine has been opened by several shafts, and is now owned by a company who intend to put up hoisting works at an early day. The Desert mine has been explored to a depth of seventy feet, and shows a strong ledge of silver and copper-bearing ore. El Cantivo, Santa Tomas, Copeska and Cabriza are in this district, and are all promising prospects. West of this group of mines are the famous Ajo copper properties, which were worked extensively in early times, and the ores shipped from Port Libertad to San Francisco. Those mines have recently changed hands, and it is expected that work will soon be resumed. The principal claims are the Pinto, Pinto No. 2 and Pinto No. 3, all carrying some of the richest copper ore yet found in the Territory.

MYERS DISTRICT.—This camp is in the heart of the Papago country, seventy-five miles west of Tucson, and on the line of the proposed road to Port Lobos. Some very high grade ore has been found, but, outside of the Gunsight, little work

has been done. A shaft has been sunk on this mine to a depth of 380 feet, when water was encountered. The ore body is large, but the grade is not high. A ten-stamp mill has been erected on the property, but has not yet started up. The Eastern, Silver Girt, Crescent, Glance, Southern Belle and Keystone are very flattering prospects, but show very little development. On the Burro Burro mine two reverberatory furnaces have just been erected for the working of its ores.

In Pima district, the prominent mines are the Patterson, Arizona King, Arizona Queen, San Xavier and Democrat. On the San Xavier there are about 300 feet of development. A large body of somewhat rebellious ore has been struck, and a smelter is now being erected for its reduction.

SILVER BELL DISTRICT has many fine copper properties, upon some of which a great deal of work has been done. The Young America Copper Company have a twenty-ton smelter, which is kept steadily at work, and has already turned out a large quantity of bullion. The Blue Coat, Old Boot, Navajo, Aztec and Young America have been patented.

OLD HAT DISTRICT.—This camp is in the northern end of the Santa Catalina range, thirty-five miles from Tucson. It has an abundant wood and water supply and a charming situation. On the Ada a five-stamp mill has been erected, and is producing about \$10,000 per month. The Bonanza is a large vein opened by two tunnels; it carries gold and silver. The Braganza has produced ore worth \$300 per ton. The Old Hat, Bandit, American Flag, Palmetto, Pioneer, Lookout, Black Bear and many more are located in this neighborhood.

The Helvetia camp is on the eastern slope of the Santa Ritas. It is well supplied with wood and water, and contains some rich placer claims. It has also some large copper deposits, which are being worked successfully. On the Omega claim a smelter has been erected, and, although in operation but a short time, has produced a considerable amount of bullion. The ores are high grade and easily reduced.

TYNDALL DISTRICT.—The mines of this district are situated south of the high peaks of the Santa Rita Mountains, sixty miles south of Tucson. The mines are favorably located near the Santa Cruz river, and there is plenty of wood, close at hand. The camp has suffered much from bad management and unscrupulous speculation. The bonanza mines, known as the Dayton, Mills and Tizwin, have shafts from 50 to 100 feet in depth, and carry gold, silver and copper. The California claim is a very promising property, and shows some magnificent ore. The Congress of Beauty, Thunderer, Delta, Bradford, Sandwich, Magnolia, North Star and a large number of other promising properties are in this district. A mill is shortly to be erected here, and with the abundance of high grade ore will no doubt give satisfactory returns.

The Aztec district may be considered a continuation of the Tyndall. The ore bodies are large and regular, but not so high grade. Among the claims deserving mention are the Missouri, General Craig, Montezuma, Empress of India, Old Salero Mine, Rosario, Toltec, Coronado, Santa Rita and Yuma.

In the Quijotoa mountains, ninety miles west of Tucson, a discovery of rich silver-bearing ledges has lately been made, which promise to become very valuable. The formation of the mountain is quartz, prophyry and conglomerate. The ore bodies are exceptionally large, and assays go into the thousands. A working test has been made of several lots, the yield being from \$300 to \$500 per ton. The ore is rich in chloride and silver glance. The principal claims are the Wide West, Piper, Ibex, Peerless and Crocker. The Emerald is an immense copper deposit, which has been explored a length of 120 feet, and a cross-cut run thirty-five feet, and is said to average eighteen per cent., copper. There are many other promising properties in this neighborhood on which work is now being prosecuted with the most encouraging results. Water has been struck at a depth of sixteen feet. The mines can be reached over a natural wagon road, and there is every indication that a prosperous camp will spring up here.

The history of mining in Yuma county begins with the discovery of the placers at Gila, twenty-five miles east of the Colorado, by Col. Snively, in 1858. The diggings were found to be rich, but a scarcity of water has prevented their profitable working. The first mining, north of the Gila, by Americans, began at La Paz, in this county, in 1862, and has been carried on with varying success ever since. From this placer ground, and from the dry diggings along the Colorado, it is estimated that over \$2,000,000 has been taken. With the decline of the placers, valuable deposits of silver ores have been found in the ranges bordering the Colorado. Many of these discoveries are proving to be among the most valuable in the Territory. Gold, silver, copper, lead and all the minerals found in other parts of Arizona exist in Yuma county; and on the gravelly *mesas* along the Colorado, beautiful specimens of opal, blood-stone and agates are found. In the variety, richness and extent of her mineral deposits, Yuma will compare favorably with her sister counties, and like them, all that she requires is capital to develop them.

CASTLE DOME district is situated twenty miles north of Yuma, and sixteen miles east of the Colorado, surrounding the lofty natural "Dome" after which the range has been named: These mines were discovered by the eminent geologist, Prof. Blake, in 1863, but, owing to Indian hostilities, work was not begun until 1869. Since then they have been sending out bullion almost continuously, and have proved to be among the most valuable mines in the Territory. Although the grade is low,

their proximity to the Colorado and the cheap rates of freight to San Francisco, have made them yield a handsome profit. These mines have produced over \$2,000,000. The formation in which they occur is a porphyritic slate, and the matrix is flourspar and talcose slate. The ores are a galena and carbonate of lead, carrying about \$35 in silver. They are concentrated, hauled to the Colorado river, and shipped to San Francisco, where they command a good price for their fluxing qualities. The principal mines are, the Flora Morrison, Railroad, William Penn, Caledonia and Pocahontas. On the Flora Morrison a depth of nearly 500 feet has been reached, and a great deal of ore taken out. The William Penn, Railroad and Pocahontas have also been opened by shafts, averaging 300 feet in depth, and by drifts and winzes. Preparations are now being made to erect hoisting works, the mines having thus far been operated by horse whims.

The Montezuma district is south of the Castle Dome. Although but little work has been done, the veins are shown to be large and well-defined, carrying gold, silver and copper. There is one main ore channel, with six claims located on it, several of which have shafts from thirty to fifty feet deep.

SILVER DISTRICT.—This is the leading mining camp of Yuma county, and was discovered about sixteen years ago. The early discoverers abandoned their claims after doing a little work, and they remained undisturbed until about five years since. At that time George Sills, Neils Johnson, George W. Norton and Gus Crawford re-located many abandoned claims, and organized the district. Since then many valuable discoveries have been made, several important sales consummated, and a great deal of work done. The camp is five miles east of the Colorado river, and about forty miles above the town of Yuma. The formation in which the veins are found is mostly granite and porphyry. The surface of the country is covered in many places with volcanic debris, and a conical-shaped peak in the northern end of the district has evidently been at one time an active volcano. The croppings on nearly every ledge in the camp show the action of the fiery flood, while the hills and rugged mountains bear evidences of the same eruptive agencies.

The ores are principally carbonates and chlorides. There is also considerable argentiferous galena. The ore is found in combination with spar and quartz, with large quantities of iron. The veins are wide and well-defined, and maintain a regular course—northeast by southwest—across the country. Outside of Tombstone there is no other district in the Territory that can show such immense ore bodies, and few that are so regular and continuous. There are four well-defined ore channels in the district, separated by rocky ridges, and known as the Red Cloud, the Princess, the Nine Mile and the New York ore channels, running parallel, and lying in the order named from the river.

The Red Cloud is the principal mine in the ore channel of the same name. It shows an immense outcrop, and has been sunk upon to a depth of 150 feet. From the croppings over \$30,000 in black metallic silver was taken by the discoverers. This fine property passed into the hands of an Eastern company, who put up a smelter to reduce the ores. The venture proved a failure, as the ores cannot be treated by that process. The mine was wretchedly handled, and is now lying idle, a monument to ignorant and incompetent management. But it cannot long remain so, for it has intrinsic merit, and will yet become a steady bullion producer.

The Black Rock is south of the Red Cloud, and is another immense dyke, showing a hill ore over 150 feet wide. It has been opened by several shafts, one of which is over 450 feet in depth. The property is owned by an Eastern company, who paid \$135,000 for it. They put up a furnace on the Colorado, and made an effort to smelt, only discovering, after having gone to heavy expense, that the ores are milling and not smelting. The property is now idle, but there is no reason why it should continue so. There is abundance of ore which, with proper treatment, can be made to pay. When the mine is conducted by men who thoroughly understand their business, it will become a profitable proposition.

The Iron Cap, Remnant, Silver Glance, Pacific, Nellie Kenyon, and many other locations are on this ore channel. Several of them have been opened by shafts from 50 to 200 feet in depth. The ore bodies are large, though not of a high grade. With proper concentrating works they could all be made to pay handsomely; and, in fact, there is no better opening for such works in any district in the Territory.

The Princess ore channel is about a mile eastward of the Red Cloud. The Princess is a fine-looking claim, which has been sunk upon to a depth of 100 feet. The Caledonia is down 100 feet, and carries large quantities of rich galena. The Yuma Chief, Hamburg, and many other encouraging prospects, are on this channel.

The Nine Mile channel is about one mile and a half east of the last-named ore belt. It embraces the Klara Group and the Great Western, Silver Brick, Camel's Teat, Rooster, Mandeville, Empire, Klara, No Name, Lost Mine, and many more. These claims are all on one immense ledge, which holds a straight course across the broken country for miles. The Klara is over thirty feet in width, and assays forty ounces to the ton in silver. But little development has been done on this great silver belt. Every claim thus far sunk upon has improved with depth.

Still east of the last named group is the New York ore channel. The principal mine in this group is the Clip. It is opened by several cuts and by a tunnel 150 feet, from the end of which drifts have been run on the vein. The ledge is from four to six

feet wide, and is principally a chloride of silver. A ten-stamp mill has been put up on the banks of the Colorado, ten miles away, and the ore hauled thither for treatment. Under careful management the mill has been a success from the start, and has paid handsomely. Work is carried forward steadily, and there is no decrease in the size or richness of the ore body. The success achieved by the Clip Company shows what can be done with intelligent and economical management. There are a score of other mines in Silver district, which only require proper handling to make them steady producers of bullion.

HACUVAR DISTRICT.—This camp is in the northeastern corner of Yuma county, and about sixty miles east of the Colorado. The veins are copper, the ore being of a high grade. Water is not plentiful, but there is a good supply of wood. Work is being carried on in the district on the following mines: Emperor, Regent, King, Queen and Prince. As far as developed these properties are looking well, and some exceedingly rich ore is being taken out.

PLMOSA DISTRICT, is about thirty-five miles east of Ehrenberg. The ledges were discovered in 1862, and are large veins, carrying copper and silver. There is plenty of wood in the neighborhood of the mines, and water is only eight miles away. The formation is made up of granite, porphyry, slate and limestone. The Miami shows an immense outcrop running through a hill which is seamed with parallel veins. The ore carries silver and copper. The Apache Chief has been opened by a shaft 200 feet, and shows a large ore body. The Pichaco is a very fine prospect, and there are many others equally as promising in this district.

BILL WILLIAMS FORK.—This is the oldest copper district in northern Arizona, and has shipped over 6,000 tons of copper ore to San Francisco, which has yielded from twenty to sixty per cent. The Planet, the principal mine, was discovered in 1863, and has been worked at intervals ever since. The Centennial and Challenge are also fine properties.

CENTENNIAL DISTRICT.—This district is in the eastern portion of Yuma county, and about sixty miles over a good natural road, from Agua Calienta station, on the Southern Pacific railroad. The ledges are principally gold-bearing, but they carry silver and copper. The rolling hills in which the mines are found are covered with grass, palo verde and mesquite wood, and an abundance of water can be had by sinking. The veins are large and well-defined in a formation of granite and porphyry.

The Oro Mining Company expended over \$40,000 in putting up a mill and opening mines, but their treatment of the ore could not save the gold. The Snow-bird is a large vein carrying quartz that goes \$20 per ton. The Yuma ledge is six feet wide and averages \$16 in gold.

The Socoro, Nabob, Richards, and Eells, Argenta, Last Chance, and numerous other claims, show large ore bodies.

Maricopa county has been looked on as an agricultural and not a mining region. While true to some extent, it yet contains some of the richest mines in the Territory, and almost every mountain range bordering the great Salt river valley is seamed with precious metals. There is no county in Arizona which offers superior advantages for the prosecution of mining enterprises. The rich valley of the Salt produces in abundance everything in the way of provisions, which can be had at reasonable prices, and the roads leading to the railroad are among the best in the country.

The Vulture mine is situated in the northeastern portion of the county. It is the largest and richest gold mine yet opened in Arizona, and has a reputation all over the coast. The mine was discovered in 1863, by Henry Wickenburg, and operated almost continuously up to 1873, when the work was suspended. During these long years of Apache domination, the mine shipped over \$3,000,000 in gold, and its stamped bars of the royal metal were current all over central and northern Arizona. It was the only mine in the Territory that kept up the reputation of the country abroad, and sent out its regular shipments of bullion. But bad management finally caused a stoppage, and for years it remained idle. Five years ago, the property passed into the hands of the Arizona Central Mining Company, and since that time has been worked continuously and profitably.

The new company brought water in iron pipes from the Hassayampa, sixteen miles distant, and have erected an eighty-stamp mill at the mine. By this arrangement, large quantities of ore which would not pay when the reduction works were at Wickenburg, now yield a handsome profit. The ledge crops out on a low hill, and has been thoroughly opened by shafts and open cuts. A deep pit, excavated on the surface, shows the ore body to be nearly 100 feet wide. The vein is enclosed between a hanging wall of porphyry and a foot wall of talcose slate. The ore is hoisted on cars from an incline shaft, and dumped before the batteries.

With the present appliances it is calculated the ore can be extracted and milled for \$2.50 per ton. As no information can be had from the superintendent, the present yield cannot be given, although it is supposed the ore averages from \$4 to \$5 per ton. The mill reduces 240 tons every twenty-four hours. The Vulture has produced some wonderfully rich gold ore, and no doubt will continue to yield for many a year to come.

CAVE CREEK.—Thirty miles north from Phoenix in the foothills of the Verde mountains, there is a group of mines, which give promise, at no distant day, of becoming valuable properties. The country rock is slate and granite, the ledges are of good size and have every appearance of permanency. They carry gold and silver.

The Red Rover has a shaft over 100 feet, exposing a large vein of rich carbonate and chloridé ore. Several tons of this ore shipped to San Francisco have yielded over \$500 per ton. This is a very valuable property and negotiations are now pending for its sale.

The Panther Mining Company own the Panther and Carbonate Chief. They are both large veins and are opened by several shafts and tunnels. The Rackensack, shows a two-foot vein of exceedingly rich quartz, and has yielded over \$10,000 by the *arastra* process. The Golden Star has had a mill erected on it, and has produced over \$20,000. The Lion is also a fine prospect, showing a three-foot vein of quartz from which over \$10,000 has been taken. The Hunter's Rest, Chico, Maricopa, Catherine, and many other very promising claims are to be seen in Cave Creek district.

WINNIFRED DISTRICT is about fifteen miles north of Phoenix. The ledges are a gold-bearing quartz, and some of them have produced very rich ore. A five-stamp mill was erected on the Grand Canal to reduce the ores from the Union mine, but by some disagreement among the owners, the enterprise was abandoned. The rock worked yielded over twenty-five dollars per ton, and there is over three feet of it. The Scarlet, Gila Monster, Red Dog and San Diego, all show good ore.

Northeast of Cave creek, on the head of New river, a tributary of the Agua Fria, a group of ledges have been lately discovered, which show remarkably rich ore and promise to become valuable. What is known as the Holmes claim is the most prominent. It has been opened by two shafts, each 100 feet, and shows a strong vein as far as explored. The ore carries silver and gold, some of it assaying into the thousands. Those claims are supposed to be in Yavapai, near the boundary of Maricopa.

Southwest from the Vulture and not far from the line of the Southern Pacific railroad, are a number of copper claims known as the "Osborn group." Several of them have been opened by shallow shafts and cuts. Wherever the veins are exposed, they show rich ore. Their proximity to the railroad will yet make these properties valuable.

Although no important discoveries of gold, silver or copper have yet been made in Apache county, it has, what is equally as valuable, vast measures of coal. Next to Pennsylvania, there is probably no such immense deposit on the continent. This coal region embraces the northern division of Apache, and that portion of Yavapai north of the Little Colorado. This coal belt also extends into New Mexico on the east and Utah on the north. It is estimated that the area covered by these great beds is equal to half the area of the coal measures of the United States. Mr. C. P. Stanton, a competent geologist who visited the fields, writes as follows:

"Close to Fort Defiance a vein exists nine feet thick, and it seems to possess all the qualities of excellent bituminous coal, and to rank next to anthracite for domestic purposes. * * * I see no reason why it should not be pre-eminently useful for generating steam and for smelting ores. * * * This description will apply to all the coal in the great Arizona coal basin. * * * The next great bed of coal encountered is situated about twenty miles northwest from the Moquis villages, and close to the northern verge of the Painted Desert. * * * It is twenty-three feet thick, and boldly crops out for a distance of three miles. This coal is close, compact, and close-burning; melts and swells in the fire, and runs together, forming a very hot fire, and leaves little residuum. It resembles, in external appearance, the Pennsylvania bituminous coal. * * * The trend of the coal-beds is north and south, and overlying this great deposit is drab clay, passing up into arenaceous grits, composed of an aggregation of oyster shells, with numerous other fossils which must have existed in this great brackish inland sea about the dawn of the tertiary period, probably in the eocene age."

The Atlantic and Pacific railroad passes a few miles south of this deposit, in New Mexico, and the company are finding it an excellent fuel for their locomotives. But the main belt is nearly fifty miles north of their line. The coal in this vast basin is practically inexhaustless; and there is here the motive power to supply the mills and furnaces of the United States for ages to come.

On Deer creek a tributary of the Gila, in Pinal county, bituminous coal of an excellent quality has been discovered. The extent of the deposit is about four miles long by two miles wide. The veins are from three to eight feet thick. The coal makes excellent coke, and for domestic purposes is said to be unequalled. The late survey of the San Carlos reservation brings these coal beds within its limits. The work of development has been stopped, and the discoverers, who have expended labor and money on their claims, have been forcibly dispossessed by United States troops, and this valuable property given over to a horde of worthless savages. These coal measures will yet become a necessity for the reduction of ores, and it is not likely they will long be allowed to remain misappropriated by a band of Indians.

Large deposits of salt are found in different parts of the Territory. Along the Salt river cañon, in Gila county, there are a number of bluffs from which salt oozes through the rocks and crystalizes. A small creek, whose waters are heavily impregnated with salt, flows into the river near those bluffs. It has its source in a spring about three miles north of the stream. The river above this point is clear and sweet, but after passing through this salt deposit its waters become impregnated with

the saline matter and have a brackish taste. This salt is of an excellent quality for all domestic purposes, and will no doubt yet be utilized for dairying and stock-raising. There are also large salt deposits in the neighborhood of Fort Verde, Yavapai county. This salt contains quantities of soda and magnesia, and is used largely by stock-growers.

Besides the mineral deposits here described, there are many other rare and beautiful varieties, which, to treat in detail, would require a volume. Mica is found in every county in the Territory, and some very clear and beautiful sheets, three by six, are frequently encountered. In the Tonto Basin, near Salt river, there are large deposits of asbestos; the fibres are long, white and of a delicate texture. No attention is now paid to the article, but cheap transportation will yet make it valuable. Iron exists in all parts of the Territory, and some very fine deposits of hematite are found in Gila county. Beds of fine, clear alabaster have been discovered in the Graham mountain, and marble of a fine quality is encountered in the Santa Catalina range. Antimony assaying eighty per cent. has been located in the Chiricahuas, and tellurium has been found in the Sierra Prieta.

Turn where we will throughout the length and breadth of this mineral domain, fresh surprises await us. A soap mine is the latest discovery. It is located in the Patagonia mountains; is a soft greasy stone, said to make an excellent substitute for the manufactured article, in removing dirt and grease from cotton and linen fabrics. Although tin has not yet been discovered many a sanguine prospector believes it exists, and he will be the lucky one to find it. Petroleum has been struck near the Apache county coal fields, and boring for oil yet promises to become a profitable industry in Arizona.





AGRICULTURE.

The Farming Lands of the Territory—The Salt River Valley.—Profits on Grain—
Fruit Culture—Dairying and Bee keeping—The Manufacture of Bacon—
Cotton and Sugar—Alfalfa—Trees and Shrubbery—Canals and
Water Supply—Mode of Cultivation—Prices of Land—
Agricultural Resources of Pinal, Graham, Yavapai,
Cochise, Apache, etc.—Lands of Gila
Bend—Total Number of Acres under
Cultivation, etc., etc.

IT is not many years since popular belief considered Arizona's agricultural resources hardly equal to the task of producing the traditional "hill of beans." It was looked upon as a barren, sandy waste, as incapable of cultivation as the Desert of Sahara, and valuable only for the minerals it was supposed to contain. The same opinion prevailed as to California, and even so high on authority as Daniel Webster asserted that a bushel of grain would never be raised within the limits of the Golden State. To-day, the traveler through the valleys of Arizona will see as handsome farms as are to be found anywhere in the West. He will see a rich soil, and a climate so perfect, that the husbandman could not suggest an improvement. He will find cereals, fruits and vegetables of as fine quality as are grown in any country on earth. He will find comfortable homes, and all the pleasant surroundings of garden and orchard which adorn and beautify the farmer's abode in older lands. He will see, literally, the desert made to blossom as the rose, and produce bountifully everything which blooms and ripens under tropic or temperate suns.

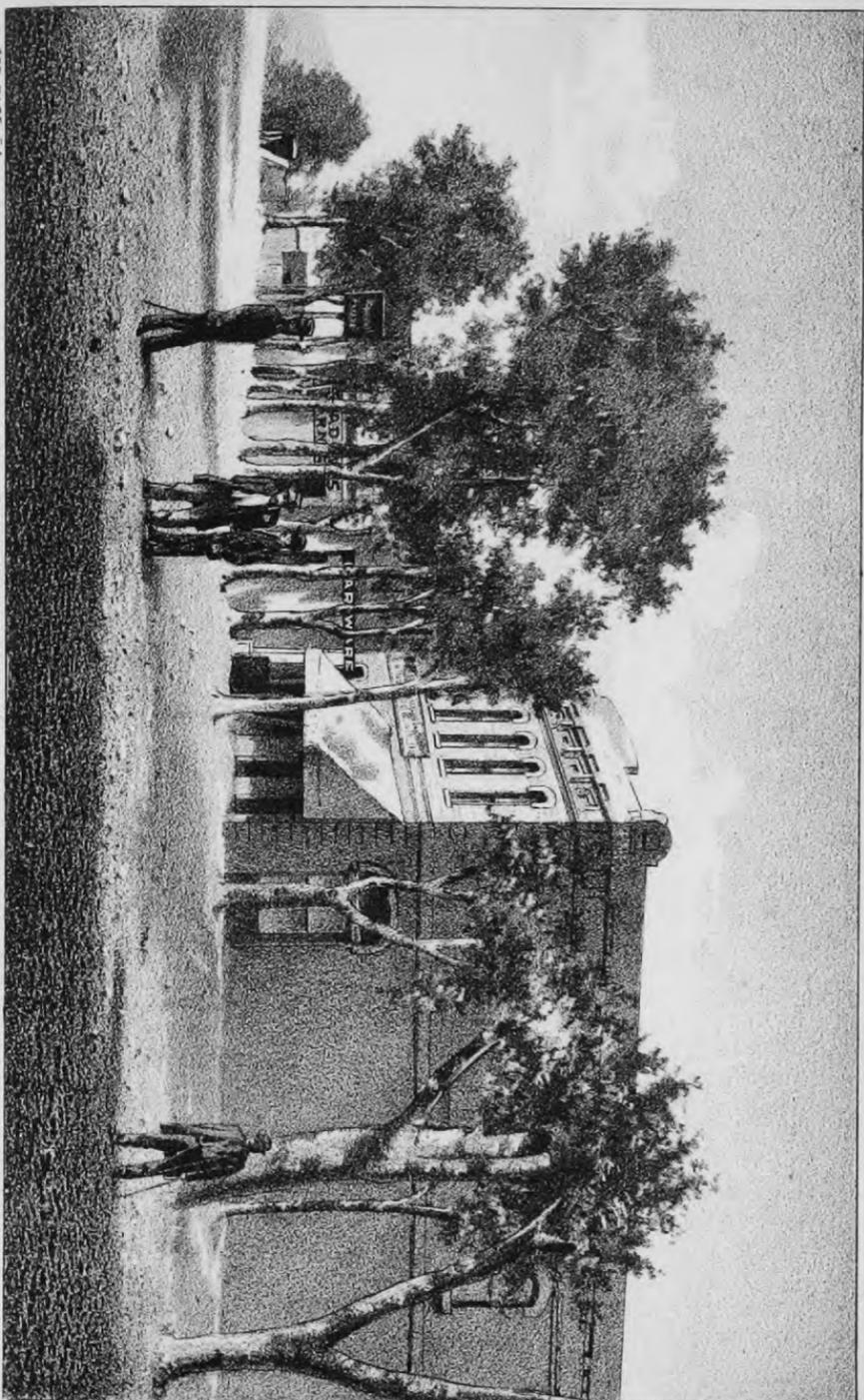
The grand capabilities of Arizona, as an agricultural region, are only beginning to be understood. Experiments made within the last few years have shown that the soil is of wonderful richness and fertility. The dry, arid valleys, which were supposed to be incapable of production, will grow magnificent crops of cereals and fruits. Wherever water can be had its magic touch brings about a transformation as sudden as it is beautiful. The desert waste dons its robes of green, smiles with verdure, and rejoices in productiveness. Vegetation has a most rapid growth, and in the southern valleys, two crops a year reward the labors of the husbandman. Nowhere through-

out the great West does Nature so generously aid the tiller of the soil, and nowhere does she give so much and ask so little at his hands. Here are broad and beautiful valleys, whose level outlines and unbroken regularity delight the eye of the practical farmer. No laborious clearing is required, and no weary years of toil in digging out stumps, and draining swamps. Ready for the plough and the seed is the rich, friable and loamy soil, and light the labor which it exacts in return for its bounteous yield.

Here no inhospitable snows, no freezing winds, and no fierce tornadoes, make life a burden for half the year. Bright sunshine, balmy air, a temperature of remarkable evenness, and an atmosphere clear, pure and bracing are the gifts which Nature lavishes on the farmer's home in Arizona. There are few portions of the West where less labor is expended on new lands. The great richness of the soil requires no aids in the production of a crop, save irrigation. A shallow ploughing, a dropping of the seed, from three to four irrigations, and the fields of waving grain are ready for the header and the thresher. Year after year the same crop is planted, but there seems to be no falling off in the yield or deterioration in the quality. Perhaps no better evidence of the fertility of the soil in the valleys of Arizona can be found, than in the Pima farms on the Gila. We know to a certainty that these people have cultivated the same land for three hundred and fifty years, and doubtless for many centuries more. Yet, the soil which has been called upon to produce a crop each year, for so many centuries, is rich, vigorous and productive to-day, yielding the finest wheat raised in the Territory, besides fruits and vegetables. There does not seem to be any "wear out" to the valley lands of Arizona. The soil possesses remarkable recuperative properties, and with careful irrigation seems to renew its strength and vigor each year.

The farming lands of Arizona are confined mainly to the valleys of the principal rivers. At the present time the cultivated area is mostly along the Gila, the Salt, the Verde, the Santa Cruz, and the San Pedro. Besides these rich valley lands, there are millions of acres with a fine soil, among the hills and on the plains and *mesas* of the Great plateau, which could be made to yield abundantly if there was water for irrigation. The valley of the Gila and the Salt rivers contain the largest and most prolific body of land within the Territory.

As stated in another place, there is ample evidence that these valleys were once densely populated, and the traces of irrigating canals, which are found far beyond the present limits of cultivation, would show that the area under cultivation in the old days was much greater than at present. Nearly all the land is as level as a floor, with a gradual slope from the mountains to the river, making it perfect for irrigation. This uniformity of surface



SEE PAGE 34

A STREET IN PHOENIX.

and gentle slope shows the handiwork of the ancient cultivator, and would indicate that the labor of centuries was required to bring it about. There can be no doubt that those people were masters in the art of irrigation, and utilized every drop of the precious fluid. Although their system of farming was doubtless crude, they reclaimed an immense stretch of land, and raised large crops.

Irrigation is the life of agriculture in the Territory. Without it scarcely anything can be raised; with it the soil is the most prolific in the west. Water, therefore, is the most precious element for the farmer in Arizona. Without it the soil is worthless. It follows from this that the amount of land that can be brought under cultivation depends on the water supply. The limit of production will always depend on this supply, but with care, economy, and system in its management, there is enough to support a large agricultural population, who will always be able to meet the home demand. This chapter will give the reader some idea of the extent and character of the arable lands of the Territory, the present condition of the farming industry and its possibilities for the future.

When the obstacles which stood in the way of the early settler are considered, it will be acknowledged that commendable progress has been made; and a glance over the fair and fruitful fields in the valleys of the Salt and Gila,

“Where the luscious fruits and golden grain
Make glad the heart of the toiling swain,”

will show the grand possibilities of Arizona as a farming country. For the purpose of conveying this information more clearly the agricultural resources of the different counties are given separately.

Maricopa is the leading agricultural county of the Territory, and the valley of Salt river has been well-named the “Garden of Arizona.” Besides the fine valley on this stream, the county also embraces a large stretch of rich lands in the valley of the Lower Gila. It has been estimated that the total area of arable land in Maricopa will exceed 400,000 acres, nearly all of which can be brought under cultivation. The valley of the Salt river from the junction of the Gila to the cañon, contains nearly 230,000 acres, with as fine a soil as can be found in any country on earth. The river flows through this immense tract, and carries sufficient water, averaging one year with another, to irrigate every acre of it. The land in this magnificent valley is generally a sandy loam, light and porous, and especially adapted to fruit. That nearer the river is inclined to a heavy, rich adobe. The first settlement by Americans was made in 1868. It was then a barren waste, covered with grease-wood, mesquite and cactus. The sun beat down on the arid plain, scorching and blistering the struggling vegetation. Outside of a narrow strip along the

river, there was not a single spot of verdure to relieve the eye. A more perfect picture of nature in her wildest and most savage mood, it would be hard to find.

But what a transformation has been wrought by the labors of a few sturdy pioneers! What once was an uninviting wilderness, is now one of the loveliest spots on the Pacific coast. For a distance of nearly thirty miles along the stream, and for over four miles back from it, on the north side, is a succession of grain-fields, gardens and orchards. In the early spring, when the landscape dons its most attractive dress, the sight is surpassingly beautiful. As far as the eye can reach in every direction, it is met by fields of waving grain and blooming alfalfa; orchards, reveling in all the glory of blossom and bud; gardens, beautiful with their abundance of roses and other floral wealth. Groves of cottonwoods, giving a glimpse of tasteful homes, lines of the graceful Lombardy poplar and the handsome Osage orange, mark the boundaries of the different farms, and from garden and orchard and alfalfa field there comes floating on the air an odor of delicious fragrance, as pleasant as a breeze from the vales of Araby the Blest.

Through these green fields and delightful groves, canals and *acequias* run in all directions, and from shady arbor, orchard and thicket is heard the cooling murmur of sparkling waters. Surrounding this Arcadia, and serving as a frame to set off the charming picture, the rugged mountains rear their jagged and serrated fronts, their outlines wrapped in an atmosphere of wonderful beauty and softness, whose purple haze invests them with so strange and weird a fascination. This is not too highly colored a picture of the Salt River valley of to-day, and as yet its productive capacity has scarce been touched.

It is estimated there are at present 300,000 acres of land under cultivation in Maricopa county, some 1,500 acres being farmed by the Pimas on the Gila, and along the valley of the Salt. This shows an increase in the acreage under cultivation within two years of nearly one hundred per cent. The yield of cereals for the year of 1883 was as follows:

Wheat.....	14,000,000 lbs.
Barley.....	18,000,000 "

Making a total of.....32,000,000 lbs.

Wheat averages about twenty-five bushels to the acre, and barley about twenty-six, though instances are not rare where, by careful cultivation, a yield of forty bushels to the acre has been secured. The grain grown in the valley is large and plump, and is equal to any raised on the coast. Of cultivated grasses alfalfa, or Chilian clover, is cultivated extensively, and attains a wonderfully productive growth. Four crops are cut during the year, the yield being nearly two tons to the acre, at

a cutting, or eight tons to the acre during the year. It makes excellent feed for horses, cattle and hogs, keeping the animals in prime condition all the year round. It is also cut and baled, making a rich and succulent feed. Of fruit trees there are over 30,000 in the county, and nearly 300,000 vines.

The planting season in the Salt River valley is from the first of November to the first of March. The heavy black loam is ploughed dry, while light sandy soils are first irrigated. Many farmers summer-fallow their land, which is considered an improvement, and will no doubt yet come into general use. Everything is raised by the aid of irrigation. Small grain is flooded on an average four times during the season. The amount of artificial irrigation depends much on the rainfall and the character of the soil. New land will require more water than that which has been under cultivation for some time. The harvesting of the grain begins by the first of June, and is completed by the middle of July. The latest improved machinery has been introduced, and here, as elsewhere, steam threshers and headers have destroyed all the poetry of the harvest-field. The price of wheat will average about \$1.75 per hundred pounds, and of barley about \$1.50 per hundred. The following would be a fair estimate of the expense of cultivating one hundred acres of wild land :

Clearing, sowing, cultivating and harvesting per acre.	\$10
Sacking, freighting, storing, etc.	5
Total per acre.	\$15

Estimating the yield at 1,500 pounds to the acre, and the price at \$1.50 per hundred, we have a total of \$22.50, or a clear profit of \$7.50 to the acre. These are conservative figures, and the profits will go above instead of falling below them. The expense of cultivation is much lessened after the land has been reclaimed, and where no hired labor is required, except at harvesting, the cost will not be over \$10 per acre, leaving a clear profit of \$12.50. Alfalfa is one of the most profitable crops raised in the valley, the yield being eight tons to the acre, which sells readily at \$6 per ton, baled. It is estimated there are now nearly 3,000 acres devoted to the cultivation of this plant in Maricopa county.

The fattening of hogs is also a profitable business. They are kept on the alfalfa fields until the grain is harvested in the latter part of July, when they are turned into the stubble and allowed to glean the scattered grain which has been lost by the headers. A run on these fields puts them in prime condition for the butcher in the fall, the pork being solid, sweet, and finely-flavored. Disease is unknown, and but little work is required in fattening them for market. They are very prolific, having two litters a year. Hogs on foot delivered at the railroad, twenty-eight miles

away, bring eight cents per pound, and are worth eleven cents when dressed. The bacon cured in the valley commands a ready sale at eighteen cents per pound. It is of good quality, the hams being equal to the best California. The mesquite wood, used in the curing, gives to the meat a clear, brown color and an agreeable flavor. The market is almost unlimited, no bacon being cured anywhere else in the Territory. Over 2,000,000 pounds are annually imported, which will yet be produced at home. It has been demonstrated that the article can be raised and sold in the Salt River valley cheaper than it can be brought from California or the East. There is a fine opening for this branch of business in Arizona.

But little corn is grown in the valley owing to the uncertainty of rains; yet the soil is well-adapted for it in many places, and under favorable conditions, as high as seventy bushels to the acre have been harvested. But wheat and barley will continue to be the staples grown for some years to come. The labor and cost of production is light, while the market is always an active and remunerative one. The Salt river and Gila valleys are peculiarly adapted to horticulture. The climate, soil, and situation are all favorable, and some of the finest fruit grown west of the Rocky mountains is raised in Arizona. The grape of all varieties, apple, peach, pear, nectarine, almond, fig, plum, pomegranate, quince, grow thriftily and yield large returns. The citrus fruits, such as the orange, lemon, lime, etc., will do well by careful cultivation and close attention. Even the olive, the most valuable tree known to man, thrives in the valley of the Gila, and in a garden at Florence are several trees that have attained a strong and vigorous growth.

There are at present about 500 acres devoted to fruit culture in the valley, the greater portion being planted in peaches. The fruit is large, juicy, and of excellent flavor. The varieties grown are mostly from California cuttings, and the mode of cultivation similar to that practiced in the southern portion of that State. Fruit trees, after being planted, require to be irrigated at least once in every two weeks, but after they have begun to yield they do not require one-fourth of the moisture. Peaches begin bearing the second year and yield a good crop the third year, after planting. The profits on peach culture are large, and steadily increase as the tree attains age. The following is a fair statement of the cost and profits of peach growing in Maricopa county:

350 trees @ 20 cents.....	\$70
Planting, labor, etc.....	50
Water.....	3
Total.....	<u>\$123</u>

The second year the cost of labor, water, etc., will be \$53, and the yield five pounds to the tree, which at five cents per

pound, would amount to \$87.50, leaving a balance of \$34.50, over the second years' expenditure.

The yield the third year will be twenty-five pounds to the tree, which, at four cents per pound would amount to \$350 per acre. The increase for the next three years can be safely put down at fifty per cent.

This is a reasonable estimate of the profits from the culture of the peach in the valley of the Salt. The market is at the very door, and the price seldom falls below four cents per pound. Pears, plums, apricots, quinces, and all other fruits are equally profitable, and the cost of cultivation not greater.

Grape culture is making rapid strides in this valley. It is estimated there are now nearly 300,000 vines, and new vineyards are being constantly planted. The varieties grown are the Mission, the Muscat and the Black Hamburg. On the light gravelly soils their growth is remarkably thrifty and prolific. The Muscat attains a large size, and has a magnificent flavor. As a table grape it is unequalled. On the dry, gravelly plateau, on which the Mormon colony of Mesa City stands, over 70,000 vines have been planted and all are growing wonderfully well. The light, porous, gravelly soil seems specially adapted to the vine, and this spot yet promises to become famous for the quality of its wine. It is a well-established fact that cuttings from vines in bearing, planted in this soil, have been known to produce inside of eighteen months. Some wine has already been made in the colony, equal to the best California. Climate, soil, situation and water are all that could be desired, and this portion of the valley promises to become one immense vineyard.

The profits of grape culture are said to be greater than that from peaches; and farmers all over the county are turning their attention to it more earnestly every year. Vines planted from cuttings begin to yield the second year, and it is safe to estimate that the product of each plant for the third year will be twenty pounds. Averaging 500 vines to the acre, this would be 10,000 pounds; and at three cents a pound, \$300 per acre. The cost of cultivation is very little more than that of peaches. Grape-vines, however, require more attention, but the yield is larger and the profits greater.

The fruit culture of Arizona is yet in its infancy, but it promises in a few years to become the leading industry of the Salt river valley. There are few spots on the Pacific coast so favored by nature, and none where the horticulturalist receives larger profits for his labor. The fruit grown here is ripe and ready for sale fully three weeks before the California product. This gives the Arizona fruit-raiser an immense advantage. He has a virtual monopoly of the market during this period, and his early crop commands fancy prices wherever they are offered. With a railroad tapping the Salt river valley its fruits will yet

be shipped to the East, and offered for sale in the markets of California, nearly a month before the products of the Golden State are ready for the table. It has been demonstrated that the raisin-grape can be grown here successfully, and no doubt that branch of the fruit industry will yet be gone into on an extensive scale. The canning of fruit, which has proved so profitable a business in California, will yet be carried on with success in Arizona.

In fact, the possibilities of fruit culture in the valleys of the Gila and the Salt, seem almost without limit. Year by year the area devoted to it is being enlarged, and as the country is settled up, vineyards and orchards increase and multiply. The profits are much greater than from grain-growing, while the labor of cultivation is much lighter and pleasanter. It requires no stretch of the imagination to see the valley of the Salt one immense orchard and vineyard in a few short years; to see the large farms, now in grain, subdivided into smaller tracts, with happy homes embowered in groves of refreshing shade; to see mile after mile of the luscious grape pendant from vine, trellis and arbor, and orchards bending beneath the weight of their ripening treasures; to see the orange, the lemon, the olive and the fig growing side by side with the fruits of a more northern clime; to see this lovely vale one immense garden, the home of a happy and prosperous people.

This is not an overwrought picture of what this region is destined to become within a few years. All the adjuncts in the way of soil, climate, and water, are already here, and labor alone is required to bring about the change. Besides the fruits we have mentioned, strawberries, blackberries, gooseberries, currants, and other small varieties grow thriftily and give a prolific yield.

Dairying and bee keeping are two other sources of profitable industry in the valley. The alfalfa keeps green the whole year, and the milk and butter from cows fed on it is rich and of a prime flavor. The demand for butter is always steady, and the price seldom ever falls below fifty cents per pound. The Arabian millet is also being introduced, and is said to be an excellent butter producer. With abundance of cheap feed, the Salt river country should meet a large portion of the home demand which is now supplied from California. Bee keeping, which has proved so profitable in Southern California, was introduced into the valley a few years ago by Mr. Ivy H. Cox. The remarkable success which has attended his efforts proves the country to be well adapted to the business. The blossom of the alfalfa is an excellent honey producer, as are also the mesquite and the sunflower. As there are almost unlimited quantities of all three in the valley, the bees do not have to go far to get their food.

Disease among them is unknown; they require but little care, and the product is equal to the best-made on the coast. It is white, clear, of a delicious flavor, and readily commands from

18 to 20 cents per pound. The business has passed its experimental period, and the time is not far distant when the larger portion of the Territory will be supplied with the honey grown in the valleys of Central Arizona.

The sugar cane and the cotton plant thrive in the rich valleys of the Salt and the Gila. Of the former it is estimated there are nearly 500 acres now devoted to the business. The stalks grow strong and thriftily, and will yield 1,000 pounds of sugar per acre. At present the product is turned into syrup, which is of a good quality, and finds a ready sale at \$1 per gallon. The stalks are fed to hogs and cattle, their fattening qualities being unsurpassed. The Territorial legislature, at the session of 1883, passed an act, offering a bonus of \$500 for the best crop of cotton raised on five acres in Arizona. Several parties are competing for the prize; the growth is strong, and the cotton promises to be of superior quality. Cotton culture is not an experiment in Arizona. Long before Europeans raised a single pound in the valley of the Mississippi or along the Sea Islands, the Pimas manufactured fabrics from cotton grown in the valley of the Gila. There can be no doubt that the soil and climate of these valleys favor its successful cultivation.

In enumerating the products of the Salt river valley, it will not do to overlook its vegetable yield. The fame of its pumpkins has extended all over the Territory, and the prolific growth of its squashes, turnips, onions, beets, cabbages, carrots, lettuce, asparagus and all other varieties, is something phenomenal. But little labor is required to secure these crops. The quality is not excelled anywhere, while the yield is very large. Potatoes, which it was thought at one time could not be raised here, are of as fine a quality as if grown beneath the blue skies of the Green Isle. They are large, mealy and of excellent flavor. Sweet potatoes are most prolific. They are grown extensively and attain a large size.

After building a home, the first wish of the new-comer is to surround it with a cluster of trees to temper the rays of the summer sun. The cottonwood is now the principal tree. It has the most rapid growth and makes a refreshing shade. The first settlers being mostly poor men, set out the tree nearest to hand and native to the soil. Nearly the entire cultivated portion of the valley is now adorned by this tree, and a great many farmers have live fences of the same material. But as population increases, and the farmer finds himself in easier circumstances, others are being introduced; among them the willow, locust, ash, walnut, mulberry, pepper tree, Lombardy poplar, ailanthus and many other varieties. It is believed that the eucalyptus, magnolia, palm, cypress and other semi-tropic trees can be successfully produced along the Salt and Gila. Many homes are being made beautiful and attractive by groves of such trees; and green, cool and inviting carpets of Bermuda and blue grass

give to them all that restful charm which should surround every homestead.

No matter how humble the home, flowers beautify and adorn it. No matter how poor the immigrant, the flowers and shrubbery around his abode will always proclaim his thrift and good taste. The rose, of all varieties, the oleander, with its beautiful white blossoms, the mignonette, the honeysuckle, the geranium, the heliotrope, the fuchsia and nearly every flower that sheds its fragrance through the temperate and tropic zones, grows in these valleys. As permanent homes are being established, flower culture is receiving more attention, and a stroll through the shady lanes and byways in the suburbs of Phoenix, when the atmosphere is laden with their delightful fragrance, is like a vision of that land—

“Where the light wings of Zephyr, oppressed with perfume,
Wax faint o'er the gardens of Göl in her bloom.”

And now, reader, after having learned something about the capabilities and products of this favored region, if you think of emigrating, you will naturally desire to know what are the opportunities for securing a piece of land and making a home there. As has been before stated, everything is grown by irrigation, and the land is utterly valueless without water. At the present time eight canals convey the water from the river over the land. The names of these canals, and their respective capacities, are as follows:

Grand canal, capacity.....	7,000	inches.
Salt river “ “	3,000	“
Maricopa “ “	3,000	“
Farmers “ “	1,000	“

These are all on the north side of the river. On the south side there are the

Tempe canal, capacity.....	3,000	inches.
Prescott “ “	500	“
Wormser “ “	500	“
Mesa “ “	2,000	“
Jonesville “ “	2,000	“

Making a total of 22,000 inches of water now appropriated. The Jonesville and the Mesa canals are owned by Mormon colonies which have settled in the upper portion of the valley. They claim more water than they are at present taking out, and are enlarging their ditches and making preparations for a larger acreage. At present both colonies cultivate about 5,000 acres, devoted mainly to fruit and alfalfa. The area of land under the several canals is about 45,000 acres, of which about 30,000 are under cultivation, leaving 15,000 uncultivated. With care and economy in its use, the quantity of water now brought from the

river is sufficient to cultivate all the land within the lines of the irrigating ditches.

The volume of water flowing in the Salt river, in the dryest season, has been put at 60,000 inches, and it is claimed the stream will average, one year with another, 100,000 inches.

At one-half inch to the acre, which is about the quantity required to raise a crop of grain, there is water enough in the river to cultivate 120,000 acres of cereals. If devoted to fruit, a quarter of an inch will suffice. From this it will be seen that not much more than one-sixth of all the land that could be reclaimed is now under cultivation. The canals are owned by incorporated companies, who are nearly always farmers who have invested their own money and labor in building them. There are so many shares in each canal, each share representing what is known as a "water-right." This "right" entitles the owner to sufficient water to irrigate 160 acres of land. In the sale of land, under a ditch, the water generally goes with it; and the value of land is always determined by its water facilities, as without them it is worthless.

At present a water-right in any of the canals can be had at from \$300 to \$500. This "right" once acquired, the owner of it is entitled to water so long as there is any in the canal. The occupant of a piece of land is further required to pay \$2 per inch for the water used in raising a crop. For a quarter section in grain this would be eighty inches, or \$160 per year. This tax goes to keeping the canal in good repair, the pay of a *zanzaro*, or overseer, and for such other incidental expenses as may be incurred. At present there is great wastage, owing to a lack of anything like a regular system in the handling of the precious fluid. Among the different canals priority of location governs the right to appropriate the water from the river. The earliest claim takes precedence, and the others follow in their regular order. They are each entitled to the amount which their canal is capable of carrying; but there is no regulation by which they shall be compelled to prevent waste.

A company has lately been organized under the title of the "Arizona Canal Company," who propose to take out the largest waterway yet opened in the valley, and which will reclaim nearly all the arable land on the north side of the stream. It taps the Salt river a few miles below the mouth of the Verde where the stream is confined to a narrow channel, and flows over a rocky bottom. By taking the water at this point, a supply is assured at all seasons as it cannot loose itself in the thirsty sands. The canal will sweep around by the foot-hills of the mountains which wall in the valley on the northern side, where the traces of an old pre-historic ditch are yet plainly visible. Its total length will be forty miles. It will be thirty-six feet wide on the bottom and will have a capacity of 40,000 inches. The estimated cost of this great work is put at \$400,000. A large force of men are

now employed upon it, and it is expected to be finished by the first of January, 1885. It will reclaim from the desert and make susceptible of cultivation nearly 80,000 acres of land now a barren waste.

Most of this land has a soil equal to any now tilled, and will produce as fine crops of cereals, fruits and vegetables as any portion of the great valley. It is now covered with a light growth of sagebrush and grease-wood, which only requires to be burnt off when it is ready for the plough. This enterprise is the only intelligent step which has yet been taken to develop the latent resources of this garden spot of the Territory. It will reclaim from the wilderness and add to the domain of civilization, an immense tract of fertile land which will furnish homes for hundreds of families.

Nearly all the public lands in the valley, under the present canals and those that are projected, have been taken up. The Southern Pacific railroad claims every alternate section, under a grant to the Texas Pacific. Most of this land is vacant, immigrants not wishing to take the risk of settling upon and improving it, and then being compelled to pay an exorbitant price or be driven from the home which their toil and industry had built up. Lands which have not been improved are worth from \$5 to \$10 per acre. Improved land from \$15 to \$30 per acre, according to the character of soil and location. This price includes a water-right sufficient for crop-raising. The new canal will open up a vast stretch of country which can be had on reasonable terms.

A few years ago land went begging in this valley; to-day, choice tracts in vines and orchards, near the town of Phoenix, sell readily for \$100 per acre. As population increases, there is a corresponding rise in value; and it is not unreasonable to suppose that within a few years lands in the valleys of the Gila and Salt will command the fancy prices now paid in Los Angeles. South of the Mormon settlement at Mesa city, and extending across to the Gila river is a splendid body of rich land which at one time was under cultivation. Large groves of mesquite grow on the tract, a sure indication of the strength and fertility of the soil. This portion of the valley is well situated for irrigation, and no doubt a canal on the south side of the river will yet transform it into an immense grain-field and orchard.

Besides the great valley of the Salt, Maricopa county has an extensive tract of good land on the lower Gila. At this point the river makes a sharp turn and flows almost directly southeast for several miles, the sharp curve being known as Gila Bend. It is estimated that in this vicinity and extending down the stream there are 150,000 acres of as rich bottom lands as can be found in the Territory, capable, by the aid of water, of producing all the grains, grasses, fruits and vegetables grown in Arizona. An effort is now being made to reclaim this vast area

and make it productive. Four companies have been formed to construct canals and bring the waters of the Gila over the valley. The most prominent of these organizations is the Gila Bend Canal Company. The canal which this incorporation are now engaged in constructing, taps the eastern bank of the stream, fifty miles southwest of Phoenix. For the past ten years the river at this point has been 240 feet wide and has maintained an average depth of two feet. The canal will be twelve feet wide at the bottom, and the amount of land it will enclose is put at 30,000 acres. Work is now being steadily prosecuted on this enterprise, and it is expected the water will be on the land in time for putting in a crop in 1884.

What is known as the Webb Canal is on the other side of the river. This water-way will be about fifteen miles long and is intended to reclaim 5,000 acres of rich bottom-lands. This company expect to finish their canal during the present year, and be in readiness for a crop next season. These lands, and also those of the Gila Bend company, are only twenty-five miles north of the Southern Pacific railroad, at Gila Bend station. Most of the valley is being taken up under the "desert act," but by securing a water-right, the immigrant will have no difficulty in getting land at reasonable rates. In the Webb Company canal a water supply can be had at a cost of about \$3 per acre.

About ten miles above Oatman Flat, on the south side of the river, the Cox and Norcross Company have completed their surveys, and will soon commence work on a canal which will reclaim 10,000 acres of magnificent land. The Rumburg canal, which begins below the mouth of the Agua Fria, on the north side of the river, will, when completed, bring under cultivation 25,000 acres. All this land is of prime quality, and, where it has been farmed, has yielded as high as forty bushels of wheat to the acre. Fruit also does remarkably well and it is the intention to set out a large number of trees the coming season. Immigrants looking for a home in Arizona, will find few spots offering better advantages than the rich valley of Gila Bend.

Pinal, next to Maricopa, is the most important farming division of the Territory. The Gila river flows through the county from east to west, forming one of the finest valleys in Arizona. Beginning at the point where the river emerges from the mountains, above the town of Florence, its length is nearly fifty miles to the line of Maricopa. This magnificent valley is from one to three miles in width, with a rich loamy soil, and a climate similar in all respects to that of the Salt river. A large part of it has been set apart for the Pima and Maricopa Indians, and is therefore closed against settlement. From the line of the reservation to the cañon it is estimated there are 25,000 acres of fine land which can be brought under cultivation. At present the area under tillage is not much more than 6,000.

There is abundance of water to irrigate at least four times the

number of acres now reclaimed. But the present water system, if indeed it can be called a system, is most imperfect. Nearly all of the canals tap the river where it flows over gravel and sand, and where, in the dry seasons, it nearly all disappears beneath the surface. Although the volume of water has never been definitely ascertained there is known to be a sufficient quantity to flood the area mentioned. But to bring this water over the land it is necessary that it be taken from the river bed, where it is confined between solid walls, and flows over a rocky bottom. There are several points in the cañon, above Florence, where this can be done, the entire stream carried into a ditch of sufficient capacity, and the whole of it properly utilized. That this will be the plan ultimately adopted, there is scarcely a doubt.

At present the water is in much the same condition as in Maricopa county. Those who have priority of right take out all they require, and if there is a surplus it is allowed to go to waste. Where water is the very life and soul of the land, as in Arizona, the waste of the precious fluid should be punished as an offence against the welfare of society. When a water system based upon the broad principles of equity and exact justice to all shall be inaugurated in the Territory, its agricultural resources will take a grand stride forward.

The land in the valley of the Gila is of a superior quality. It is mostly a rich adobe, or a heavy, dark, sandy loam. The detritus, which the river floods have been depositing for ages in this valley, have given a soil of remarkable fertility. A repetition of crops does not seem to have the least effect in lessening its productiveness. Cereals, fruits, vegetables and grass crops grow luxuriantly and yield largely. The planting season is the same as on the Salt. The mode of cultivation is similar. The yield of grain is a trifle higher, while the cost of seeding, harvesting, sacking, etc., is about the same. The land requires a like quantity of water; the product is of a very fine quality, especially the wheat, and the prices obtained are equal to those which rule in the valley of the Salt. There are at present about 6,000 acres under cultivation, the yield of grain for 1883 being as follows:

Wheat.....	3,000,000 pounds.
Barley.....	2,000,000 "
Corn.....	400 "

The hay crop for the same year will exceed 1,200 tons of wheat and barley hay, and over 600 tons of alfalfa. This shows an increase of nearly two hundred per cent. in the last two years. With proper irrigating facilities this yield could be increased five-fold. There is evidence that this portion of Arizona supported a dense population in ages past, and the extensive ruins of the Casa Grande and the traces of large *acequias*, which are found in the vicinity, show that the line of cultivation extended eight miles back from the river.

Fruit culture is receiving much attention in the Gila valley. Near the town of Florence are several fine orchards and vineyards, whose yield is most prolific. Grapes, peaches, pears, plums, pomegranates, figs, quinces, apples, and such semi-tropical fruits as the orange, the lemon, the olive and the almond, attain a strong and healthy growth. The fruit is of an exceptionally fine flavor, while the orange and lemon seem to do better here than at any point in the Territory. The climate is most equable, and the valley is sheltered from the chilling winds of the early spring. The Mission and the Muscatel grapes are the varieties principally grown. They yield largely and are of a peculiarly rich and agreeable flavor.

Vines and fruit trees are increasing each year. Farmers have begun to discover that they are more profitable, and the valley of the Gila, like that of the Salt, will yet become one immense vineyard and orchard. The Gila, near Florence, is one of the most beautiful spots in the Territory. With its green fields of grain and alfalfa, its orchards, gardens, and groves of shade trees, it is as pleasant a locality to make a home as the immigrant could wish to find. Improved land now brings from \$10 to \$25 per acre, but there is a great deal of government land open for settlement. Here, as in the Salt river valley, the railroad company makes a claim to every alternate section, and, pending the settlement of the question, some of the finest land is lying idle. Farming is a remunerative business here. There is always a good market in the mining camps of Silver King, Pinal, Butte, and Owl Heads, and everything raised commands a good price.

The lower portion of the San Pedro, above its junction with the Gila, is included within the limits of Pinal county. It is a narrow valley, with a soil of great richness and fertility. All the cereals, fruits, grasses, and vegetables do well, and return a large yield. A number of comfortable homes have been established here, and some 500 acres have been brought under cultivation. Owing to the sheltered condition of the valley, it has many advantages for the growth of fruit, and the cultivation of the vine, peach, apple, plum, pomegranate, quince, and other varieties is receiving much attention. There are not less than 5,000 acres of government land in this charming valley open for pre-emption; and with a careful system of irrigation, ten times the number of acres now reclaimed could be made productive. There is a flouring mill at Safford, near Florence, which turns out a superior article.

The agricultural capabilities of Pinal are only beginning to be understood. It has an abundant water supply, large valleys, with a soil of durable fertility, a climate which brings health, strength and elasticity, and a home market with a demand always equal to the production. That it will yet be the home of a large agricultural population, and that its beautiful and fertile valleys will once again wear those robes of verdure in which

their pre-historic occupants decked them, there is no reason to doubt.

Graham county, which adjoins Pinal on the east, and embraces the upper Gila valley, has some of the finest farming lands in the Territory. It is estimated that along the Gila and its tributaries, in this county, there are over 100,000 acres of fertile land which can be brought under cultivation. As nearly one-fourth of Graham county is included in the San Carlos Indian reservation, some of its richest lands along the San Carlos, Bonita, Eagle creek and other tributaries of the Gila, are occupied by these savages, and closed against the industrious settler. The county is well-watered, having besides the Gila, the Francisco, San Carlos, Arivaipai, Blue, Bonita and the numerous springs which bubble out at the foot of the Graham mountains, and find an underground channel to the Gila. The largest body of arable land in the county is known as the *Pueblo Viejo* (old town). It extends from the upper end of the Gila cañon some thirty-five miles along the stream, until it is again shut in by a mountain range. Its width is from one to three miles, its average being about two, thus giving an area of nearly 45,000 acres. Every inch of this valley is capable of producing magnificent crops of grain, fruits and vegetables. Along that portion near the river, the soil is a heavy, rich adobe, while back towards the hills it is a light loam of great fertility, well adapted for horticulture.

This fine valley was once densely populated, and every foot of it brought under cultivation. The ruins of towns, and the traces of large canals, are yet visible in every direction. The first settlement, by Americans, was made about twelve years ago, but, owing to its comparatively isolated situation, population increased slowly, and even now there are few people in the Territory who have any idea of the extent, richness, and grand possibilities of this charming valley. Fort Thomas is situated near its lower end, and Safford, Solomonville, Smithville and San Jose are the other settlements.

Of this fertile tract only about 5,000 acres are at present under cultivation. Several canals have been taken out, and it is estimated they carry water sufficient to irrigate three times the area now reclaimed. The yield per acre is exceptionally large. Barley gives from thirty to forty bushels, wheat about the same, and corn from thirty to fifty. Corn is found to be well-adapted to the soil and climate, the quality being equal to any grown in the east. Potatoes yield, on an average, eight tons to the acre; are large, solid, and, when cooked, of a fine flavor. Turnip, cabbages, beets, melons, pumpkins, onions, and all vegetables grow large, and are of an excellent quality. The yield of grain in this valley for the year 1883 was in the neighborhood of 5,000,000 pounds, half of which was wheat, and the other half corn and barley. A large quantity of alfalfa

and grain-hay has likewise been harvested. The former thrives in the Pueblo Viejo, four crops being cut during the year. It sells readily on the ranch for \$10 per ton.

The farmers in this valley are fortunate in having such good markets close at hand. The military posts of Thomas, Grant and Bowie, receive nearly all their grain and forage from here. Wheat and barley scarcely ever sells below \$2 per hundred, corn the same; beans bring from five to six cents per pound, onions from four to six, potatoes from three to five, and all other vegetables at similar prices. There is no better market in the Territory, and the mining camps on the San Francisco river have made an increased demand for everything grown in the valley.

Two crops are raised here. Wheat and barley is sown in January, and harvested in June. Corn is then planted on the same land and is ready for the sickle in October. Small grain receives from four to six irrigations, corn from two to three. The valley is beautifully situated for irrigation, sloping gently from the mountains to the river, and showing, after the lapse of centuries, the labors of the early husbandman.

There are in the Pueblo Viejo nearly 30,000 acres of fine land now open to settlement. The railroad grant casts its shadow over this beautiful spot, as on all the valleys of the Gila and the Salt. The company claim every alternate section, and while their claim has not been confirmed, it keeps out immigration and retards the advancement of the country.

Improved land can be purchased at from \$10 to \$15 per acre. Unimproved land, under a canal, at from \$5 to \$10, according to character of soil and location. Land can be had on easy terms, and the poor immigrant, if he is industrious, temperate and energetic, will have no difficulty in obtaining assistance to make a fair start. Land can be leased on shares on most advantageous terms, or can be purchased on the installment plan.

The water supply is sufficient to irrigate every acre of arable land in the entire valley; its soil is of the richest; its climate as salubrious as any portion of the Territory. It escapes the heat of the lower valleys in summer, and it enjoys a cool, bracing atmosphere during the winter months. A light fall of snow sometimes covers the ground, but it disappears within a day or two. Its situation is delightful. South and southwest the massive Graham mountain walls in the valley, and raises its lofty peak over 10,000 feet above tide-water. Its summit and sides are clothed with a heavy growth of pine, which supplies the settler with all the lumber required. Around its base many springs bubble forth, and flow out into the plain, forming beautiful green meadows, where herds of cattle roam the whole year. Shutting in the view on the west, Mount Turnbull rears its grand and imposing crest above the dark outlines of the Galiuro range; to the north the barren hills of the Gila range obstruct the view,

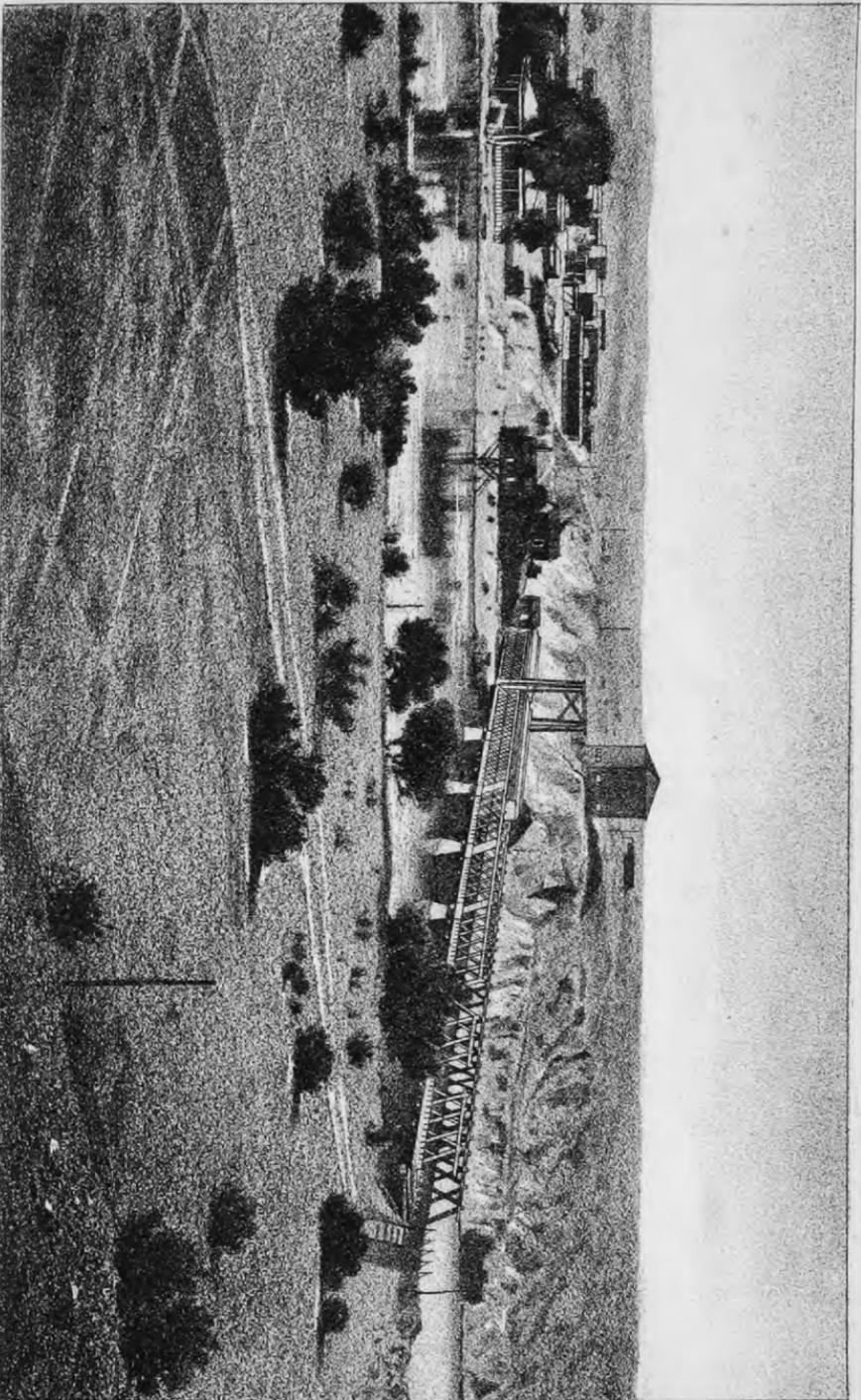
while to the east the serrated ridges of the Sierra Natanes stand out in clear relief against the horizon. In the center sits this beautiful valley, the line of the Gila being traced by the heavy growth of cottonwoods which fringes its clear and sparkling waters.

It is as pretty a picture as one would care to look upon; and in the early spring, when the summits of Mount Graham are yet wrapped in their snowy mantle, and when the valley smiles in all the glory of waving grain, blooming alfalfa and blossoming orchard, the sight is one to inspire the painter's brush or the poet's pen. To the farmer who desires to make a home in this Territory, there is no place that offers superior attractions than the Pueblo Viejo valley.

On the Blue river, a tributary of the San Francisco, in the eastern part of the county, there is a beautiful and fertile valley, containing several thousand acres, with an ample water supply for irrigation. Some 600 acres of this land have been taken up and are now under cultivation.

Yavapai county embraces the larger portion of the great Colorado plateau, and contains some very rich farming lands. The elevation is from two to three thousand feet above the valleys of the Gila and Salt, and consequently the rainfall is greater. Outside of the Verde the farming lands of the county are confined to many small and beautiful valleys, which are found through the county between the thirty-fourth and thirty-fifth parallels of latitude. These mountain vales have been enriched by the detritus which has been washed down from the surrounding hills for ages past, making the soil exceedingly rich and fertile. They are watered by springs and streams, and many of them are under a high state of cultivation. Corn, wheat, barley, oats and all varieties of vegetables are grown and attain a strong and thrifty growth. Among the most important are Williamson, Chino, Peeples, Agua Fria, Skull, Kirkland and Walnut Grove.

Nearly all of them depend on the rainfall for raising a crop. As this is somewhat irregular, and as late and early frosts are of frequent occurrence, farming here is attended with a good many risks. Corn is the principal crop. It is generally planted in the latter part of May, and if all conditions are favorable, it is ready for the harvest in October. The farmer depends on the summer rains, which usually begin about the first of July. If the rain comes in season a good crop is harvested; if it should come late, the crop is lost. In some of the valleys where there are running streams, irrigation is practiced to some extent, and good crops are assured every season. The average yield of corn is from twenty-five to thirty bushels to the acre. Potatoes attain a large growth and a prolific yield. Ten tons to the acre is not an uncommon crop. Alfalfa, and large quantities of hay are grown, and return the farmer a higher profit than any other crop harvested.



SEE PAGE 30.

TOWN OF YUMA, FROM FORT, ARIZONA,

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The climate is not adapted to fruit, and, except in some sheltered nooks, every effort at horticulture has been a failure. The season is too short, and the late spring and early autumn frosts are fatal to the successful growth of any but the hardiest varieties. In some localities, where the conditions are favorable, and where the trees are sheltered from the chilling winds, excellent apples are produced; and in the Walnut Grove valley peaches of a fair quality sometimes mature. These valleys have been settled for years, and many pleasant homes have been made in them. Besides farming, many of the settlers have turned their attention to stock-raising and dairying. The butter produced from the succulent grasses, so abundant in this region, is the best in the Territory, and will compare with the finest California.

The climate is cool and bracing in winter, and not too warm in summer, resembling that of the Atlantic States. In the early summer, when the crops are in bloom, and when hill and plain are carpeted with wild flowers, these beautiful vales look like emerald gems set in a wilderness of hill, plain and *mesa*.

There are thousands of acres with a soil capable of producing all the cereals and vegetables if there was a water supply. With flowing wells the agricultural interests of Yavapai would receive an impetus which would place them second to no other county of the Territory.

The valley of the Verde is the finest body of farming land in this county. From its source in Chino valley to its junction with the Salt, it passes through several cañons, and again widens out into stretches of rich bottom land. These spots will average from two hundred yards to a half mile in width. The soil is a rich black mold and a sandy loam of great fertility. There is an abundance of water for irrigation, and fine crops are insured every season. Corn does remarkably well in this valley, as high as sixty bushels having been raised to the acre. Some of the farms have produced corn crops for the past sixteen years and yet the soil seems to have lost none of its vigor and productiveness. Fruit can be grown here, it being much lower than the surrounding plateau, and well sheltered from chilling winds and early frosts. At present there are about 3,000 acres under cultivation along the Verde, and there are nearly as many more open to occupation. The number of acres under cultivation in Yavapai county is about 6,500.

Besides the farming lands we have alluded to there are many small valleys in the Sierra Prieta, Bradshaw, Bill Williams, and other mountain ranges. These secluded glens grow the finest of vegetables, and sometimes good crops of corn. The potatoes raised in them are the best in the Territory. No irrigation is practiced, the rain and snow-fall being all-sufficient.

The farming lands of Pima county are mostly confined to the valley of the Santa Cruz and the Soniota. The former stream,

which takes its rise in the Huachuca mountains, and enters the Gila east of the Sierra de Estrella, has some peculiarities which are all its own. For more than two-thirds of its course it disappears in the sands. Where it flows on the surface, the land has been brought under cultivation, and produces large crops of grain, fruits and vegetables. The soil is exceedingly rich, and of wonderful durability, portions of it having been cultivated for centuries. Near Tubac and Calabasas, and opposite Tucson, and the old Mission church of San Xavier, the stream forces its way to the surface, and the valley in the vicinity is in a high state of production. The Santa Cruz drains a large area of mountain country, and no doubt beneath its sands there flows a large volume of water. A project is being agitated among some citizens of Tucson to force to the surface this underground river, divert its waters into suitable canals, and convey it over the adjacent land. If such a proposition should assume tangible shape, it would be the means of making thousands of acres productive which are now dreary wastes.

The limited area now under cultivation yields fine crops of wheat, barley and vegetables, Grapes and all varieties of fruit are also grown, and in yield and quantity will compare with any portion of the Territory. The valley of the Santa Cruz was the first land cultivated by Europeans in Arizona. Wherever the Mission fathers gained a foothold, their converts were first taught the peaceful arts of agriculture. Fields were ploughed, and the vine and other fruit trees set out, and so unerring was the judgment of these old padres, that nearly every spot they chose for the founding of a Mission has become the site of a flourishing town; climate, soil and situation being, in nearly every instance, as perfect as could be wished. And so it is with the Santa Cruz valley. The lands tilled by the neophytes of the Missions, over 200 years ago, are yet as productive as when first touched by the plough.

The Sonoita is a tributary of the Santa Cruz, which it joins near Calabasas. It is about sixty-five miles southeast of Tucson, and is one of the most productive spots in the southern portion of the Territory. From old Fort Buchanan to the Santa Cruz is nearly thirty miles, and settlements have been made wherever water can be had, the entire distance. The valley is narrow, but the soil is a heavy rich mold, which yields fine crops of corn, wheat, barley and vegetables. Fruit is also cultivated in considerable quantities. At the breaking out of the civil war when a garrison was maintained at Buchanan, this valley was under a high state of productiveness.

But when the troops were withdrawn the Apache came down from his strongholds and the Sonoita was swept by fire and drenched with blood. Nearly half the settlers were murdered, and the rest fled for their lives. The savages burned and destroyed everything. Sonoita is the dark and bloody ground

of Arizona, and the graves of its pioneers mark the hillsides from one end of it to the other. The valley of the Arivaca, near the Sonora line, contains some good land estimated at 10,000 acres. It is claimed under a grant, thus keeping out actual settlers, and is at present utilized for grazing purposes.

Although Cochise county has been looked upon as a mining and grazing region, it contains large bodies of fine farming lands nearly all being unoccupied. The class of immigration which has filled up this portion of the Territory during the past four years were attracted by its marvelous mineral wealth, and have almost overlooked all else in their eager search for the hidden treasures. Yet, along the San Pedro and in the Sulphur Spring valley, there are large tracts of good land. The soil is exceedingly fertile, producing, with proper cultivation, large crops of everything grown in the Territory.

At St. Davids, some ten miles above the railroad station of Benson, a Mormon colony have established themselves, and already reclaimed a large body of land. They have built pleasant homes, raise good crops of corn, wheat, barley and vegetables. Experiments with the vine and other varieties of fruit has proved that the soil and climate is well-adapted for the successful prosecution of the industry. Small farms are cultivated in this colony, and every drop of water utilized.

That portion of the San Pedro, north of the railroad, which is included within the boundaries of Cochise, has been farmed successfully for nearly twenty-five years. This settlement known as *Tres Alamos* (Three Cottonwoods), has several fine farms which yield good crops of grain, fruits, and vegetables. The corn grown here is said to be the finest in Arizona, and the fruits are especially rich and luscious. Alfalfa and other grasses yield large returns. Several canals have been taken from the San Pedro which supplies the settlement with water. The volume of the stream is not large, and the area of land along its banks, which can be brought under cultivation, will always be limited.

The Sulphur Spring valley, which extends through the eastern portion of the county, contains 15,000 acres of good land, which can be made productive. This great valley, which is nearly 100 miles in length, and fifteen miles in width, drains an immense area of country. Over nearly its entire length, and within a few miles of each other, springs are found, and by sinking a few feet the underground river is tapped, and an abundant water supply secured. Although the valley is at present devoted principally to stock raising, its agricultural capabilities are gradually beginning to be understood, and several farms are already under cultivation. There are large tracts where no irrigation is required, the moisture from the water below being sufficient to insure a crop. Corn, wheat, barley, alfalfa, and all kinds of vegetables are now grown, the yield being

large, and the quality being equal to any in Arizona. There is hardly a doubt that flowing wells will yet be had in this valley, and at no great distance from the surface. Windmills can also be utilized for gardens and orchards. There is abundance of water just below the surface, and the industry and ingenuity of man will yet force its clear and sparkling currents to the sunlight, and make of the Sulphur Spring valley one of the most productive spots in the Territory.

The San Simon valley, which runs paralleled to the Sulphur Spring, and is separated from it by the Chiricahua range, contains at least 15,000 acres that can be cultivated. The soil is rich, and will grow anything planted in it. In the center of the valley, a short distance below the surface, the Rio del Sur flows on its way to the Gila. This stream forms several springs in its course, and an abundant supply can be had by sinking from three to ten feet. Some twenty farms have been taken up, and the yield of cereals and vegetables is something phenomenal. Running into this valley from the eastern slope of the Chiricahuas are several mountain streams, with small but exceedingly rich stretches of land, which will yet be the sites of many happy homes. On the Babacomari, a tributary of the San Pedro, which drains the northern slopes of the Huachuca mountains there are several fine farms, on which good crops of grain and vegetables are grown every year. The acreage under cultivation in Cochise is put at 5,000. There is no better market in the Territory. Hay, grain, and all farm products bring a ready sale in Tombstone and adjacent camps. Corn and barley bring from one and a half to two cents per pound, and everything else at like rates.

Yuma county contains some of the richest lands within the limits of Arizona Territory, a very small fraction of which are under cultivation. The Colorado of the West, which washes the western border of the county, forms some large and fertile valleys. The lower Gila is bordered by large tracts of rich bottom lands, with abundance of water to irrigate the same, at nearly all seasons. The total area of irrigable lands on the Gila and Colorado, within the borders of the county, has never been correctly estimated, but it is safe to say that it will not fall short of 200,000 acres. The valley of the Colorado, like that of the Nile, is subject to annual overflows, and has been enriched by the deposits carried down by the stream for ages. Under its semitropic sun vegetation is very rapid. Weeds, grasses and wild plants reach an amazing height within a short time after the waters recede.

After the overflow the Indians, who cultivate a few patches along the stream, dig shallow holes, with a sharp-pointed stick in the rich soil, and drop the seed. Although no attempt is made at cultivation, the growth is something marvelous, and in less than three months, corn and vegetables have fully ripened.

No better soil for cotton, rice, sugar, tobacco and hemp, can be found on the continent. The latter fibre is found growing in large quantities in a wild state below Yuma and along the Gulf. The orange, lemon, olive, pineapple, grape, fig, almond, peach, pomegranate, and every other fruit grown in the tropic or semi-tropic zone, are at home in the valley of the Colorado.

This large body of land, whose marvelously rich soil is the wonder of all who have examined it, remains unreclaimed. The cost of erecting suitable levees to prevent the sudden overflow, and the difficulties in opening canals, are the obstacles which stand in the way. To the poor immigrant these are unsurmountable barriers. Capital alone can make the great valley productive. The late Thomas Blythe, of San Francisco, expended large sums in this direction, and made many experiments on the capabilities of the soil. Opposite Ehrenberg, he constructed a wide canal, and was almost ready to begin planting when his sudden death brought the enterprise to an ending. He also established a colony at Lerdo, below Yuma, and within the line of Sonora. This was to become a great cotton, sugar, tobacco and hemp-growing region, and no doubt a brilliant success would have crowned the efforts of the projector, had he lived to carry out his plans.

There is a grand opportunity for capital in the Colorado valley. The rich lands are open for pre-emption, and experiments have shown that the staples we have mentioned, and all tropic fruits, can be grown here, which in quality and quantity, will compare with any portion of the Union.

Between the junction of the Colorado and the Gila there is a body of fertile bottom-land, estimated at 25,000 acres, open for settlement. Canals can be constructed from the Gila, at a moderate cost, and most of this land brought under cultivation. About 1,000 acres of this tract was reclaimed some years ago, and it is stated the largest crops of grain ever grown in the Territory were raised here.

The agricultural resources of Mohave county are limited to those lying along its western border, in the valley of the Colorado, but the great river in its course to the Gulf does not form such wide stretches of bottom-land in this county, as in Yuma. The soil is identical in both, and the difficulties to be overcome in reclaiming it, the same. Save a few patches where the Mohave Indians raise corn, melons and pumpkins, the land remains as nature left it. On the Big Sandy, a tributary of the Colorado, there are about 1000 acres in corn, barley alfalfa and vegetables. There are several thousand acres of fine land on this stream and on Williams Fork, but scarcity of water prevents its cultivation.

In Gila county, the area of agricultural land is not large. The county is mostly a mining and grazing region. Yet, along the

Salt river and its tributaries, above the cañon, and on the small streams that flow down from the Matatzals and the Sierra Ancha, there are several thousand acres with a sufficient water supply, well-adapted to the growth of cereals, fruits and vegetables. The Gila in its course through this county, forms some very fine valleys, but nearly all of them are included in the San Carlos Indian reservation. There are at least 5,000 acres on the Salt river, of which only about 1,500 are now being cultivated. There is plenty of water and the lands are among the richest in the Territory, their equable climate and sheltered situation being exceptionally favorable to the raising of grapes and all other fruits.

Along Tonto creek many small farms have been brought under cultivation, and a fine quality of grapes, peaches, pears and apricots are produced. On Pine, Wild Rye and other streams which make into the Salt from the north, are many acres of alluvial bottom-land now lying idle. The projected Mineral Belt railroad, which will pass through this region, will open a permanent and profitable market for its agricultural productions. At present there are about 2,000 acres under cultivation in Gila county, which will yet be increased five-fold.

Apache county has a good body of farming land along the valley of the Colorado Chiquito and the numerous tributaries which flow into it. In the Mogollon and Sierra Blanca ranges, which traverse this county, there are many beautiful glens and mountain glades, well adapted to the cultivation of grain and vegetables. Nearly all the available land along the Little Colorado, and many of the streams that flow into it, have been secured by Mormon colonists. From Springerville to Brigham City the valley has been brought under cultivation wherever water can be obtained. Dams have been erected, and several canals constructed, and a great deal of labor expended in bringing the land under cultivation.

Under the co-operative system of labor adopted by the Mormon church, a great many obstacles were overcome, and a large area has been brought under cultivation. Good crops of corn, wheat, barley, alfalfa and vegetables are raised. Attempts at fruit culture are meeting with marked success, and many farmers are putting out vineyards and orchards. A flour mill is in operation at St. Johns, and will turn out this year over a quarter of a million pounds. On Silver creek, the Nutriosa and other tributaries of the Little Colorado, there is some rich bottom-land, a large portion of it being under cultivation. There is little vacant land in Apache upon which water can be got, nearly all the desirable locations having been taken up by the Mormon colonists, and the desirable farming lands of the county are rapidly passing into their hands. As near as can be ascertained, the number of acres under cultivation in Arizona at the present time is as follows:

Maricopa county.....	30,000	acres.
Pinal "	6,000	"
Graham "	6,000	"
Yavapai "	6,500	"
Yuma "	2,000	"
Mohave "	1,500	"
Cochise "	4,000	"
Gila "	2,000	"
Pima "	3,000	"
Apache "	7,000	"

Making a total of.....68,000 acres.

To this should be added some 4,000 acres tilled by the Pimas, Maricopas, Papagos, Moquis, Ave Supies and San Carlos Apaches. Along the valleys of the Gila and Salt there are at least 500,000 acres, with a sufficient water supply to make them as productive as any portion of the Union. Of this vast tract only a little over 40,000 acres, or one-twelfth, are now under cultivation. To bring every acre of this land under tillage requires but the construction of irrigating canals, and a careful, judicious and economical use of water.

With a water system as perfect as that which has made the plains of Lombardy and Castile, among the most fruitful spots of earth, the valleys of the Salt and the Gila will yet support as dense a population as any like area on the globe. The large tracts now held by individuals will be subdivided, small farms will be brought under a high state of cultivation, and where one family finds a home to-day, twenty will abide ten years hence. There is no soil more prolific, no climate more genial, and such a region is again destined to be the home of teeming thousands.

The conditions which the immigrant to this Territory must meet are here stated. We have given the facts and exaggerated in nothing. We have shown the mode of tillage and the generous returns which will crown his labors. If he elects to choose some of these valleys for his future home, he will receive a hearty welcome and generous assistance from those already here; he will find a soil whose fatness equals the Delta of old Nile; he will find sunny skies, and a climate unsurpassed for healthfulness. The agricultural possibilities of the Territory are at last beginning to be understood, and a few short years will transform many a dreary waste into fields of verdure adorned by many a happy home.





GRAZING.

Advantages of Arizona as a Stock Country—The Native Grasses and their Fattening Qualities—The Water Supply—Number of Cattle the Country can Support—Markets and Profits of the Business—The Yearly Increase—Prices of Cattle and Beef—The Ranges in the several Counties—Number of Cattle in the Territory—Breeding of Horses — Wool -growing, Number of Sheep, Profits, etc., etc.

THE pastoral life is natural to man, and in all ages, and among all peoples it has had a fascination which no other occupation possesses. It is one which does not require much manual labor, which yields large returns, and which offers an existence free from the cares, vexations and perplexities that attend nearly every other calling.

Of late years the western continent has become the grand grazing ground of the world. The vast plains of North and South America have been covered with millions of horned cattle and sheep. The toiling masses in the busy hive of European industry now depend on the New World for their supply of cheap, wholesome meat; and the shipping of beef from the United States to England and continental countries has already assumed vast proportions, and is rapidly increasing. So long as man remains a carnivorous animal, so long will a pastoral life be not only a pleasant but a profitable one. The millions who turn the wheels of human industry must be fed, and to the western hemisphere must they hereafter look for their beef, pork and mutton. Europe has long since ceased to supply one-half of the demand.

The crowding mass of humanity, in their fierce struggle for bread, have long since occupied nearly all the grazing grounds, and the raising and fattening of cattle in private enclosures is an expensive business. So to the great West must Britain hereafter look for the roast beef of old England. And not only Europe, but the millions along the Atlantic seaboard, and in the great Mississippi valley. There, as in the older continent, the farmer has crowded out the stock-grower, and the ranges which were once covered by immense herds are now fertile fields, dotted with pleasant homes. Year by year the

stockman is being forced back, and the farmer sets his stakes, rears his humble home, and turns into a fruitful field the virgin soil.

While other western states and territories boast of their grazing resources, their rich grasses, salubrious climate and pure water, Arizona possesses more natural advantages for stock-growing, and offers more inducements to those who wish to engage in it, than any portion of the United States. Her ranges are of vast extent. Of the 114,000 square miles which constitute her area it is safe to say that 60,000, or more than one-half, are excellent grazing lands. From the borders of Utah to the boundary of Sonora, and from the line of New Mexico almost to the Colorado, Arizona is one vast grazing ground. Except a strip of country along the Great river, and a portion of that region north of the Little Colorado, there is no part of the Territory without a growth of grass. Valley, plain, mountain and *mesa* are alike carpeted with the rich, sweet and succulent grasses peculiar to this Territory. Black and white gramma, bunch and mesquite grasses are the principal varieties. On the Colorado plateau they attain a strong and vigorous growth. After the summer rains—which usually begin in July and end in August—valley, plain and hillside is a rolling sea of living green. The grass shoots up with wonderful luxuriance, and myriads of wild flowers lend a charm to the landscape.

Cattle roam where they list, and revel in the green and boundless pastures which surround them on every side. The fattening qualities of the Arizona grasses almost passes beyond belief. When green the gramma is exceedingly sweet, juicy and nutritious, and when dry seems to lose none of these qualities. The curing process is a trick of Nature's handiwork, and is as perfect as if done by the labor of man. No cultivated hay retains the rich and juicy qualities of gramma dried and cured by the sun. Cattle like it as well in winter as in summer, and keep fat on it one season as well as another.

This grass is found growing from one end of Arizona to the other, and is the principal food for cattle in the Territory. The quality of beef made from it is unequalled for tenderness, flavor, and juiciness. No such meat is raised anywhere in the United States, and travelers are enthusiastic when discussing a juicy steak or a tender roast grown on the native grasses of Arizona. No better article, even though stall-fed, is found in the eastern markets, and John Bull has a treat in store when he smacks his lips over a round of Arizona beef. On this grass stock feed the season round, roaming o'er hill valley, and plain, and keeping in prime condition every month of the year. Here the climate is most favorable for the stock-raiser's calling. No blinding snowstorms, no Texas northers, no intense cold robs him of half his profits, and sometimes in a night destroys his entire herd. Here he does not incur the heavy expense of build-

ing corrals and barns to shelter his stock from the snows and biting winds of the winter months. Here he is not compelled to put up large quantities of feed to keep his stock during that period. Here he runs scarcely one of the many risks that attend the stockman's calling in less favored lands. Here the climate is almost perpetual spring, and even in the driest season the feed never fails, and the owner can sit under the shade of his comfortable *hacienda* and see his herds thrive and increase winter and summer.

Arizona has been well called the stock-grower's paradise, and there is no region in the United States that better deserves the name. There is no country where the labor and expense is so light, or where the profits are so high; there is no country where the percentage of loss is so small, or where the percentage of increase is greater, and there is none where a fortune can be more quickly realized.

The water supply is ample. Thus far the cattle-man has depended upon streams and living springs. In the immense dry valleys, covered with rich grasses, which occur in all parts of the Territory, scarcely an effort has been made to obtain water by sinking. In the few localities where wells have been dug an abundant supply has been secured. There can hardly be a doubt that artesian water will yet be found in these valleys, and millions of acres reclaimed and made valuable grazing ground. When that is done—as it surely will be—Arizona will be the leading stock country on the continent. Those broad valleys and immense plains will be covered with millions of cattle, and ten times the present number will be pastured within the Territory. The sinking of artesian wells will confer almost illimitable benefits on the stock industry, and will add millions of dollars to her material wealth. It will make valuable the countless acres now given over to solitude and desolation; it will make plain, and *mesa* and mountain-side animate with the sights and sounds of active industry; it will make of Arizona a grand pastoral region, where sleek herds will cover ten thousand hills; it will bring population, industry and prosperity where now are solitary desert wastes.

Besides artesian wells, windmills will also be utilized in many of the valleys where the depth to the water supply is not great. This system is already being pursued and with success, and no doubt will come into general favor in some localities. Large herds can be watered by this means, and the cost is not heavy. In many localities where the conditions are favorable, immense bodies of water can be caught and stored during the rainy season, for the use of stock during the period of drought. In some places but little work will be required to erect dams and reservoirs and thus secure an abundant supply. In several of the valleys of the plateau farmers adopt this plan of procuring an abundance for irrigation. During the rainy season great volumes

of water fall all over the Territory, and the dry creeks and gulches become foaming torrents. There is reason to believe that the old race who once flourished here utilized a large share of this bounteous rain-fall, and their modern successors should certainly be able to do as much.

Epidemic diseases among cattle in this Territory are scarcely known. Winter and summer, autumn and spring, the animals are in the best possible condition. The fatal maladies which affect stock in other countries are never heard of in Arizona. Under its clear skies and pure atmosphere, man and beast revel in robust and vigorous health. The frightful destruction which often decimates the stock-grower's herds in a less favored clime never occurs here. The pure water and the bracing air of valley, mountain, and plain are the remedies, and the only ones, which the cattle-owner requires to keep his bands sleek, fat, and healthy, year after year. The loss from disease, it is estimated, do not exceed more than one-half of one per cent., and from all sources not more than two and a half per cent.

Let cattle-men who have seen half their herd destroyed by one night's pitiless snowstorm ponder over these facts. Let men who are following the business in countries where their property is always at the mercy of the elements, compare their lot with those whose lines have been so pleasantly cast under an Arizona sky. This one advantage alone makes the Territory the favored pastoral region of North America.

Arizona has also one other great advantage for the stock-man. While in other countries the area of grazing ground is becoming narrowed, and its limits circumscribed by the steady advance of the farmer, here, the immense plains, table-lands and foot-hills will never be utilized for any other purpose than grazing. The agricultural industry will always be confined to the valleys bordering the streams, and the vast area included in the rolling plains and elevated hill-sides will always be devoted to cattle. Most of this land is valueless for agriculture, but its wealth of rich grasses makes of it a magnificent stock-range. The cattle-owner who thinks of embarking in the business here, need have no fear of being "crowded out" by the farmer. The domain of each is clearly marked by nature, and beyond the bounds which she has set, the tiller of the soil may not go. A good range once secured, the owner can turn out his lowing herds over the broad savannahs and rolling foot-hills, and rest assured that the farmer will not in a few years drive him out, and force him to seek fresh fields and new pastures.

Nor need he have any fear about "eating up" the range. After being grazed down to the roots, the sweet gramma grass shoots up next season with fresh vigor and luxuriance. Ranges over which cattle have roamed for years show no falling off in the quantity or quality of the feed. In fact, it is claimed by some that the ground is enriched by the cattle, and that the native

grasses attain a stronger growth after being pastured for a few years.

It is estimated that 60,000 square miles, or more than one-half of the entire area of the Territory is grazing land. Reduced to acres, this vast area would amount to 38,400,000, an area almost equal to the whole of New England. Liberal estimates allow from five to ten acres of grass land to maintain an animal during the year. Taking the lowest figure, which is a very conservative one, we have a total of 7,680,000 head, which the grazing lands of Arizona are capable of maintaining. But even allowing ten acres to each head, and we have the vast total of 3,840,000. These figures are very reasonable, and with the present growth of the cattle industry, it is very probable that the latter number will be grazing within the Territory inside of ten years. The rapid increase in herds already here, and the numbers which are being steadily driven hither, makes it nearly certain that this prophecy will be realized.

Ranges in other countries are difficult to find, and costly; while in Arizona many fine ones are yet open to location, and others can be had at reasonable rates. Capital is also making heavy investments in the stock business, and is constantly on the lookout for new and more extensive ranges. Large syndicates have been formed for the purchase of immense herds, and many of them are looking towards Arizona as the country which offers the best inducements for profitable stock-growing. These favorable conditions will pour into Arizona, within the next few years, millions of hoofs and horns.

The railroads will also give an impetus to the cattle business. The two transcontinental lines now passing through the Territory have done wonders in developing the industry, but when the network of branches and side lines, now under way and projected, are completed, cattle-raising will enter on the high road that leads to wonderful prosperity and enormous growth. The iron rail will afford that cheap and rapid transportation which is essential to profitable cattle-growing. They will open to the Arizona stockman the markets of the world. To the east and to the west, to the metropolis by the Golden Gate, as well as to the great cities by the Atlantic seaboard, Arizona beef can be shipped cheaply and expeditiously. And even the European markets can be reached. With railroad communication Arizona beef can be laid down in Liverpool or London as cheaply as the Texas or Montana product. And even cheaper, for it must be remembered that the cost of production is less in Arizona than in any other portion of the United States.

The day is not far distant when the fat and succulent cargoes will be shipped across the ocean, and when the English workman will build up his thews and sinews on the prime article grown on the plains and *mesas* of Arizona. In fact the market is steadily enlarging, while the area of grass land is being stead-

ily curtailed. San Francisco alone, is as fine a market as the Arizona cattle-man could desire. Her demand is always growing, and the localities she formerly depended upon for her supply are gradually falling off in their production. In Oregon, in Washington, and other Territories, the farmer is taking up the land once devoted to stock, lessening the supply and increasing the price. To Arizona must the Queen city of the Pacific hereafter look for beef and mutton. The home market is also steadily growing, and as mines are developed, farms taken up and population increases, the domestic consumption will always be an item of considerable importance.

The profits and increase in the stock business in Arizona are something phenomenal. There is no industry or calling where the returns are so large on the capital invested, where the chances for success are greater, or the risk of failure less. Poor men who started with fifty or a hundred head, eight or ten years ago, are now "fixed" for life. There is not an instance of failure in the history of stock-growing in the Territory. Every man who engaged in it has grown rich, or is fast becoming so. Prices have more than doubled within the past three years, with yet an upward tendency. A man who is so fortunate as to own a herd of cattle and a good range is the most independent in Arizona.

Asleep or awake, at home or abroad, his droves multiply and his wealth increases. While other callings require constant attention and unremitting care, the stockman can lie down contentedly, assured that no serious accident can interfere, with his steady accumulation. While the slumbers of the miner are disturbed by visions of a "porphyry horse," a heavy flow of water, or his mine with the "bottom falling out;" while the merchant is haunted by thoughts of dull trade, low prices and bad debts; while the artisan is troubled by the nightmare of hard times, scarcity of work, and low wages, the cattle raiser can enjoy the slumbers of the blest, attended by pleasant visions of growing herds and full coffers. The yearly increase in the cattle business in Arizona is from eighty to ninety per cent.; in most cases nearer the latter than the former figure. The following table will give an idea of the increase in stock in this Territory. It is furnished by a cattle-grower of long experience, and can be relied upon as strictly correct. Starting with 100 head, the increase for five years will be as follows:

First year.....	194 head
Second "	314 "
Third "	495 "
Fourth "	782 "
Fifth "	1,302 "

These figures will convey some idea of the enormous profits of stock-raising in Arizona. There is no business which the man of limited means can engage in that leads so speedily to

fortune. This seems incredible but it is a fact that is being demonstrated every year. When it is remembered that the losses from all sources will not exceed three per cent. it cannot be wondered that cattle-men grow rich so rapidly.

The prices for cattle are high, good beef cattle being worth from seven to eight cents per pound, neat. This price has prevailed for the past two years, and there is no reason to believe it will get any lower. The following are the ruling prices at present:

Beef cattle (three year olds).....	\$35@40
Three year olds (heifer).....	25@35
Two year olds (steers and heifers).....	25@30
Yearlings (steers and heifers).....	15@20

Stock cattle are worth \$30 per head. The grade of cattle in the Territory is being steadily improved. At first a very inferior stock of Mexican and long-horned Texan steers and cows was bred, but the introduction of fine Durham bulls and droves of superior American cattle has almost driven out the poor scrubby stock of the early days. And the good work is still going on. Every stock-grower takes a pride in improving his herd, and in a few years the grade of Arizona cattle will compare with any portion of the Union. For the purpose of giving the reader a clear idea of the grazing capabilities of the Territory, and assisting the cattle-grower who thinks of driving his herds hither, a short description of the ranges in the several counties is here given.

Yavapai county, which embraces the larger portion of the great Colorado plateau, and contains more than one-fourth of the entire area of the Territory, has within its borders some of the finest grazing grounds in Arizona. The elevated plains, table-lands, foot-hills, and mountain-sides, from the thirty-fourth parallel to the Little Colorado, are all covered with a heavy growth of black and white gramma, mesquite, pine, and buffalo, grass. The heavy snow-falls of winter and the copious summer showers cover this whole region with rich, nutritious feed, on which stock keep in prime condition at all seasons. While the snow-fall in the elevated mountain ranges sometimes reaches a depth of from four to five feet, it disappears from the *mesas*, foot-hills and valleys within a very short time. The finest beef in the Territory, it is claimed, grows on the Colorado plateau. The grass is richer, more juicy and nutritious than in other parts of the country where the moisture is not so great.

The ranges of Yavapai extend all over the county. In nearly every valley and mountain glen, on the rolling plains and table-lands, and even on the sides and summits of the mountain ranges, excellent feed for stock is found. In fact the county may be considered one vast stock range, its capabilities only being limited by its water supply. Where living water can be

had, there a range can always be found; and in many localities the possession of the water gives the owner undisputed control of a pasture extending in every direction as far as the eye can reach.

The principal ranges now occupied in this county are along the water-courses and around permanent springs. No effort has been made to sink artesian wells. Many of the large, grassy valleys on the plateau are surrounded by mountain ranges, and drain the annual rain and snow-falls which descend upon them. These valleys are vast reservoirs, holding in their underground channels the immense bodies of water, which for ages have rushed down from the surrounding hills. The chances for finding artesian water in many of them are most encouraging, but hitherto no attempt has been made to solve the problem. So long as plenty of unoccupied grazing ground and living water is open for the stockman he will not go to the expense of seeking for an artesian supply. But as the number of cattle increases, and grass lands along the water-courses become overcrowded, the attempt to utilize those vast stretches of grass-covered plains will no doubt be made, and, we believe, successfully.

The Tonto basin, the Verde valley and the foot-hills adjacent, the region of country around the base of Bill Williams mountain, and the valleys and grass-covered hills of the San Francisco, the wide grassy plain, known as Chino valley, the rolling hills skirting the Agua Fria, the extensive plains along Date creek, the rich slopes of the Mogollon and the Juniper, and the scores of little valleys and mountain glens all over the county, are at present the stock-ranges of Yavapai. In many of the valleys, windmills have been erected, and owners of small bands supply their stock with water by this means. The building of the railroad along the thirty-fifth parallel has been of great benefit to the stock interests of Yavapai county. It has opened markets both east and west, and largely increased the home consumption. Stock throughout the county is rapidly increasing, and large droves are constantly changing hands at from \$25 to \$30 per head. This includes three and two-year olds, yearlings and calves. The number of cattle in the county at the present time is estimated at 65,000.

Mohave county, which joins Yavapai on the west, and extends to the Colorado river, has some magnificent grazing ranges, the larger portion of which must remain unoccupied until flowing water can be had. The Hualapai, the Sacramento, and many other extensive valleys, east of the Colorado, are covered with a thick growth of rich grasses, capable of sustaining hundreds of thousands of cattle. These valleys drain large areas of mountain country, and, no doubt, contain large bodies of water beneath the surface. At present they are utterly valueless, but if water can be found they will be among the very best cattle-ranges in Arizona. Along the Big Sandy and Bill Williams

Fork, there is a fine grassy county, and many portions of the Colorado valley are well-adapted for stock-growing. On the western slopes of the Cottonwood mountain there are many fine ranges, and also in the rolling grass-covered hills northeast from Hackberry.

Mohave, like Yavapai, is a grazing county from one end to the other, and with a regular water supply her grassy plains, valleys and foot-hills could support almost countless herds. The Atlantic and Pacific railroad, which crosses the county from east to west, gives her all the advantages of a market which it has conferred on her sister county. The number of cattle in Mohave is put at 8,000.

Yuma county has some excellent stock ranges along her eastern border and in portions of the great Colorado valley, but here as in Mohave, a scarcity of water prevents them from being utilized. Her vast grassy plains bordering on Maricopa and Yavapai are at present solitary wastes. In some valleys wells have been sunk and good water found, but the clumsy and tedious plan of hoisting with a bucket, can only supply a small number of cattle. No effort has yet been made to get flowing water in this region, but the rich and extensive country that would thus be made valuable, is certainly worth the effort. The valley and adjoining plains of the lower Gila is a fine cattle country and a large number are now being pastured there. The number of cattle in Yuma county is about 5,000.

The grazing lands of Gila county at present occupied, are situated along the Gila and Salt rivers and in the lower end of the Tonto basin. Tonto, Wild Rye and the other tributaries of the Salt which flow through the basin, are excellent stock-ranges. The slopes of the Sierra Ancha and the Mazatzal are covered with rich grasses, noted for their fattening qualities. Bordering the Gila river in its course through this county, are some of the most desirable pastures to be found in the Territory. There is an abundance of fine water, and the hillsides, valleys and tablelands are covered with a magnificent carpet of succulent grasses. This is one of the very best ranges in Arizona, and there is room for ten times the number at present occupying it. All that rolling, hilly country extending from the northern slope of the Pinal mountains to Salt river, is a fine stock country. The narrow valleys, low hills and *mesas* are covered at all times by a heavy growth of gramma and other grasses and cattle fed upon them are ready for the market at all seasons of the year.

Gila offers many advantages to the stock-raiser, and, in fact, the entire county is one vast range clothed from end to end with some of the richest grasses to be found in the Territory. At present but little of the field is occupied, and vast tracts capable of sustaining large herds, where water could be secured at very little cost, are open to occupation. The number of cattle in the county is put at 10,000.

The pastoral lands of Graham county are found along the Gila, near the new Mexican line, the Arivapai cañon, the foot-hills and valleys surrounding the Graham mountains, the lower Sulphur Spring valley, Eagle, Bonita, and other tributaries of the Gila river, from the north, and the immense grassy plains of the lower San Simon valley. This great plain has an underground river flowing through its entire length. The stream forces its way through the bank and falls into the Gila, near Safford. No effort has yet been made to utilize it for stock purposes, and hundreds of thousands of acres of magnificent grass land is given over to the wild deer and the coyote. The lower end of the Sulphur Spring valley contains some of the best ranges in the Territory, and here, and on the slopes of the Graham and Galiuro mountains, which bound it on the east and west, large herds have been pastured for years. The water supply is abundant, and the feed rich and nutritious. The Arivapai cañon, which pierces the Galiuro range and extends from the San Pedro to the Gila, is also an excellent stock country. It is nearly forty miles in length, has abundance of pure water, and a splendid growth of gramma, mesquite and bunch grass. The rolling hills and *mesas* which border it on either side are among the most desirable ranges in Arizona. The climate is delightful, and the quality of beef grown has long been noted for its juicy tenderness and fine flavor. A great many cattle are pastured here, but there is room for many more.

The upper Gila is also a fine cattle-growing region. From the boundary of New Mexico to the mouth of the San Francisco, the narrow valley of the stream is bordered with rolling hills and plains, always covered with excellent feed. The climate is superb, and the abundant water supply in the river can be approached by stock at any point. The narrow-gauge railroad from Clifton to Lordsburg passes through this region, thus offering every facility for the shipment of the product to market. Stockmen looking for a range cannot find a more suitable one than along this portion of the Gila. There is room for many thousands of cattle along the valley.

On the eastern and northern foot-hills of the Graham mountain are some beautiful stock-ranges. At the foot of this massive elevation many clear, cold springs burst forth, and flow out for some distance before they are lost in the dry plain. These springs form charming meadows, green and inviting all the year. On these *cienegas*, and on the adjacent hills and plains, cattle keep sleek and fat summer and winter. When tired of roaming over the plains and foot-hills they seek the moist, springy meadows, and crop the rich green grass which grows thereon. On Eagle creek is one of the finest ranges in the county. The grass is remarkably luxuriant, often reaching to the knee as the horseman gallops over its green expanse. There is always an abundant water supply, and it was estimated that 20,000 head can be

pastured on this one creek and its tributary. Much of the best grazing land in Graham is included within the San Carlos reservation, and closed to the white man.

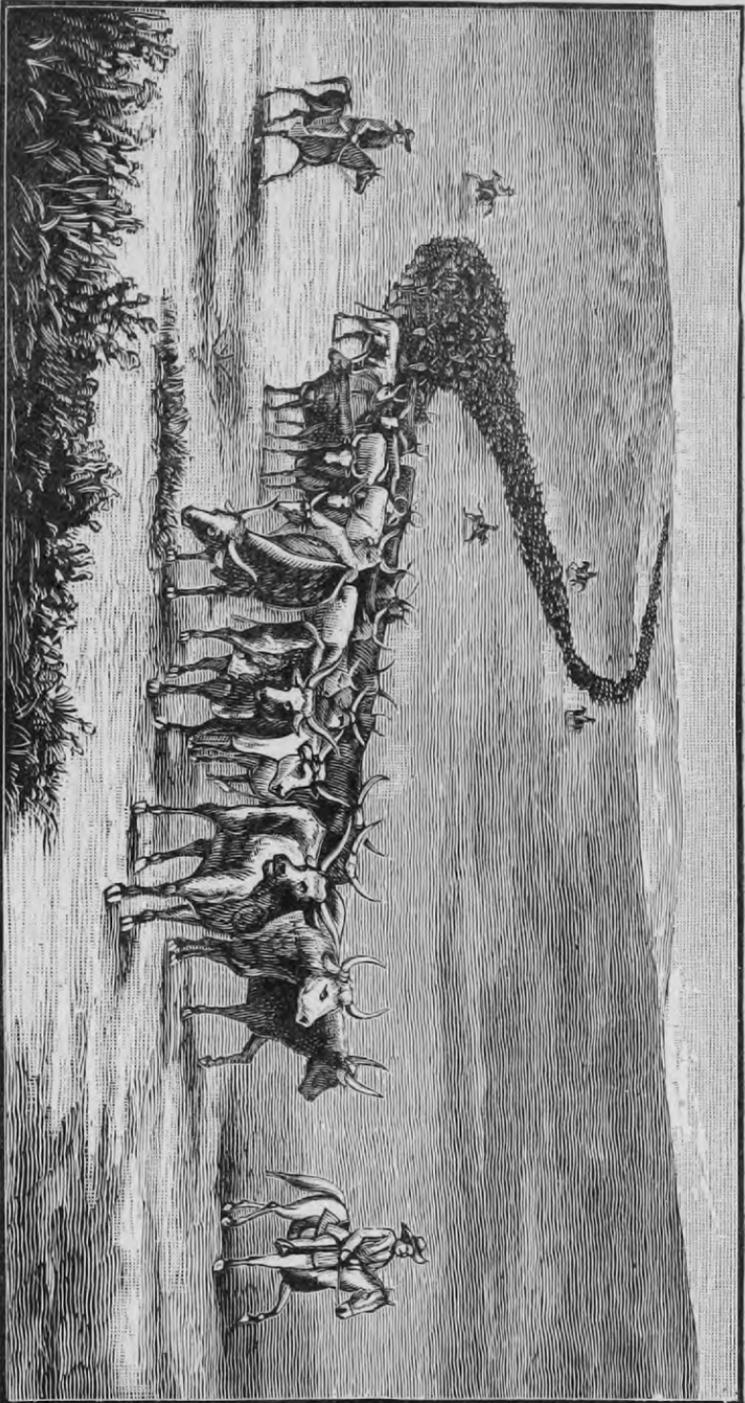
In this brief sketch of the grass lands of the county many matters of detail have been omitted, but enough has been said to show that it is one of the foremost grazing regions of the Territory. Its plains, valleys, hills, and table-lands are capable of supporting ten times the number that now feeds upon them. According to the best information obtainable, Graham has 30,000 head.

The grazing lands of Pinal county are along the Gila and San Pedro rivers, on the northern slopes of the Santa Catalina range, and on the foot-hills of the Tortilla and Tortillita mountains. On both sides of the Gila, from Florence to the line of the San Carlos reservation, there is one of the best stock countries in the Territory. The rolling foot-hills, valleys and plains are covered with a thick growth of gramma, bunch grass, and a species known as *chemise*, which cattle are exceedingly fond of. There are many fine ranges unoccupied in this region, and yet room for large herds. On the tributaries which flow into the river from the north and the south, there are some very desirable locations, with a luxuriant growth of grass everywhere, and living water in many places. On the extensive plains which stretch from the Superstition mountains to the Gila, and from that stream south to the railroad, the grass is rich and abundant, but the scarcity of water has thus far prevented cattle-men from utilizing it.

Along the lower San Pedro the feed is plentiful, and the water supply abundant. A large number of cattle are pastured in this region, which is one of the most favored spots for stock-raising in Arizona. Except on some of the rugged mountain ranges, there is not an acre within the limits of Pinal county that is not covered with excellent feed. Valley and plain and table-land all bear a vigorous and luxuriant growth, and the climate is among the most delightful in the Territory. Close estimates place the number of cattle within the borders of Pinal at 12,000, but these figures are being rapidly increased as new droves are steadily finding their way to so desirable a field.

Maricopa county possesses some fine grass lands on the lower Verde, New river, Cave creek, Camp creek, the Hassayampa and the lower Agua Fria. The ranges along these water-courses are covered with the very best varieties of gramma and bunch grass, and the beef fattened on them is equal in tenderness and flavor to any in the Territory. In that portion of Tonto basin, within the limits of Maricopa county, there are some very desirable pastures many of them being at present occupied by large herds. This mountain region is noted for the rich quality of its grasses, and is becoming a favorite spot with cattle-men. The valley of the Salt river will eventually be the scene of

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profitable grazing industry. A number of settlers are already devoting their farms to the business, and find it more profitable than the raising of grain. The immense fields of alfalfa, which can be grown here with so little labor and expense, will yet be covered with thousands of cattle. On this rich and succulent plant, which blooms in verdure every month of the year, beef, equal to the primest stall-fed of the East, will yet be grown. Although the business may be considered an experiment as yet, enough has been done to prove that it can be carried on successfully and profitably.

It is estimated that a half acre of alfalfa is all-sufficient to keep an animal all the year. By dividing the pasture with light fences the herd can always have an abundance of new feed. When they have cropped the green and juicy plant in one enclosure they can be driven to another, and by the time they have gone the round of the ranche the first field is again covered by a luxuriant growth. Such a stock-farm has many advantages over the natural ranges of the country. No herding or "rounding-up" is required; there is no loss from "strayed or stolen;" the percentage of increase is greater; the water supply is always sure and abundant. The stock is securely enclosed, and the owner, from his cool coign of vantage under his broad verandah, can look over his wide pastures and see his fat herds revelling amid the blossoming fields, or resting peacefully beneath the shade of the spreading cottonwood. Alfalfa is equal to the best clover, and the beef now fattened from it in the valley cannot be excelled in the United States. As near as can be ascertained, the number of cattle in the county is 8,000.

The grazing lands of Cochise county are among the most extensive in the Territory, and its grassy plains, valleys and hill-sides, are capable of supporting large droves. There is no portion of the Territory that offers greater advantages for stock-growing. The climate is almost a perpetual spring, and diseases among cattle are hardly known. The natural water supply is good, and the opportunity for increasing it by artificial aids are unsurpassed in Arizona. Two railroads passing through the county offer every facility for shipping the product to market, while the domestic consumption is large and steadily increasing. Although the business during the past two years has been harassed by border troubles it has grown rapidly and bids fair within a short time to assume vast proportions. A large number of stock from Texas and California have been driven into the county, but one-fifth of the extensive ranges are not yet occupied. There is no reason why Cochise should not be able to sustain ten times her present number, and in all likelihood a few years will see over half a million head grazing on her grassy plains and valleys. Cattle-raisers who are thinking of driving their herds to Arizona will find no better opportunities for securing a range than in Cochise.

The principal pastures now utilized in this county, are the Sulphur Springs and San Simon valleys, the upper San Pedro, and the slopes, foot-hills and valleys of the Huachuca, Chiricahua and Dragoon mountains. The farming possibilities of the Sulphur Spring valley have been alluded to in another place. Its grazing resources surpass those of any stretch of country of like extent in the Territory. A vast grass-covered plain nearly one hundred miles in length, and over fifteen miles in width, and extending from the northern spurs of the Sierra Madre, in Sonora, nearly to the Gila river, it is one of the most magnificent stock-ranges in the West. Throughout its entire length water is found within a few feet of the surface, and fine springs are met with every few miles. These springs form beautiful green meadows, where cattle love to stray during the heat of the noonday sun. A luxuriant growth of nutritious grass covers nearly the whole of this vast domain, and after the summer rains, when its level expanse is carpeted with green and decked with myriads of wild flowers, it looks like a vast ocean of verdure, with the sunbeams glinting from its sparkling surface.

The valley will no doubt yet be cultivated extensively, but there will always be room for thousands of cattle. No spot in the Territory gives more certain assurance of containing artesian water. The springs that dot its surface, and the strong flow found only a few feet below, prove conclusively that an immense reservoir is stored here, and that flowing wells will yet transform the Sulphur Spring into one of the most beautiful spots on the coast. Windmills can also be utilized to advantage, and a steady supply be always assured. A large number of cattle are now pastured in the valley but there are vast tracts yet unoccupied.

The San Simon, fifteen miles east of the Sulphur spring and separated from it by the massive chain of the Chiricahuas, is another magnificent grazing region. It also, begins in the northern foot-hills of the Mother of Mountains and extends to the Gila river, a distance of over sixty miles. A rich and heavy growth of grass, similar to that in the Sulphur Spring, covers nearly its entire extent. The Rio del Sur finds its way to the Gila, a few feet below the surface; and wherever wells are sunk from ten to twenty feet, an abundant supply is secured. A portion of this great valley will yet be devoted to agriculture, but the larger part will always remain a stock range. Although several large droves are now roaming over its rich pastures, the greater portion remains unoccupied, a great plain whose oppressive solitude is scarcely undisturbed by a living creature.

On the foot-hills of the Chiricahuas, both on the San Simon and Sulphur Spring side, are many excellent ranges where an abundance of green grass, refreshing shade and pure water is found at nearly all seasons. Cattle love to roam these shady glens and feed on the sweet grass that grows among the oaks

and pines. Several herds are pastured here winter and summer. The Upper San Pedro, from the boundary line to the town of Charleston, is a rich grazing region, as are also the rolling hills and table-lands adjacent. A large number of cattle are pastured here. In the narrow valleys and hills of the Huachuca mountains, there are some very excellent stock-ranges. Water is abundant in springs and streams, and the grass is sweet and luxuriant. The country which slopes from the Huachucas to the San Pedro is an excellent cattle region. The grass is rich and plentiful, and the distance to water at the river, or to the springs along the foot-hills, is not great. In short, Cochise is especially favored by nature for stock-raising, and few more desirable spots can be found on the Pacific coast. The county is rapidly filling up, and the choice ranges will soon be all occupied. The number of cattle now in the county is reckoned at 50,000.

Pima county has large tracts of excellent grazing lands along the Santa Cruz, the Arivaca, the Cienega, and in the rolling, grassy country southeast and southwest from Tucson. Large bands of cattle have been pastured on these plains and table-lands for years, and there is yet no apparent diminution in the quantity of feed. Here, as in nearly every other part of the Territory the principal grasses are black and white gramma, the growth being heavy and thrifty. Stock-raising in Pima has been prosecuted under many disadvantages, since the time of the Mission fathers. Up to the year 1874, when the hostile Indians were placed on a reservation, through the efforts of General George Crook, the pastoral calling could not be called a profitable one. The red marauder was ever on the alert to swoop down from his mountain fortress and drive off every hoof which grazed on the valley below. Within an hour the accumulations of years were swept away, and the prosperous ranchero reduced to beggary. It was for years the boast of these freebooters that the Americans supplied them with beef, and the Mexicans with horses.

As may be supposed, the stock business in those days was not a very successful one. The herds had to be heavily guarded day and night, and time and again the hardy settler saw his stock in full career for the mountains, with a band of yelling savages behind them. But, despite these many drawbacks, the remarkable adaptability of this region for stock-growing caused the number to steadily increase, and to-day some of the largest herds in the Territory are found in Pima county. As in all other portions of Arizona, cattle-owners depend for water on springs and running streams. No effort has been made to obtain a supply by sinking, although it is believed such an attempt would be crowned with success. All that vast region south and west of Tucson contains some of the finest grazing ground in the Territory, but, owing to the scarcity of water, not a single

hoof strays over its grassy hills and dales, where there is room for thousands.

Some of the largest droves in Pima are pastured on the Cienega. This stream has its rise near the divide that extends from the Santa Rita to the Patagonia mountains, and flows north to the Santa Cruz. It is not a continuous stream, as it sinks in many places, to again reappear for a short distance. It forms many large pools and springs during its course which furnish an abundant supply of water. The country along its entire length is composed of level plains and rolling hills, covered with fine grasses. It is one of the very best stock-ranges in the Territory. The climate is exceptionally fine, and the water supply all that could be wished. The traveler over the Southern Pacific railroad passes through a portion of this range a few miles east of Tucson, and its green meadows and clear running stream are an agreeable relief from dusty plain and jagged mountain. The Arivaca valley is another magnificent grazing ground.

From the Arizona mountains west to the Baboquivari range, a distance of more than forty miles, the whole country is covered with fine gramma and other rich grasses. There is always an abundance of water in the stream that flows through the valley, and north and east the range extends as far as cattle care to feed. The valley is claimed under a grant, and so the vast grassy region which surrounds it on every side is tributary to the little stream which murmurs through the "vale of flowers." The capabilities of this great stock region have never been thoroughly tested. It is a spot to delight the heart of the stockman, and no doubt the old Padres, who built a mission here, saw that the land was good, and rich in every gift from the hands of the Creator. Several thousand head are now grazed in the Arivaca range, but there is feed for ten times the number.

On the Upper Santa Cruz and on the foot-hills of the Santa Rita, Patagonia and the Atascoso mountains, there is abundance of feed and a fair supply of water. Here as elsewhere the grass grows in wonderful luxuriance, and after the summer rains it reaches to the horse's girth in many localities. In fact this portion of Pima county has not its equal in the Territory for its vigorous and abundant growth of rich gramma. The region has long been a favorite range for stockmen and large herds have been pastured here for many years. Around the base of the Santa Catarinas the plains and rolling hills afford excellent feed, water being found in many of the cañons and gorges that make down from the mountain side. The cattle industry in Pima is assuming a prominence hardly second to that of mining, and a large amount of capital is being invested in it. The number of cattle in the county is put at 65,000.

Apache is one of the leading stock-raising counties of the Ter-

ritory. It has an abundant water supply, and the feed on its elevated table-lands and mountain valleys is sweet, nutritious and noted for its fattening qualities. The winter snow-falls and the summer rains, which are very general in this county, bring forth a vigorous growth of green grass. Sheep also do remarkably well in this county, and the wool clip is increasing steadily year by year. The principal ranges are along the Little Colorado and its numerous tributaries. On the White, Blue and Black rivers, on Silver, Nutrioso and numerous other smaller creeks, there is prime feed and clear, cold water. In the elevated valleys and on the low hills of the Sierra Blanca and the Mogollon mountains, there is room for thousands of cattle. During a few weeks in the winter months, when the snow-fall happens to be heavy, cattle are driven down to the lower foot-hills and plains.

The elevated valleys and glens throughout this mountain region make some of the most desirable ranges to be found anywhere within the Territory. The grass is green and fresh nearly all the year, and abundance of shade and pure water are most favorable to the production of fine beef. The country south and east from Fort Apache has grand stretches of grass-covered lands capable of sustaining large droves. That portion of the county included within the San Carlos reservation is nearly all good grazing land, capable of fattening many thousands of cattle, if the Indians were removed from it.

The number of cattle in the county is rapidly increasing. The Atlantic and Pacific railroad, which crosses it from east to west, has given an outlet to foreign markets, and the industry has received a marked impetus thereby.

Many large herds have been driven in from New Mexico, and the ranges are rapidly filling up. But there are yet many locations unoccupied, and many that can be had for a reasonable figure. To the stock-raiser, who thinks of moving to Arizona, Apache offers many advantages not possessed by other localities. The industry is but yet in an inceptive state, but the time is not far off when her pine-shaded mountains, valleys, and glens will be alive with cows and steers. The number of cattle in Apache county will reach 35,000.

From this necessarily brief sketch of the stock industry of Arizona it will be seen that the business has already assumed respectable dimensions. The opening of another transcontinental railway has given stock-growing a grand impetus on the road of prosperity. Prices have doubled within the past two years, while the demand for beef cattle is steadily increasing. A large share of this demand is from California, and it is certain to attain grand proportions. The following recapitulation will show the number of cattle at present in the Territory:

Yavapai county.....	65 000
Pima "	65,000
Cochise "	50,000
Apache "	35,000
Graham "	30,000
Pinal "	12,000
Gila "	10,000
Maricopa "	8,000
Mohave "	8,000
Yuma "	5,000

Making a grand total of.....288,000

These figures show an increase of more than 300 per cent. within two years. No other industry in Arizona has made such rapid strides, and none has yielded such large returns on the capital invested. Averaging every animal at \$25 per head, which is a low estimate, we have a total of \$7,200,000, as the value of the horned cattle now in Arizona.

This is not a bad showing for a country that five years ago did not have 40,000 head within her borders. With the present rapid growth the stock industry will soon rival mining in the amount of capital invested, the profits derived, and in its extent and importance generally. Stringent laws for the protection of stock-raising have been passed by the Territorial legislature, and severe penalties are imposed on cattle-thieves. In many of the counties associations composed of stock-growers have been formed for mutual protection, the exchange of views and the dissemination of intelligence affecting the business. The stock-growing industry is on a firm basis. It has already gained a good start, and has every natural advantage in its favor. To those who desire to engage in it, we say, come to Arizona. Fortune beckons you on, and certain success awaits you.

The breeding of fine horses is being carried on successfully at many points in the Territory. In Yavapai county several breeding farms have been established and the results have been most gratifying. The climate, water, grass and ranges are all favorable. Thoroughbred stallions, from the most famous stock, have been introduced, and trotters, running horses and fine roadsters are being raised from blooded mares. The pure bracing air and fine grasses of the Colorado plateau are well-adapted to the breeding of fine stock. Diseases among them are unknown, and thoroughbred stock can always command fancy prices. In Graham county the business is being gone into extensively, the largest breeding farm in the Territory being situated here. The colts raised on this farm are being introduced in many parts of the country, and are noted for their beauty, docility, bottom and speed. For roadsters and the saddle, they are in every way superior to the best grades

from California or the East. They are thoroughly acclimated, and their endurance and staying qualities make them much more valuable for service in the Territory.

The breeding of horses in Arizona is yet merely tentative, but enough has been done to prove that it can be carried on with success and profit. That it will yet be extensively engaged in, and that Arizona-bred stock will command remunerative prices abroad as well as at home, is beyond a doubt.

According to the most reliable data which could be obtained, the number of horses, mules and hogs in the several counties of the Territory, is as follows:

	HORSES.	MULES.	HOGS.
Yavapai county.....	6,000	2,000	1,000
Maricopa "	5,000	1,500	7,000
Cochise "	4,000	3,000	500
Graham "	3,000	1,000	500
Pinal "	2,000	1,000	600
Gila "	1,000	800	300
Yuma "	800	300	200
Mohave "	1,000	500	200
Pima "	6,000	2,000	1,100
Apache "	3,000	1,500	.....
Total.....	31,800	13,600	11,400

Wool-growing, next to cattle-raising, is the most important live stock industry in Arizona. It has been prosecuted successfully for many years, and is steadily growing in importance. The climate in certain portions of the Territory is peculiarly adapted to the business. As with cattle, no fierce snow-storms, no freezing winds or destructive "northers" sweep away entire flocks in a single night. Here the shepherd can let his bands roam over hill and dale, winter and summer alike. No region on the continent is better adapted for wool-growing than the elevated plateau of Yavapai and Apache counties. The short, sweet grass, which grows on the foot-hills and valleys and of which they are particularly fond, keeps green nearly the whole year. While the wool-grower in northern regions sees thousands of his flock destroyed by snows and icy winds, and is compelled to provide food and shelter for his shivering flocks, here in Arizona they roam at will over hill, mountain and dale from January to December.

With his dog and gun the sheepman follows his bands over the grassy plains and hillsides, and at evening they are "bunched" by the side of a stream or spring. The herder kindles a fire, and soon has ready his tempting evening meal. After enjoying

it, as only those can who have had their appetite sharpened by a tramp over the hills, blankets are spread on the greensward, pipes are lit, and after a recital of the day's events and a mapping out of the route for the morrow, the tired shepherd enjoys the refreshing slumber which a clear conscience and a good digestion always brings. Myriads of brilliant stars flash in the blue canopy above him; the air is soft with the faint breeze of a summer night; around his camp the tired flock form a white semicircle against the green background of wooded hill and grassy plain. It is a beautiful picture of quiet repose, and aptly illustrates the shepherd's life in Arizona.

In Yavapai and Apache counties the sheep are pastured during the spring, summer and autumn in the glens and foot-hills of the San Francisco, Mogollon and Sierra Blanca ranges, and on their outlying spurs and parallel ridges. The short, sweet pine grass of the mountain country is eagerly sought after by the sheep, and they grow fat very rapidly upon it. Late in the fall the flocks are driven to the valleys and *mésas* of the warmer regions farther south. In the spring they are taken to the shearing grounds, and then to their mountain pastures for the remainder of the year. Besides the grass we have alluded to, the *alfileria*, or wild clover, has been introduced by sheep driven from California, and is rapidly spreading over the country. It is a species of feed sheep are especially fond of and on which they keep in prime condition at all seasons.

Diseases among sheep in Arizona are rarely ever heard of, and the wool-grower is saved the expense and constant annoyance of "doctoring" his flock, as is the case in other countries. The pure air and clear, cold water of the mountain region, has a remarkably healthy effect, and in the winter months as well as in summer, they keep in excellent condition.

The fearful droughts so fatal to sheep in California and the regions east of the Rocky mountains, is never known in Arizona. Here, year after year, there is abundance of feed; green grass always covers the plains and hillsides, the water supply is always abundant, and although Arizona is considered a dry country, deaths among stock on account of a scarcity of feed or water are hardly ever known. In other lands, which are looked upon as especially favored for cattle and wool-growing, thousands of festering carcasses often cover the plains, perished for want of food or drink. In the Territory such a spectacle is never witnessed; and sheep-owners from neighboring States and Territories have often saved a portion of their flocks by driving them to the cool, shady mountain regions and sparkling springs of northern Arizona.

As in cattle, the increase in sheep is something wonderful. The average, year after year, is fully sixty-five per cent., and not unfrequently it goes as high as one hundred. The genial nature of the climate well suits the young lambkin, and the percentage

of loss among them is very light. In a few days after making their appearance they are frisking over the plain and cropping the sweet, tender herbage. The owner has little trouble with his lambs. They require scarcely any attention, being left entirely to the mother's care. This, and a balmy air and genial Arizona sun, soon puts strength and vigor in the limbs of the youngsters and very few are lost.

The grade of sheep in the Territory is being steadily improved by the introduction of many fine Merino, Southdown and Cotswold rams. The stock first brought to the country were driven from New Mexico, and were a poor lot, reduced to mere runts by inter-breeding. But a better grade has been driven from California, and by careful crossing the Arizona sheep will compare favorably with any in the Rocky mountain region. They are fine wool-growers and make delicious mutton. The yield per head averages about eight pounds per year. Sheep are shorn twice a year; in the spring and fall.

The price of wool on the shearing ground is about eighteen cents, and delivered in the markets of New York or Boston, from twenty to twenty-five cents. Since the building of the Atlantic and Pacific railroad freight on wool has been greatly reduced, and the Arizona product can be marketed cheaply and expeditiously. Eastern buyers lavish many encomiums on the long silky fibre of the Arizona crop and its remarkable exemption from the dirt which is so objectionable a feature of wool grown in the western country.

Sheep in Arizona are worth from \$3 to \$4 per head, and year by year, as the grade is being improved, the price grows higher. The number is rapidly increasing and the sheep industry in the north and northeastern portions of the Territory is assuming large dimensions. Regions which are too rough and precipitous for cattle are the favorite grazing grounds of sheep. They require much less water, and large areas which would be valueless for stock are the choice feeding grounds of the wool-producer. While there is always something like jealously existing between the wool-grower and the cattle-man, there is no cause for contention. This grand domain is wide enough for all, and the boundaries which divide the grazing grounds of the cattle-grower from the owner of fleecy flocks, are as clearly defined as those which separate them both from the agriculturist. Besides, the industry is always likely to be confined to certain limits, and can in no way interfere with the cattle business.

The quality of Arizona mutton has a well-deserved reputation for juicy tenderness and exquisite flavor. Fed on the wild grasses the year round, it is equal to the best fattened in enclosures for the eastern market. Travelers have declared that the famous mutton grown on the English downs is but little superior to the Arizona product. Sheep keep fat all the year, and at all seasons a juicy chop or tender roast can be found in

market. There are still many fine ranges in Yavapai, Apache and Graham counties open to location, but they will not long remain so. Large bands are being driven from California every year, and the choice ranges are being taken up. The area of grazing ground in the Golden State is being steadily curtailed, and the wool-grower is compelled to seek fresh fields for his flocks. Arizona presents the most inviting pastures, and hither he is fast driving his wealth in mutton and fleeces. The number of sheep in the several counties at the present time is estimated as follows:—

Yavapai county.....	50,000
Apache ".....	600,000
Graham ".....	10,000
Pima ".....	5,000
Cochise ".....	5,000
Pinal ".....	3,500
Gila ".....	3,000
Maricopa ".....	1,500
Mohave ".....	2,000

Making a total of..... 680,000 head.

Averaging the yearly clip of each sheep at eight pounds, and we have a total of 5,440,000 pounds. Putting this at twenty-two cents per pound in the eastern market, and the yearly value of the Arizona wool crop shows the respectable sum of 1,196,800 dollars. Placing the valuation of each sheep at \$3.50 and the total would represent \$2,380,000. This is a handsome showing for an industry of so recent a growth, and which had to struggle against the disadvantage of high freights, until within the past year. If we include the crop of the Navajo Indians the wool product of the Territory will be largely increased.

And it is only in its infancy. The large profits realized are an inducement not easily withstood, and the remarkable success which has attended those who have engaged in it will naturally attract others. Nearly every man who has gone into the business has already become, or is fast getting rich. The failures in nearly every instance are due to ignorance and mismanagement. With some practical knowledge and a good start, a man with average energy and a fair share of industry will find himself independent in a few years. There are yet fine ranges unoccupied in many portions of the Territory, capable of sustaining thousands of sheep, while very desirable locations can be secured at reasonable figures. In eastern Yavapai and Apache counties the sheep pastures are not excelled by any in the Southwest, while the facilities for shipping the crop are everything that could be desired. In Graham, Gila and Pinal

are also many choice ranges where fortunes can be accumulated within a few years.

For those wool-growers who are compelled to battle with the rigors of a northern clime, who, year after year, see a large part of their flocks destroyed by the elements, who are put to a heavy expense in their struggle against adverse surroundings, we say come to Arizona. Here is a land where nature is always in a genial mood, where the grass is green and the sun shines nearly every day in the year, where the profits are high, the labor light and the risks reduced to the minimum. If, like Jason of old, you are searching for a Golden Fleece, Arizona is the modern Colchis, where you will find it. No fierce dragons guard it, and no perils are encountered in reaching it. Industry, energy, good management and good sense are the aids which will assist you in gaining it. Thus equipped you will find yourself in a few short years the possessor of countless flocks, the owner of a respectable bank account and can boast "the glorious privilege of being independent."





WOOD AND WATER.

Popular Opinion Regarding Arizona—The Timber Lands of the Territory; their Area and General Character—The Water Supply of the Territory—
Irrigation—the System Adopted in Other Countries—The
Plan of Irrigation in Los Angeles—The
System in Arizona—Artesian
Water, etc., etc.

POPULAR opinion long considered Arizona a portion of the great American Desert, a treeless and waterless waste, where the principal productions were cacti, rattlesnakes and Gila monsters. People in the East who had obtained their knowledge of the Territory from the reports of some disappointed adventurer, or the highly-colored letters of some veracious newspaper correspondent, had an idea that it was altogether devoid of vegetation, and so destitute of water that the unfortunate traveler ran the risk of perishing from thirst in traversing its plains and mountains. Until within a few years this was the general impression, and even the opening of two transcontinental railroads and the influx of travel have not yet entirely dispelled it. Throughout the land, to-day, many people will shake their heads when Arizona is mentioned, and warn their friends against emigrating to a country where they are sure to perish from heat and thirst, even if they should escape the tomahawk of the Apache.

These wiseacres are of the same class with those who included all that vast and fertile domain west of the Missouri in the "American Desert," and asserted that it was incapable of cultivation and unfit for the abode of civilized man. But the fruitful fields, the happy homes, and the rich and populous cities which cover the vast plains from the Big Muddy to the Rocky mountains, show that the so-called "desert" is one of the most productive portions of the great Republic. And so it will be with Arizona. She has the soil, she has the climate, she has the water, and she has the timber to make her agricultural resources scarcely second to her vast mining and grazing interests. Although we have before alluded to the matter in a general way, we propose in this chapter to speak in detail of the timber and water facilities, and of the system of irrigation upon which

the farmer must always rely for the raising of crops in this Territory.

Although no data can be had from the Surveyor-General's office, it is safe to assert that at least twenty thousand square miles of the entire area of Arizona are covered by a heavy growth of timber. This vast belt may be said to extend from the thirty-sixth parallel of latitude to the line of Sonora, following in its course the principal mountain ranges. This timber is not continuous. It occurs on the sides and slopes of the high mountains, which have a general northwest and southeast course. The largest body of timber in Arizona is the Mogollon forest. It begins at the San Francisco peak and extends in southwesterly direction to the thirty-third parallel, a distance of nearly two hundred miles. Its average width is about sixty miles, making the entire area over 12,000 square miles. Think of it, you who have imagined Arizona, as a rocky, barren desert. Here is a body of magnificent timber land nearly as large as the State of Maryland, and yet almost untouched by the woodman's axe.

In this grand cathedral of nature the *pinus ponderosa* rears his lordly head sometimes to a height of 200 feet; and specimens are not uncommon of 100 feet without a limb, and from four to six feet in diameter at the butt. The pine is of the pitch and sugar varieties, and makes fine, clear lumber, well adapted for building and all other purposes. Reduced to acres, this vast belt contains 7,680,000, and estimating twenty trees to the acre, and 1,000 feet to the tree—a very moderate estimate—we have the enormous total of 153,600,000,000 feet of lumber in this forest alone! In the Sierra Prieta range, near Prescott, where from one to four sawmills have been at work since 1864, there are yet millions of feet untouched.

The large pine forest that crowns the Santa Catalina range remains undisturbed, while the wide stretches of timber-lands in the Santa Ritas, the Huachucas, the Chiricahuas, and the Pinaleños contains thousands of acres of virgin forest. In fact, Arizona has been favored by nature beyond most of her sister territories in the matter of timber. Besides possessing enough for her own wants, she is in a position to supply her neighbors for generations to come. Besides the pine, there are also large belts of oak and ash in the Sierra Blanca. The oak is of the white variety, the trees being tall, straight and remarkably free from limbs. The grand forest of the Mogollon has scarcely been touched; but it is not likely to remain long in that condition. Already a mill has been established near its northern boundary, and just south of the Atlantic and Pacific railroad, and the Mineral Belt road, which is now under construction, will pass through it for over 100 miles. When this road is built the timber to supply the mills, mines, farms, cattle-ranges, cities and towns of Arizona will be drawn from this grand pinery. Many articles



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NATURAL BRIDGE, TONTO BASIN.

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of wooden-ware and lines of furniture, which are now brought from abroad, will be produced at home. For building material the timber is equal to the best Oregon pine, and here is enough to supply homes for Arizonans until the latest generation. The glory of the Territory are the magnificent pines which crown her mountains and lofty *mesas*. With the richest of mines, the finest of grazing and farming lands, extensive coal deposits, and thousands of square miles of timber, Arizona has all the resources to make a rich, populous, and prosperous State.

Nor has the Territory been neglected in the supply of water. The Colorado, the Gila, the Salt, the San Pedro, the Verde, and scores of other streams are capable of irrigating vast stretches of land. We have seen that the Territory was at one time the home of a dense population. The remains of *acequias*, or irrigating canals, are found in almost every valley, showing that hundreds of thousands of acres now relegated to the desert, were once under cultivation. There is no reason to suppose that the rain or snow-fall was greater then than now, but there can hardly be a doubt that ten times the acreage was cultivated. And the same result can be achieved again. The water supply of Arizona is sufficient to irrigate nearly all the arable lands within her borders, and with a system as perfect as that which once prevailed, as large an area can be reclaimed.

But the fact is apparent that the ancient tillers of the soil had a much better knowledge of the irrigating problem than their modern successors. They evidently utilized every drop, and allowed none to go to waste. The present occupants have not yet attained the same degree of perfection in this respect, but it is only a question of a very short time when some regular system must prevail. As the farming industry depends for its success entirely on irrigation, and as the system is little known or practiced anywhere in the United States, outside the Pacific States and Territories, some brief data regarding it is here inserted, which may be of benefit to those who think of coming to the Territory and engaging in farming.

Irrigation is probably the oldest system of agriculture known to man. In the cradle of our race, the dry elevated plains of Persia, Assyria and Babylon, it is practiced at the present day, and it is not unlikely that Adam, after being driven out of the Garden and compelled to earn his bread by the sweat of his brow, learned to construct canals and raise crops by irrigation on the plains of Mesopotamia. Some of the richest and most productive regions on the globe have been cultivated in this manner ever since man learned the arts of tillage. The greater portion of India, the plains of Lombardy, the valley of the Nile and the fruitful fields of Castile, have always depended on irrigation for the raising of crops. And although subject to such a system for thousands of years, they are to-day the most productive spots on earth, and support a dense population.

In India, where irrigation has been most successful, there are from 200 to 600 persons to every square mile. In Italy we find an average of 270 persons for Piedmont, and 390 persons for Lombardy. The irrigated portions of Spain have populations ranging in number from 200 to 430 souls per square mile. Egypt, which for ages was called the "granary of the world," has a population equivalent to 484 persons upon every square mile of her cultivated territory. In these countries the governments have framed laws regulating the entire irrigating system, and defining clearly what shall be the "duty of water," that is, what quantity each occupant is entitled to in the raising of a crop. The measurement is by the cubic foot, flowing at a uniform rate through the irrigating season.

In the several provinces of Spain the quantity of water required to raise crops is as follows: Murcia, one cubic foot per second will flood 96 acres; in Granada the same quantity will supply 244 acres; in Henares, 157 acres; in Valencia, 280 acres; in Reoja, on low, clayey soil, 350 acres. For cereals and grasses generally, the "duty" is placed at 280 acres; for gardens, 85 acres. In Spain, whose soil and climate is not materially different from Arizona, the number of waterings given to each crop per year is as follows:

Wheat, three irrigations, in March, April and the latter part of May.

Barley is only irrigated once, in April.

Corn is flooded eight times during its growth, from the twentieth of June to the end of September.

Alfalfa requires, on an average, thirty irrigations during the season.

Vegetables are subjected to eight waterings before they are gathered.

In Italy the average duty of water is about 80 to 110 acres per cubic foot, but in the valleys of Lombardy and Piedmont the meadows and rice-fields require a constant sheet of water running over them for several months of their growth.

In India, wheat requires five waterings to insure a crop, and the average number of acres flooded by a cubic foot, during the season, is given at from 160 to 180.

In the United States irrigation is practiced in Southern California, Nevada, New Mexico, Arizona, Colorado and the great Utah basin. The system has, perhaps, reached its highest development in Los Angeles and San Bernardino counties, and the crude modes of the Mission fathers have been gradually improved upon, until every drop of the precious liquid is made to do some service, and a cubic foot will sometimes irrigate as many as 300 acres of the loamy soils of the *mesa* lands; while in exceptional cases, where scarcity of water requires the utmost economy in its use and distribution by means of pipes,

as high as 1,500 acres are cultivated by one cubic foot. The careful and judicious use of the water in these counties has accomplished wonders, and although the supply is at all times limited, its proper application has made of Los Angeles the "Garden of California."

But here the water is under municipal regulations, and is measured out to the irrigator, who prepares his land well to receive it; he takes as much as is required and no more, and he is careful in the use of it. The supply of water in Los Angeles county is from natural streams, springs and artesian wells. The streams are small and uncertain in their supply, the total available volume of the Los Angeles river in May last, being only seventy-eight and a half cubic feet per second; while from the San Gabriel river and its tributaries was but 191 cubic feet. The Santa Anna, which waters the flourishing settlement of Anaheim, carried 203 cubic feet, and the Trabuco and San Juan creeks eight cubic feet per second. Yet from this comparatively small flow of water the following acreage was cultivated in 1879:

Los Angeles river.....	9,435	acres
San Gabriel ".....	24,833	"
Santa Anna ".....	23,200	"
Trabuco and San Juan creeks.....	400	"

This gives an average of nearly 200 acres to each cubic foot of water flowing per second, through the irrigating season.

Another great source of supply for irrigation in Southern California is derived from artesian wells. The number of wells in Los Angeles county is estimated at nearly 600, and new ones are being constantly added. The flow from them is variable; and while some will irrigate from 100 to 200 acres, from forty to fifty is the general average. It is estimated there are 17,000 acres of land in Los Angeles county irrigated by this means. The water of the Los Angeles river, controlled by the city government, is divided into irrigating "heads" by placing board partitions in the flumes of the main ditches, where the depth is uniform. The amount of each 'head' is about three cubic feet per second, and the prices fixed by the city council are as follows: For one day, \$2; one half day, \$1.25; for one hour, 50 cts. The canals are all under the charge of a *zanzaro*, who has entire supervision, and supplies each individual with the water he requires, and at specified times.

The loss by absorption in Los Angeles and throughout California is very great. From actual measurements made on the main ditch entering the city, there was shown to be a loss of thirty-three per cent in a distance of 6,000 feet. On the dry plains of the San Joaquin it is still greater. As a preventative against this waste a method has been adopted in some places of

paving the bottom of the ditches with cobble-stones snugly fitted together; but the most perfect method is the lining of the bottom and sides with concrete. This plan was adopted centuries ago in India, Persia, Spain and Lombardy. Another great loss of water is by evaporation. It has been estimated that the evaporation from Kings river, in the San Joaquin, for a length of sixty-two miles, during a year, has reached the enormous quantity of 487,821,412 cubic feet. There is a great loss from this cause by the unnecessary duplication of works, and the building of four or five small canals, where one of moderate dimensions would serve the purpose more effectually, at less expense, and at far less loss of water.

Irrigated land, the world over, has always commanded a higher price than that which depends on rainfall. Unimproved land in portions of Los Angeles county, under irrigating canals, is worth from \$100 to \$200 per acre, while that improved finds ready sale at \$350 per acre. Before the construction of irrigating ditches it would not bring \$5 per acre. And such land cannot compare with some of the rich valleys of Arizona. On land supplied by artificial irrigation there is more certainty of a crop, and the yield is generally larger. On sandy soils irrigation has a marked effect in increasing their fertility; in filtering through the porous soil all the sedementary matter contained in the water is retained and acts as a perpetual restorative.

These in brief are the salient features of the California system of irrigation, and by a clear understanding of it the reader will have some idea of the manner of producing crops by the aid of irrigating canals. It is the system which prevails in Arizona, but in a crude and imperfect form. As yet there has been no effort made to devise any plan regulating the supply. The first settlers in the valleys of the Territory took out ditches and laid claim to certain quantities of water. Companies were formed and stock issued, each share entitling the owner to what is called a water right. These rights are generally intended to be sufficient for the watering of 160 acres, but in most cases more than double the quantity required is taken. This water is allowed to run over the land, when in many instances there is no need of it. Owing to the number of ditches a large quantity is lost by evaporation and by absorption. Besides the streams through the valleys of Arizona, sink in many places in their sandy beds during the summer months, and most of the canals which have been constructed fail to carry away but a small portion of the water. This could be remedied by tapping the river bed where it is confined by rocky banks and where the bed rock is exposed.

It has been estimated that the Salt river where it emerges from the plain above Phoenix, carries during the irrigating season 60,000 miners' inches of water. By building suitable canals this immense volume can all be utilized. Yet, at the present

time, there is nearly 25,000 inches taken from the river, and only a little over 30,000 acres under cultivation in the entire valley. On the Gila, Verde, San Pedro, and other streams, the same waste and extravagance in the use of water prevails. The system adopted by the first settlers, if indeed it can be called a system, still maintains, and the owner of a water right generally presumes he has the privilege to waste all the water he pleases. These men have acquired riparian rights, which they cannot be divested of, and no steps have yet been taken to regulate a most vital question affecting the future prosperity of the Territory.

As we have said, there is water enough in the streams of Arizona to supply all the lands adjacent to them. With a proper use of the article the immense valleys of the Gila and the Salt rivers can all be brought under cultivation. But there must be system, economy and intelligent management. Whether this shall be brought about by local regulations or by Territorial legislation, is a question yet to be determined. In a country like Arizona where every pound of grain raised depends on artificial moisture for its growth, the water with which nature has blessed the country, will not long be permitted to go to waste.

It is believed that artesian water can be found in the Territory, but no efforts to seek it in localities where it is likely to exist, have yet been made. In the large valleys of the Salt River and the Gila and in the Sulphur Spring and the San Simon, there is every indication of an abundant supply. These valleys drain a vast extent of country, and the waters which flow through them have their source in the lofty ranges, thousands of feet above.

They are vast reservoirs for the mountains behind them, and contain inexhaustible quantities of water. Nearly all the large valleys throughout Northern, Central and Southern Arizona are immense basins, which retain a portion of the rain and snow-fall of the Territory. The attention of Congress has been called to the question, and certainly a small portion of the public money could be put to no better use than in the effort to find flowing water on these dry plains and valleys. The benefits to the stock-raising and farming industries would be almost incalculable, and the area of grazing and agricultural land would be increased ten-fold.

Those who are unaccustomed to the process will have some idea after reading the foregoing, of the conditions which exist in the Territory. We have shown what has been done with a limited water supply in California, and the waste and extravagance which prevails in Arizona. We know there are valleys here in fertility equal to any in the Golden State; and we know that nature has provided water sufficient to make them bloom with productiveness. It only remains for man to use with care and judgment the precious boon which has been conferred upon him.



CLIMATE.

The Popular Idea of Arizona's Climate—Its Healthfulness—Climate of Northern Arizona—Temperature of Prescott, Apache and Fort Grant—Climate of Salt River Valley—Of Tucson and Yuma—Of Southern Arizona—The "Sunset Land"—Sunshiny Days, etc., etc.

AMONG the many errors concerning Arizona, which for years have received the sanction of popular belief, there is none greater than that relating to its climate. To most people the very name is suggestive of desert wastes devoid of vegetation, scorched by the fierce heat of a southern sun whose blinding glare neither man nor beast can withstand. A region where the temperature during the summer months is almost unbearable and where outdoor labor is impossible. A country where everything dries up under the consuming heat; where, to quote the language of that facetious traveler, Ross Browne, "bacon is eaten with a spoon, chickens come out of their shells already cooked, and the bones of mules rattle within their shriveled hides."

This, for years, has been the popular opinion of Arizona's climate; and even the opening of two transcontinental railroads, and a diffusion of reliable information regarding the Territory, has not entirely dispelled it. The eastern correspondent who happened to make a hurried trip to the country in the summer months has always made it a point to astonish his eastern readers with a description of the intense heat; and where the actual facts were not strong enough to suit his taste, he has never hesitated to draw upon his imagination to supply the deficiency. In fact, travelers and tourists through Arizona would consider they were derelict in their duty to their friends at home if they failed to embellish their impressions of the Territory with blood-curdling tales of its savage Apaches, minute descriptions of its venomous snakes and reptiles, and highly-colored pictures of the fearful heat of its burning suns.

And yet nothing can be farther from the truth. Arizona is blest with one of the healthiest climates on the American continent. She has brighter skies, purer air, a more bracing atmosphere, more lovely cloudless days, more brilliant starlit nights

than any like division of the great Republic. She possesses a climate suitable to all constitutions, ranging from the soft semi-tropic mildness of the south to the cool, bracing air of the north. Every breeze wafted across her mountains, valleys and plains bears upon its wings health, strength, vigor of mind and body. In the pure dry atmosphere of its mountains and vales diseases are unknown, and beneath its glorious skies a man can camp in the open air every month in the year, and gather new life and strength from quaffing deep draughts of the ozone which fills mountain, and plain, and *mesa*.

Probably the first question which nine out of ten emigrants will ask is in relation to the climate of the country where they intend to make their future abode. And it is a matter of the first importance, and deserving of careful consideration. Health and strength are generally the only capital which the new-comer brings with him to his western home; upon them he depends for success and prosperity, and with them, aided by temperance and industry, he can meet and overcome the obstacles of his new surroundings, and in a few short years gain the goal of independence. But no matter how rich or productive the soil, how generous the yield, how beautiful the surroundings, or how desirable the location, if health does not bless the scene they can have no allurements for those in search of new-abiding places. For the information of people who may seek homes in Arizona this chapter is devoted, and the statements made are facts which can be relied upon.

Arizona may be said to possess two distinct climatic zones. In that portion of the Territory extending from the thirty-fourth parallel to the boundary of Utah, and east of the Colorado valley, embracing the great plateau, the climate in summer is among the most delightful to be found in the United States. Elevated from 4,000 to 6,000 feet above sea-level, the average temperature during June, July, August and September is about seventy degrees. The nights are deliciously cool and pleasant in this region, insuring perfect rest to which a pair of blankets, during the hottest season, is always an agreeable auxiliary. There are no more delightful retreats on the Pacific coast than the mountains and glens of northern Arizona during the summer season, and with increased railroad facilities the region will yet become a favorite resort for tourists. During the winter months, snow sometimes falls on the elevated mountain peaks to a depth of five and six feet. It quickly disappears from the lower hills, but remains on some of the higher ranges until the middle of May. These winter snows feed the rivers and water-courses which carry life and fertility to the lower valleys, and upon which the farmer must always depend for the raising of a crop.

The winters in northern Arizona have that cool, bracing, healthful quality which people in the East are familiar with. The wonderful purity of the air makes it a positive luxury to breathe it; and those who have once drank in its exhilarating draughts

will agree that few places are blessed with a climate possessing the golden mean—not too cold in winter nor too warm in summer—of the northern Arizona plateau. With its towering pine-clad mountains, its lovely grassy glades, shady glens, beautiful streams, clear, cold springs and abundance of game and fish, there is no more delightful region to pass the summer months in all North America.

As showing the mean temperature and the rain and snow-fall at Prescott, each month for the three years ending July 31, 1883, the following tables copied from the records of the Signal Service Bureau, are herewith presented :

MONTH AND YEAR.	Temperature— Degrees.	Precipitation— Inches.	MONTH AND YEAR.	Temperature— Degrees.	Precipitation— Inches.
August, 1880.....	69.3	2.80	July, 1882.....	72.9	1.64
September, ".....	63.5	1.26	August, ".....	69.7	3.34
October, ".....	51.7	0.18	September, ".....	61.6	2.57
November, ".....	37.0	0.42	October, ".....	50.5	0.39
December, ".....	38.1	1.84	November, ".....	41.6	1.55
January, 1881.....	35.1	0.16	December, ".....	38.2	0.00
February, ".....	41.1	0.10	January, 1883.....	34.5	0.31
March, ".....	40.6	2.91	February, ".....	37.6	0.63
April, ".....	54.7	0.67	March, ".....	47.4	2.33
May, ".....	58.7	0.44	April, ".....	47.9	0.86
June, ".....	67.4	0.00	May, ".....	56.5	0.15
July, ".....	72.0	3.27	June, ".....	69.0	0.09
August, ".....	68.4	5.25	July, ".....	70.4	3.20
September, ".....	61.4	1.69			
October, ".....	52.9	0.33			
November, ".....	38.4	0.30			
December, ".....	39.7	0.33			
January, 1882.....	30.4	2.53			
February, ".....	33.5	2.04			
March, ".....	43.2	0.28			
April, ".....	48.8	0.45			
May, ".....	57.3	0.45			
June, ".....	65.9	0.47			

This shows the highest mean temperature for any month during three years to be 72.9, and the lowest 30.4. The average precipitation (rain and snow) for the three years has been a fraction over 15.30 each year. Prescott is 5,600 feet above sea-level, possesses one

of the finest climates on the continent, and is one of the healthiest towns in the West. Malarial diseases are unknown, and the clear, crisp, air which sweeps down from the mountains, laden with the balsamic odor of the pines, is one of the best in the world for consumptives.

Fort Apache is situated in the Sierra Blanca, in the north-eastern portion of the Territory, and about the same elevation

above sea-level as Prescott. The following table will show the temperature and precipitation at that point for the past three years and a half:

	1880.		1881.		1882.		1883.	
	Temp.	Precip.	Temp.	Precip.	Temp.	Precip.	Tem.	Precip
January.	34.6	1.31	33.3	.20	34.5	2.82	31.9	.85
February.	29.9	.95	40.1	1.17	37.5	2.85	39.3	2.46
March.	41.7	.80	41.6	2.45	44.0	1.09	47.5	2.03
April.	49.4	.46	53.6	1.53	48.6	.91	48.0	.22
May.	58.5	.....	59.7	.35	55.8	.94	56.4	.86
June.	67.7	.46	69.8	.....	64.8	3.27	69.0	.02
July.	70.7	5.83	72.6	5.63	72.1	4.79	70.3	5.46
August.	69.7	1.44	68.3	8.31	69.8	7.36	69.4	4.26
September. ...	63.6	.55	60.9	5.41	60.9	1.02	.....	.....
October.	52.3	.56	53.7	4.68	50.2	.....	.....	.....
November. ...	37.5	.03	37.4	.85	41.9	2.34	.....	.....
December. ...	36.6	2.38	38.3	.54	36.0	.23	.....	.....
Total. ....	.....	14.77	.....	31.12	.....	27.62	.....	.....
Mean.	51.0	1.23	52.4	2.59	51.3	2.30	.....	.....

It will be seen from this that the average yearly rain and snow-fall in this portion of the Territory is a fraction over twenty-four inches a year. Upon the winter snows which fall upon the mountains of Northern Arizona the entire Territory depends almost entirely for its water supply. When this snow-fall is heavy, the rivers through the southern valleys carry an abundant water supply and a bountiful crop is assured. The snow-fall on the mountains of the upper plateau sometimes reaches a depth of five and six feet. Barred by the peninsular continuation of the Sierra Nevada from the northwest trade winds, Arizona has to depend for moisture on these winter snows and on the summer rains which are borne hither on the wings of the southwest trade winds. These cloud-bearing winds, after sweeping over northern Mexico, reach Arizona about the first of July, when the rainy season commences, and generally lasts until the first of September.

With the coming of these summer rains a transformation as sudden as it is beautiful takes place. Grass and vegetation of all kinds spring up as if by magic; flowers cover the hills, plains, *mesas* and mountain-sides; all nature rejoices under the life-giving fluid, and the whole country, decked in its robes of green and adorned with myriads of wild flowers, presents as charming an appearance as one could wish to look upon. Life on the Arizona plateau at this season is a luxury found but in

few spots on earth. There is a delicious softness and elasticity in the air by day, while at night the blue heavens are gemmed with countless stars, whose brilliant light flashes down upon the beholder, impressing him anew with the might and omnipotence of Him who set them in their separate spheres.

The winter months of this portion of the Territory are cool and healthful. Sleighing is sometimes indulged in on the streets of Prescott, and a visitor to Northern Arizona at this time of the year is apt to have his notions concerning the country materially changed as he gazes upon the snow-clad mountains which stretch south and east from the capital to the Territory. He will realize that the country is not the dry desert which some have painted it; and the nipping night-air will be apt to dissipate any notions he may have entertained as to the oppressiveness of the heat. Such a thing as epidemic diseases are never heard of, and, in fact, disease of any kind is so little known and sickness so rarely occurs that medical men find their occupation all but gone, and quickly seek fresh fields where death, the reaper, finds a richer harvest.

Fort Grant is fifty miles north of Tucson, in the foot-hills of the Graham mountains, and some 5,000 feet above sea-level. It is only a short distance west of the fine agricultural valley known as the Pueblo Viejo, a description of which has been given in another place. The tables below give the temperature for the years 1881 and 1882, and for seven months of 1883. As will be seen, the climate is delightful, while the yearly moisture will average fifteen inches each year:

1881.	Temperature.			Precipitation— Inches.	1882.	Temperature.			Precipitation— Inches.
	Mean.	Maximum.	Minimum.			Mean.	Maximum.	Minimum.	
January...	45.7	68.0	17.0	.60	January...	41.6	65.0	21.0	.86
February..	38.9	65.0	19.0	.48	February..	43.7	62.8	23.0	1.26
March.....	48.3	75.0	31.0	.85	March.....	51.4	79.0	21.0	1.84
April.....	55.9	80.0	30.0	.08	April.....	56.4	85.0	32.0	.07
May.....	67.6	90.0	42.0	.00	May.....	65.2	86.0	37.0	.81
June.....	77.9	98.0	56.0	1.32	June.....	72.5	94.9	51.0	1.47
July.....	75.8	100.0	56.0	5.63	July.....	77.9	99.0	61.5	2.02
August....	71.6	93.0	57.0	3.73	August....	72.1	93.9	55.0	4.73
September.	71.5	91.0	52.0	1.01	September.	67.9	88.4	51.5	.80
October...	61.0	88.0	35.0	.47	October...	59.4	77.9	34.0	.00
November.	47.4	68.0	20.0	.00	November.	50.7	76.9	31.0	.79
December.	45.3	69.0	18.0	1.57	December.	44.5	65.9	22.2	.17
An. means	58.9	82.1	36.1	.....	An. means	58.6	81.2	36.7	.....
Total...	.....	.....	.....	15.74	Total...	.....	.....	.....	14.82

1883.	Temperature.			Precipitation— Inches.
	Mean.	Maximum.	Minimum.	
January....	40.5	64.6	10.0	1.21
February...	43.9	65.8	17.0	1.40
March.....	52.2	75.9	37.0	1.27
April.....	55.7	78.4	32.0	.03
May.....	64.5	89.9	39.0	1.16
June.....	77.7	101.5	54.0	1.26
July.....	75.1	95.4	61.3	2.90
August....	73.8	91.2	61.2	3.07

South of the thirty-fourth parallel there is a marked change in the climate of the country. There is a difference in altitude of from 2,000 to 4,000 feet. This portion of the Territory embraces the large agricultural valleys of the Salt and the Gila rivers, and the wide open plains which stretch away beyond the Sonora border. In this part of Arizona the climate is warmer than on the northern plateau. Snow rarely

falls in the valleys, and the temperature for nine months in the year is unequalled for mildness, salubrity and healthfulness. While the heat during June, July and August is sometimes great, so dry, pure and exhilarating is the atmosphere that no injurious effects are experienced. When the thermometer reaches 110°, men are at work in the harvest-fields of the Salt River valley, and do not feel any inconvenience from the sun's rays. Sunstrokes are unknown. The air is so free from moisture that the oppressed sensation experienced in the crowded cities of the East under excessive heat, is never felt in Arizona.

During the autumn and winter months the climate of the southern portion of the Territory cannot be surpassed. In the warm, dry, balmy air there is a sense of new life and a buoyancy of spirit unknown to those who have never drank their fill of the pure, elastic atmosphere which wraps the mountains and plains of southern Arizona. In the great farming valleys of the Salt and Gila rivers, the fields are in bloom in the middle of winter; and when snow and ice wrap the landscape in their chilly embrace in other lands, in this favored region trees and shrubbery are in bloom, the fields are a sea of waving green, and the husbandman goes about his out-door labors in his shirt-sleeves! This is southern Arizona during the winter months, and there are few spots of earth blessed by nature with so genial a climate.

Phoenix, the center of the largest body of agricultural land in the Territory, has a winter climate such as has been described. Although the thermometer registers rather high during the summer months, yet so healthful is the atmosphere, that no serious results are ever experienced from exposure to the heat. Below is a table showing the maximum and minimum temperature and the rain-fall in the valley, for the year 1882 and for six months of the present year. The records for a longer period have been destroyed by fire.

1882.	Maximum.	Minimum.	Rain-fall or Melt'd Snow.	1883.	Maximum.	Minimum.	Rain-fall or Melt'd Snow.
January.....	74.5	19.0	1.52	January	86.7	15.0	0.83
February.....	72.5	23.0	0.00	February.....	80.2	22.7	1.27
March.....	81.5	40.2	0.00	March.....	91.6	38.4	1.16
April.....	100.9	37.0	0.00	April.....	98.6	30.1	0.00
May.....	102.3	51.0	0.00	May.....	107.2	40.7	0.44
June.....	101.3	56.0	0.37	June.....	112.5	55.2	0.00
July.....	111.7	70.2	0.32				
August.....	112.5	64.7	1.81	Total rain-fall.			4.70
September.....	105.2	45.0	1.25	The city of Tucson is 2,500 feet above the sea-level. The annexed table gives the maximum, minimum and mean temperature for a year, together with the rain-fall.			
October	97.3	44.2	0.10				
November	91.5	24.5	1.30				
December.....	94.6	23.5	0.00				
Total rain-fall.			6.67				

MONTH.	Maximum.	Minimum.	Am't Rain or Melt'd Snow.
January.....	78.0	14.0	0.56
February.....	77.0	20.0	0.15
March.....	87.0	35.0	0.41
April.....	88.0	36.0	0.04
May.....	104.0	44.0	0.00
June.....	110.0	60.0	0.00
July.....	108.0	65.0	1.62
August.....	106.0	66.0	1.28
September.....	106.0	58.0	1.89
October.....	94.0	40.0	0.09
November.....	73.0	30.0	0.00
December.....	80.0	28.0	0.57
Annual means.....	92.6	41.3	6.61

The winter climate of this city is making it a favorite resort for invalids, who find in its equable atmosphere rest and recuperation.

The climate of Yuma has long been a subject of facetious comment, and ever since "John Phoenix" told the story of the soldier and his blanket, a good deal of funny (?) capital has been made out of the subject. That the temperature of the place is a trifle hot during the summer months cannot be

gainsayed, but during six months of the year there is no more perfect climate on the continent. The clear sunny days, and the delicious mildness of its bright starlit nights, make this a most desirable place for those troubled with pulmonary complaints to pass the winter months. There is probably not another spot in the Union blessed with so many days of bright sunshine during the year. Out of the 365, it is estimated there are not over twenty that are cloudy. So high an authority as Ross Browne has written: "The climate in winter is finer than that of Italy. It would scarce be possible to suggest an improvement. I never experienced such exquisite Christmas weather as we enjoyed during our sojourn." This is the verdict of a traveler who saw many lands, and experienced all varieties of temperature.

Below is a statement showing the maximum, minimum, and mean temperatures, and the precipitation, in inches and hundredths, at Yuma, Arizona, for each month from the commencement of observations to January, 1883, compiled from the records on file at the office of the Chief Signal Officer, U. S. Army, Washington, D. C., April 9, 1883.

MAXIMUM TEMPERATURES.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1879	80.	90.	100.	103.	102.	111.	116.	115.	113.	102.	91.	74.
1880	77.	73.	84.	94.	104.	110.	110.	111.	108.	97.	86.	76.
1881	76.	89.	97.	102.	102.4	109.4	115.3	109.6	107.4	98.2	83.4	79.5
1882	76.4	78.1	91.7	102.8	103.5	108.7	111.8	114.	107.3	90.	82.	79.8

MINIMUM TEMPERATURES.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1879	30.0	37.0	46.0	48.0	53.0	59.0	61.0	64.0	59.0	44.0	38.0	27.0
1880	30.0	25.0	37.0	44.0	51.0	61.0	69.0	67.0	58.0	46.0	31.0	37.0
1881	33.0	37.0	31.0	50.0	57.2	62.2	71.2	65.6	58.8	47.2	35.5	36.8
1882	27.2	35.8	38.9	43.7	53.8	58.2	72.7	72.2	50.0	49.5	37.0	31.5

MEAN MONTHLY TEMPERATURES.—[Computed from the three telegraphic observations.]

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Means
1876.	50.9	59.5	61.9	72.7	81.8	89.3	93.9	90.3	86.3	77.0	65.4	59.3	74.0
1877.	60.3	65.0	71.8	68.4	75.3	88.7	94.0	92.7	83.3	71.4	58.5	54.5	73.7
1878.	54.8	59.6	64.6	66.7	76.8	85.1	93.3	91.6	83.0	73.4	62.0	53.4	72.0
1879.	53.1	63.7	70.5	71.8	77.7	85.5	92.0	92.5	87.7	72.8	59.9	52.8	73.3
1880.	55.2	52.2	58.3	67.5	76.6	85.6	89.6	90.0	83.2	71.2	56.7	56.1	70.2
1881.	52.3	62.1	63.5	72.6	78.1	84.8	91.9	88.6	82.7	70.4	58.3	57.0	71.9
1882.	50.2	54.4	62.3	67.1	77.2	83.0	93.0	92.0	82.7	69.6	59.5	58.0	70.8
Means.	53.8	59.5	64.7	69.5	77.6	86.0	92.5	91.1	84.1	72.8	60.4	56.0	72.3

PRECIPITATION.—[In inches and hundredths.]

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Amount
1876	0.44	0.46	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94
1877	0.09	1.72	0.00	0.00	0.06	0.00	0.50	0.06	....	0.00	0.00	1.23	3.66
1878	0.00	0.06	0.13	0.02	0.00	0.00	0.55	1.50	0.37	0.00	0.02	0.14	2.88
1879	0.59	1.21	0.48	0.15	0.00	0.00	0.00	0.00	0.11	0.33	0.15	0.27	3.29
1880	....	....	0.00	....	0.00	0.00	....	....	....	....	0.00	0.74	0.74
1881	0.00	0.00	....	0.55	0.00	....	0.20	0.08	0.05	....	0.00	0.10	0.98
1882	1.35	0.01	0.00	0.00	0.00	0.05	0.20	0.03	0.04	0.01	0.09	0.00	1.78
Mean	0.35	0.49	0.09	0.10	0.01	0.01	0.21	0.25	0.08	0.04	0.03	0.31	2.04

The winter climate of southern Arizona is indeed as near perfection as one can expect to find anywhere on the globe. The mild, balmy air, the days with their clear cloudless skies, and the nights brilliant beyond description with the lustre of countless stars, like diamonds set in an azure field, present a picture which not even the vaunted clime of sunny Italy can rival. The lack of moisture and the peculiar dry elasticity of the air make this the most healthy region on the Pacific coast. In such an atmosphere disease cannot live or germinate. Those constitutions shattered by hardships and exposure to the severity of northern winters, will find no climate more mild, salubrious and strengthening than that of Yuma, Tucson, Florence, Phoenix, and other points in southern Arizona during the greater portion of the year.

There is no climate more conducive to longevity. This is proved by the great age reached by Mexicans and Indians born and bred here. Centenarians are not uncommon among these people, and there are many of them who have passed the one hundred mile-stone. Diseases among them are scarcely ever known; and although few of them observe hygienic laws, they seldom know a day's sickness and travel down the vale of life with health and faculties unimpaired, and die at last of old age.

Arizona has been called the "Sunset Land," and well does it deserve the name. There is no region on the globe, not even excepting the Italian peninsula, that can show such grand effects of light and shade, such gorgeousness of coloring, or such magnificent sun-bathed landscapes. When the God of Day sinks to rest behind some rugged mountain, lighting up the western heavens with a blaze of gold, and pink, and crimson, and orange, and wrapping the jagged peaks of the bare and forbidding mountains in a soft and dreamy haze of purple and violet; when the banks of clouds around the western horizon look like masses of burnished gold set in a sea of silver, then is presented a picture to which neither pen nor pencil can do justice. And when the last ray has disappeared, and the western sky is yet blushing with the mellow radiance of the last

glorious caress, the stars begin to peep out from the clear, blue canopy, and in a short time the vault of heaven's dome is lit up by the brilliant beams from the countless creations that gem the firmament. No artist has yet undertaken to paint an Arizona sunset, but for him who can transfer to canvass its wonderful colors and its inexpressible grandeur, there is both fame and fortune in store.

There is no portion of the Union that can show so many cloudless sunshiny days as Arizona. In the southern part of the Territory there is scarcely a day in the year when the sun is not visible at some time during the twenty-four hours. A cloudy day is an anomaly in this region, and, except during the rainy season, the warm sunshine bathes hill, mountain and plain every month in the year. Think of this, ye unfortunates, condemned to drag out an existence under the fogs and frosts of less-favored regions, where life is a continual struggle for existence.

The healthfulness of the country is proverbial. The extreme purity and dryness of the air does away with malarial diseases, and prevents the spread of anything like epidemics. It is safe to say there is not a population of equal numbers in the United States where the mortality from natural causes is less than in Arizona. In the valley of the Salt, where irrigation is extensively practiced, and where, owing to the numerous waterways, one would expect malarial fevers to prevail, such a thing is unknown, men work in the fields and in the water, winter and summer, and enjoy the best of health. No better evidence of the virtues of Arizona's climate can be found than this.

The tables here presented, and the facts given, will convey to the reader an idea of the climatic conditions of the Territory. Instead of the sun-scorched desert, which some have pictured it, he will see that it is a land blessed beyond most countries with a climate whose health-giving qualities few can equal. The summers of northern Arizona reach as near a perfect temperature as any on the continent, while the winters in the southern part of the Territory possess all those desirable features of mildness, salubrity and recuperative power which so many seek for in vain in foreign lands.

The emigrant who thinks of casting his lot in this growing Territory need have no misgivings about the climate. Under its genial skies he can follow his calling in the open air every month in the year. He will find bright sunshine, pure and invigorating air that will bring the flush of health to his cheek, and send the warm blood bounding through his veins; he will find strength and vigor in every breeze, and long life and happiness in a favored land which combines all the beauties of the tropic and all the virtues of the temperate zones. Such a land is Arizona, endowed by nature with every gift to make a powerful, prosperous and happy State, and blessed with a climate unsurpassed in either hemisphere.



WAGES AND COST OF LIVING.

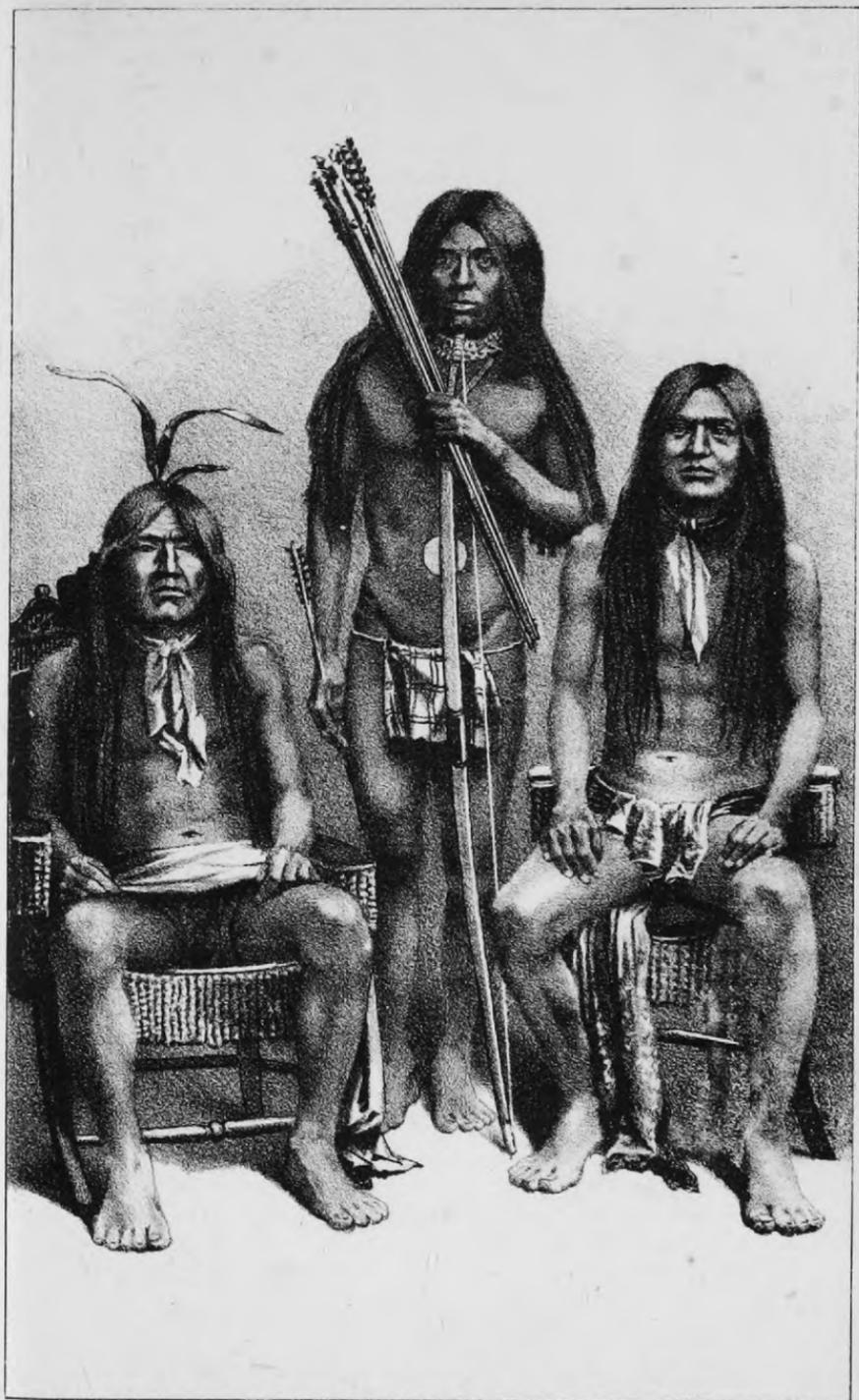
Rates of Wages for Mechanics—Prices of Provisions—Of Clothing—Rents—Prices of Lumber and Cost of Building—The Class of Immigrants not wanted, etc.

WHO the immigrant of limited means, who thinks of removing to a new country, these are important items for consideration. If he is a mechanic, or follows some other calling where manual labor supplies him with his daily bread, he will be desirous of knowing what his labor is worth in the region where he contemplates making a new home. If he has other resources besides his hands to depend upon for a livelihood, he will naturally wish to learn what it costs to live in the new land. If he has a family, he will want to know the expense of building a little home, and the prevailing rates of rent in the principal towns; the price of the staple articles of consumption and wear, and all other matters connected with domestic economy. In this short chapter will be found the information sought and the answer to the scores of inquiries which are being received daily from all parts of the United States. The rates given have obtained for several years, and there is not much probability of any material change for some years to come.

The following are the rates of wages for skilled labor which prevails, generally, throughout the Territory.

	PER DAY.
Miners	\$4 00
Carpenters	5 00
Blacksmiths	4 00 to 6 00
Bricklayers	5 00 " 6 00
Masons	5 00 " 6 00
Engineers	4 00 " 5 00
Painters	4 00 " 5 00

And other trades in like proportion. Mechanics should not forget that the supply of labor, in their several lines, is always in excess of the demand. While the rates of wages are temptingly high, they should remember that the opportunities for securing employment are limited. To a mechanic, who has



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A GROUP OF YUMA INDIANS.

BARCROFT - LITH-S.F.

steady work, where he is, we would say, stay. . While your labor commands a much higher price in Arizona, you should not lose sight of the fact that the field is circumscribed. As has been before remarked, manufactures of all kinds are yet in their infancy in this Territory, and a man who casts his lot here now, must come prepared to turn his hand to anything that presents itself.

For miners, who understand their business, there is always a demand, but the supply is generally equal to it. This class of workers are sure to find their way to every new mineral region, and if they cannot secure employment at their regular calling, they have the Western faculty of "rustling," which always brings them right side up. They are the men whose indomitable courage, patience and energy brings to light the resources of new lands, and opens the way for capital and immigration. To them Arizona owes her present prosperity, and to them she offers unlimited opportunities in the future. There are yet rich mines to be discovered, and fortunes to be made in the quest for the treasures which lie hidden in every hill and mountain range.

The wages paid for other branches of labor are about as follows: Clerks, \$50 to \$100 per month, and board; teamsters, \$40 to \$60 per month, and board; farm laborers, from \$30 to \$40 per month, and board; and day laborers, from \$2.50 to \$3.50 per day, without board.

The cost of the necessaries of life in Arizona are very reasonable, when the distance from the great markets of the East and the West is taken into consideration. If we except flour, meat and vegetables, nearly everything worn or consumed in the Territory is brought from abroad. Groceries, hardware, clothing, boots and shoes and all staples are imported from California or the East. Yet notwithstanding the cost of freight, prices are not high. In Tucson, Tombstone and Phoenix, the prices of groceries, provisions, hardware, clothing, etc., are nearly the same and rule about as follows:

Flour, (imported).....	\$5 to \$6	per 100 pounds.
" (domestic).....	4 " 5	" " "
Coffee.....		20 cts. per pound.
Sugar.....		20 " " "
Tea.....	50 cts. to \$1	" "
Bacon.....		12½ " " "
Beef.....	10 to 20	" " "
Mutton.....	8 " 12	" " "
Potatoes.....	2 " 5	" " "

And all other vegetables in like proportion. Board can be had in these towns at from \$6 to \$10 per week. A suit of clothes can be bought as low as fifteen dollars, or as high as the length of your purse will stand. Rents are not unreasonably high, when the cost of building is considered. A house of three

or four rooms can be had at from \$20 to \$30 per month. Furnished single rooms will command from \$10 to \$20 per month. The rates for board and the cost of supplies are very little higher in Prescott, Globe, Pinal and other towns farther from a railroad. More than half the flour consumed in the country is of home manufacture, and it will be but a short time when the valleys of Arizona will produce sufficient to supply the entire home demand. In Tucson, Tombstone, Phoenix or Prescott, you can buy a pair of boots at from \$4 to \$10; a hat from \$1 to \$5, and all other articles of clothing at similar prices. Hardware and furniture are all imported and the cost of transportation makes such articles come rather high, but with the building of railroads, the price is being materially lessened.

Good merchantable lumber can be bought in Prescott at from \$20 to \$30 per thousand, and in Tucson, Tombstone, and Phoenix, California and Texas lumber can be had at from \$40 to \$60 per thousand, according to quality. A cosy little home can be built in any of the principal towns or valleys at from \$400 to \$600. This of lumber; but in the southern towns and farming valleys most people prefer the adobe, or sun-dried brick, as being better suited for the climate, and less costly. This is the material which the first settlers in southern Arizona used in the construction of buildings, and it has given entire satisfaction. Houses built of the adobe are cool and roomy, and when properly plastered and finished, with a wide veranda running all around them, make as comfortable a home as one could wish, in a dry climate.

These, in brief, will convey to the reader an idea of the cost of living in Arizona Territory. It is not higher than that which prevails throughout the Pacific States and Territories. If the immigrant should think the prices rather steep, he should remember that here the laborer is worthy of his hire; that every calling and profession receives a generous remuneration, and he should not forget that the products of the garden and farm command much higher prices than in the States nearer the rising sun. And before we close this chapter, a word on the class of immigrants which Arizona *don't* want. Of lawyers, doctors and professional men generally, there are already more than enough, and an influx of the learned professions is not desired. They are overcrowded, and sharp competition has made the practice of them anything but profitable. It is true there is always room for a man at the top, but, unless he has the acquirements to gain that position, he had better remain where he is. Of clerks and all others who are seeking positions where the labor is light and the salary high, the supply on hand always exceeds the demand. The truth is, to Arizona, as to all new countries, comes a class who expect to grow suddenly rich, without much effort on their part. To all such we would say, remain at home.

Here, as everywhere else, energy, perseverance and hard work

lead to success, and he who expects to reach it by any other way should stay where he is. No drones in the hive of industry are wanted in Arizona. Vim, enterprise and industry are the roads to fortune, and those who sit quietly down and wait for the goddess to bid them good-morrow, will be apt to remain in the shade of poverty all their lives. But for those with stout hands and brave hearts, who are not afraid of work, and can "rough" in a new country; who will fight the battle of life, and not give up the contest because Fortune does not always smile on them; who can turn their hands to anything that presents itself; who are sober, steady and industrious, Arizona is a field where the opportunities for securing a competence are unequaled in the West.





BY RAILROAD AND STAGE.

The Comforts and Conveniences of the Present Compared with the Hardships and Dangers of the Past—The Southern Pacific—Benefits it has Conferred on the Country—How to reach Southern Arizona from the West—And from the East—Branches from the Southern Pacific—How to reach Northern Arizona from the East—The Route of the Atlantic and Pacific—Scenery along the Route—Benefits to Northern Arizona—Branches—The Arizona Mineral Belt Railroad—A Network of Roads Projected—Telegraph Lines.

THE opening of two transcontinental railways through the Territory of Arizona has removed the barriers of isolation which so long separated it from the active, bustling, progressive world. It is no longer an unknown land, as far removed from the centers of civilization as the distant regions of Central Africa. No longer is the traveler compelled to undergo the hardships, discomforts and dangers of long, dreary and dusty stage rides; no longer is he subjected to the miseries of a "buckboard," and exposed to the burning suns by day and the chilling winds by night; no longer does hunger, thirst, loss of sleep and weariness of mind and body accompany the visitor who journeys to the marvelous country.

Those features of travel in the early days are now but reminiscences of the past, and a trip to Arizona at the present time can be made as comfortably and as pleasantly as to any part of the Union. The palace car has superseded the rickety stage, and the railroad hotel has taken the place of the wayside station; and instead of bacon and beans, bread and black coffee served up by a picturesque individual with slouched hat, unkempt beard and big six-shooter, the traveler sits down to an inviting table, and dines as well as at the best city restaurant. A jaunt to the Territory now is one of pleasure and recreation. Lolling in a luxuriously cushioned seat, the sightseer can enjoy the ever-changing panorama of mountain, plain and *mesa*, the brilliant sunshine, and the wonderful atmospheric tints which soften the rugged outlines of many a barren mountain and jagged peak. The journey of a month across the continent has

been shortened to six days; and the time when the adventurous visitant to the wilds of the southwest deemed a small arsenal an indispensable part of his outfit, and nervously watched every cañon and curve, and rock and bush along the roadside, is passed, never to return.

The shriek of the locomotive has sounded the death-knell of isolation and savagery, and those twin relics of an unprogressive past have been swept aside by the irresistible tide of civilization. The dark shadow which their presence cast over this fair land has been dispelled by the rising sun of modern progress, and the advent of the iron rail heralds the brightest epoch in Arizona's history.

The Southern Pacific railroad enters the Territory at Yuma, and follows the wide, rolling plains that skirt the Gila river, to Maricopa Wells. From this point it trends southwesterly to the city of Tucson. After leaving Tucson the road runs in a northeasterly direction for some distance, thence turning due east it passes the Dragoon, the Chiricahua and the Steins Peak ranges to Deming in New Mexico, where it forms a junction with the Atchison, Topeka and Sante Fé road. Its length through the Territory is $384\frac{17}{100}$ miles, and its course is between the thirty-second and thirty-third degrees of latitude.

The region through which it passes is not a very inviting one and a stranger gazing at the vast stretches of dry, treeless plains and barren mountains is not apt to be favorably impressed with the country. But nearly everyone of those rocky and forbidding mountain masses is rich in precious metals, and north and south of the line the country presents an entirely different appearance. The building of this road has been of great benefit to southern Arizona. Every industry has felt the advantages of quick and reliable rail connection, and mining, more especially, shows a marked improvement since its completion. Many prosperous towns and camps have sprung into existence; cattle-ranges have been established; prospectors, speculators and traders have poured into the country; capital has sought investment, and Tucson has grown from a sleepy old hamlet to an active, wide-awake city of 10,000 inhabitants. All this has been brought about by the building of the railroad, and is a fair sample of the beneficial change to be wrought in other portions of the Territory, when they, too, are in possession of rail facilities.

To reach southern or central Arizona from San Francisco the traveler takes the Southern Pacific railroad to Yuma, on the Colorado river, distant 730 miles from the city. From this point boats run up the river to Silver district, Aubrey, La Paz, and other camps. From Yuma to Silver district there is also a well-appointed stage line, which makes tri-weekly trips, the fare being \$6 each way. From Yuma to Maricopa is 157 miles, the fare over the road in Arizona being ten cents per mile. At Maricopa the stages of the California and Arizona Company are always

ready to convey passengers to Phoenix, twenty-eight miles distant, and to the towns and camps of northern and central Arizona. The coaches of this Company are large and commodious, the stock good, and the drivers careful. The fare to Phoenix, the handsomest town in Arizona, is \$5, and from there to Prescott, the capital of the Territory, \$20, time twenty-four hours. A line is also run to the Vulture mine and by the famous Antelope Peak, on top of which was found the wonderful deposit of placer gold.

Twenty-six miles east of Maricopa is the station of Casa Grande. From this point the Kerns and Griffith Stage Company run a line of commodious coaches to Florence, the county seat of Pinal county, twenty-five miles distant. At Florence the line branches, one to Pinal and Silver King, and the other to Globe, by way of Riverside. From Florence to the King is thirty-five miles over a good natural road. If the traveler desires to reach Globe by this route he will find saddle animals at the mine, and can take the trail over the Pinal mountains, passing through the rocky gorge of the Devil's cañon, and other wild and picturesque mountain scenery en route. The road from Florence to the Globe mines passes by the Pioneer camp and over the lofty and heavily-timbered Pinal mountains, by a broad smooth grade. The magnificent views of mountain, valley and plain which are seen along this route are not surpassed in the Territory. Fine stock and competent drivers are employed by this company, and a trip on one of their comfortable coaches is a treat to the new-comer who gazes for the first time on the wild and striking beauty of Arizona mountain scenery.

At Tucson, 978 miles from San Francisco, a daily line of coaches run to Tubac, Calabasas, Arivact, and all points in northern Sonora. This is a well-equipped line, six-horse coaches being used, and the road being one of the finest natural thoroughfares in the Territory. At Benson, forty-six miles east of Tucson, the Arizona and New Mexico railroad branches from the main line for Guaymas. The traveler for Tombstone and the adjacent mining camps changes cars here, and a ride of an hour brings him to Contention station, where he takes stage for Tombstone, nine miles distant. At Wilcox, eighty-five miles east of Tucson, and also at Bowie, twenty miles further east, stages run to Globe and the San Carlos Indian Agency. That from Bowie also passes through the Pueblo Viejo valley, one of the finest bodies of farming lands in the Territory, only thirty-five miles north of the railroad.

To reach southern Arizona from the east the traveler has choice of routes by the Atchison, Topeka and Santa Fé or by the Texas Pacific via El Paso. At Deming, in New Mexico, 1,149 miles from Kansas City, the Atchison and Topeka forms a junction with the Southern Pacific. The fare to Deming, from

Kansas City, is \$70. From Deming to Benson it is 173 miles, fare \$17.30, and from Benson to Tombstone the fare is \$3. From Deming to Tucson is 219 miles, fare \$21.90—thus making the entire distance from Kansas City to Tucson, 1,368 miles. At Lordsburg, New Mexico, sixty miles west of Deming, a narrow-gauge road leaves the main line for the rich copper mining region of Clifton, seventy miles north. This road passes through the valley of the Gila, and over a rich grazing and agricultural county.

From the Southern Pacific, branch roads have been projected from Maricopa to Phoenix, from Casa Grande to Florence and Silver King, and from Tucson to Globe and Port Lobos. The branch from Maricopa to Phoenix will open up the finest farming valley in the Territory and afford an outlet for the large quantities of flour, grain, hay, fruits and live stock now produced there. Such a road would be a paying enterprise from the start, and its business would steadily increase. There is every likelihood that the branch will be built in a short time. The proposed line from Casa Grande to the Silver King will pass through the valley of the Gila, and tap the rich mineral belt of which the great Silver King is the centre. With a railroad to the Gila river, and reduction works erected on that stream, there are scores of claims in Pinal county which could be profitably worked. The Gila is the natural mill-site for the mines of Pinal, and with such a railroad as we have mentioned, mills and furnaces would line its banks above and below the crossing.

Work is now being pushed on the road from Tucson to Globe, and about ten miles of the distance has been graded. This line receives a subsidy of \$200,000 in bonds of Pima county. It will tap the important coal deposits on Deer creek, pass through the rich mineral country near Riverside, and afford an outlet for the extensive mining region of Gila county.

The railroad from Tucson to Port Lobos, on the California gulf, will pass through the Papaguera, and bring that extensive mineral field into direct rail communication with the outer world. The harbor at Port Lobos is reported to be an excellent one, and by this route goods can be laid down in Tucson at such rates as will effectually bar out competition from California or the East. It is said the Mexican government endowed this road with a subsidy of \$10,000 per mile, besides granting the right of way and several other minor concessions. It is expected that the Atchison, Topeka and Santa Fé company, who are now running over the Southern Pacific from Deming to Benson, will soon commence the building of a line from the former point, to connect at Fairbanks with the road running into Sonora. This road will pass by Tombstone, and place that flourishing camp on the line of a transcontinental railroad.

To reach Northern Arizona from San Francisco, the traveler takes the Southern Pacific railroad for the Needles via Mohave

Station. The Needles are $2\frac{1}{2}$ miles west of the Colorado river, and 622 miles from San Francisco. At this point the passenger takes the Atlantic and Pacific road for the towns and mining camps of the northern part of the Territory. From the Needles to Ash Fork, the station for Prescott, is 174 miles.

Parties desiring to visit northern Arizona from the East, take the Atchison, Topeka and Santa Fé road to Albuquerque. At this point the Atlantic and Pacific railroad turns westward and enters the Territory by the valley of the Fierco. It follows that valley to its junction with the Little Colorado, near the town of Holbrook. From this point there is connection by stage with St. Johns, the county seat of Apache county. From Holbrook the road crosses the plains of the Cañon Diablo and the deep chasm of the same name, over which a bridge has been thrown, 225 feet above the bed of the creek. The road then climbs the southern slopes of the San Francisco peak at an elevation of 7,355 feet, and the northern spurs of the Bill Williams range, and then descends to Ash Fork.

From Ash Fork there is a daily line of stages to Prescott, the capital of Arizona, distant fifty-two miles. This line is owned by the Gilmer and Salisbury Stage Company, and is one of the best-equipped and conducted of any in the Territory. Close connections are made with trains from the East and the West, and the drive to Prescott is made in about ten hours. After leaving Ash Fork the road passes westward through Mohave county, and down the broad Sacramento valley to the Colorado of the West, which it crosses by a wooden bridge 1,600 feet in length, connecting on the western bank with the branch of the Southern Pacific from Mohave station, in California.

This road traverses the Territory, almost on the line of the thirty-fifth parallel of north latitude. It passes through the rich valley of the Little Colorado for a distance of nearly forty miles, and will prove of great benefit to the agricultural industry of that region. The sheep and cattle interests of this part of the Territory will likewise feel the effects of cheap and rapid transportation to the great markets, east and west. In Yavapai county the road passes through the northern end of the great Mogollon forest, which is here some fifty miles in width. Several saw-mills are now at work in this magnificent pinery, shipping the product by rail. The scenery along the line in Arizona is, much of it, new and novel and can not fail to have many attractions for the tourist. The rocky escarpments of the cliffs along the New Mexican divide, have a weird beauty and picturesqueness only found in Arizona. The petrified forest southwest of Holbrook, where former monarchs of the wildwood five and six feet in diameter lay prone upon the ground, turned to solid stone, will always be worthy of a visit from the scientist and the sightseer.

At Peach springs the track is within eighteen miles of the

cañon of the Colorado, and conveyances are always in readiness for tourists who desire to view the wonders of this mighty chasm, before which all other scenes in either hemisphere are tame and commonplace.

Already the completion of the Atlantic and Pacific railroad is beginning to show its beneficial effects in the renewed activity visible in the mining camps of Mohave and Yavapai counties. The work of development has been stimulated and encouraged by low rates on freight, and the facilities for the shipment of ores. The connections made by this road with the California and Eastern systems, the great valleys of the Mississippi and the Ohio, and the populous cities of the Atlantic sea-board, must bring to northern Arizona a rapid growth and development within the next few years.

From Ash fork to Prescott a line has been projected, and the road is expected to be completed before the first of January, 1885. The country over which it passes is made up principally of rolling hills and valleys, and no engineering difficulties stand in the way of its speedy completion. This road will be of vast benefit to the mining regions south and east of Prescott, and cannot but have a marked effect in stimulating the work of development.

From Winslow, on the Atlantic and Pacific, a line has been surveyed to Globe, and work already commenced. The distance is 160 miles, through one of the finest grazing, the richest mineral, and the most magnificent timber-lands of the Territory. The route for the greater portion of the way will skirt the western slope of the great Mogollon forest. Careful estimates place the whole area of timber land tributary to this road at more than 7,000 square miles—an area as large as the whole State of Massachusetts. Low estimates put the total quantity of lumber in this vast area at 78,000,000,000 feet. A railroad tapping this great pinery would not only meet the home demand, which must eventually look here for its lumber supply, but could find a ready and profitable market east and west.

Along the line of this road there are nearly 6,000 square miles of as fine grass-lands as can be found in the west, amply able to sustain 200,000 head of cattle. This industry will be one of the main sources of revenue to the road, and is sure to attain important proportions.

The mineral resources of the region through which this line passes are among the most extensive in the Territory. Gold, silver and copper are found in nearly all the mountain ranges, and in the neighborhood of Globe the copper deposits are among the largest and richest in the Territory. With direct rail communication and cheap freights, the development of the mines would receive a powerful stimulus, and make a profitable business for the road. In fact, there is no railroad project yet suggested that offers so many inducements for the investment of capital,

or presents so many elements of success. Two companies have been organized to carry out the enterprise. One is known as the "Construction and Development Company," organized under the laws of the State of Virginia; the other is the "Arizona Mineral Belt Railroad," incorporated under the laws of Arizona. The former company intend to erect extensive works on Salt river, where the low-grade ores of Tonto basin and Globe district can be cheaply worked by the never-failing power of that stream.

The scenic beauties of this road through the Tonto basin, are unequaled in the Territory. On Pine creek is the great natural bridge of Arizona, one of the most remarkable curiosities in the West. A recent visitor thus describes it in the *Phoenix Gazette*:

"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, 500 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 100 yards south and descend into a precipitous cañon 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 168 feet, and the span was eighty feet. Its total width up and down the creek, is about 150 yards. About eight feet from its southern edge, exactly in the center of the arch, is a natural hole, cut into the interior, and, by looking down this, a bird's-eye view is obtained of the bed of Pine creek, far below, at a perpendicular depth of 168 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 perfect arch above, and the fluted columns meeting in the semi-obscurity above, reminds 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, and its precipitous sides are pierced by caves and grottoes, 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; though 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 other 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 they had lately fallen from the trees."

From Globe it is proposed to continue the road south to Benson, thus making a connecting link between the Atlantic and Pacific and the Southern Pacific and opening a continuous line of rail from the thirty-fifth parallel to Guaymas, on the Gulf of California. The benefits of such a line through the heart of the Territory, cannot be over-estimated, and the many and varied industries which would spring into life and grow up around it, assure a large and profitable business. Work is now being prosecuted between Globe and Winslow, and the character and standing of the men who are at the head of the enterprise insures its speedy completion. Besides the roads mentioned, the Southern Pacific Railroad company is said to have in contemplation the building of a line from the present terminus of their Mohave branch at the Needles, to Tucson. This line would pass west of Prescott by the Sinks of Date creek, by Wickenburg, through Phoenix and up the rich valley of Salt River to Florence, and from thence south to Tucson. If this branch should be built, it would afford rail connection to a rich mining region in northern and central Arizona, and pass through the largest body of farming land in the Territory.

From this brief summary of the roads now in operation, and in course of construction, and those projected, it will be seen that the country promises in a few years to be gridironed by the iron rail. From the two transcontinental lines which cross the Territory, north and south, feeders will soon branch out to every principal town and mining camp, and there will hardly be a point of any importance in Arizona not linked with iron bands to the outside world. This wished-for consummation means cheap material and cheap supplies for mines, mills and furnaces, an increased production of the precious metals, and a wonderful development of the mining industry; it means a permanent and lucrative markets for beef, mutton, and wool, and a rapid and healthy growth for the grazing interests; it means for the farmer in the Salt and the Gila valleys low rates on his grain, flour, fruits and vegetables, brings him in direct communication with the consumer, will stimulate production, and cause many a barren acre to bloom and blossom.

The benefits which a net-work of railroads will confer on the country are almost incalculable. Every branch of industry and every calling will feel its healthful effects. Population will increase, capital will seek investment, the productive powers of

the Territory will be stimulated and assisted, and Arizona will take that place among the sisterhood of States which her grand resources entitle her to.

The telegraph, next to the railroad, is the leading factor in our modern civilization. While the Territory is not as well provided in this respect as could be desired, yet nearly all the principal towns are linked with that girdle which has annihilated time and space, and bound the earth with a circle of lightning. The Western Union Company have a line along the track of the Southern Pacific railroad, connecting at Yuma, Tucson and Tombstone with all points east and west. The War Department has built a line to connect all the military posts in the Territory. This line passes through Phœnix, Wickenburg, Florence and other towns, and joins them with the Western Union. Globe is connected by a wire with San Carlos, built and owned by a private corporation. At the latter place it joins the military line from Wilcox, on the Southern Pacific. Clifton has a line to Lordsburg, owned by the Arizona Copper Company. A line has been built along the Atlantic and Pacific by the company, but is entirely devoted to their private business. The telephone has been introduced in Arizona, and is in general use in Tombstone and Tucson, and connects the principal mines, their reduction works and offices, in all parts of the Territory.





SCHOOLS, CHURCHES AND SOCIETY.

The School System of the Territory—The Mission Fathers the Pioneers of Education—The First School in Tucson—The School Laws—Number of Schools in the Different Counties—Churches in the Territory—Number Owned by Different Denominations—Society throughout the Territory—Security of Life and Property.

IN nothing does the liberal, progressive and enlightened spirit of the people of Arizona manifest itself so strongly as in their public schools. Believing in the axiom that in free schools rests the safety of republican institutions, they have laid broad and deep the foundations for public instruction, and take a pardonable pride in the success which has attended their efforts. The early settlers who planted the standard of civilization in this remote region were a good type of the intelligence, enterprise and daring of the western pioneer. They had the honesty, the courage, the unflagging energy, the innate love of justice and fair play, the native good sense and intelligence, and all the rude but sterling virtues native and to the frontier manner born. Although most of them were attracted to the promised land of the southwest by the reports of its wondrous mineral wealth, and expected only to remain long enough to unearth some hidden bonanza which would bring them riches and rest for the remainder of their days, yet they were not unmindful of the duties they owed to those who should come after. The seed which they planted has borne good fruit. The school-master is at home in the land; in every remote settlement, farming valley and mining camp, the modest country school-house raises its head, a noble monument to its founders, and the pride and glory of the Great Republic.

It is said, and with truth, that the western pioneer first builds a school-house and afterwards a church. This will hold good in Arizona, and long before churches were considered at all necessary, schools were established in different parts of the Territory, supported by private contributions. To the mission fathers must be given the credit of introducing schools in what is now Arizona Territory. While being taught the truths of Christianity the neophytes were also instructed in the rudimentary branches of secular knowledge. But the sacred and profane

branches were so mingled that it was difficult to say where the one began and the other ended. As may be imagined, the instruction was mainly of a religious nature, but its effects were good, and the fruit it bore, lasting. After the abandonment of the missions, and up to the time of the Gadsden purchase, there was not a school or educational establishment of any kind within the Territory. During these long years a mental and material darkness brooded over the land, and ignorance and savagery held joint sway.

The first regular educational establishment was opened by the Sisters of St. Joseph, in Tucson. For years this was the only school in the Territory, and from many isolated towns and settlements parents sent their children to the Academy of St. Joseph. Although the institution was under the control of the Catholic Church, and the instruction given partook somewhat of a religious character, yet no discrimination was shown by the good sisters. The children of poor people of all denominations, who were unable to pay for tuition, were received and taught gratis. So apparent were the benefits conferred on the people by this school—which is yet in a flourishing condition—that the Legislature at the session of 1877 voted it \$300 out of the Territorial treasury.

It was not until the year 1868 that public schools were established. At that time the population was less than 10,000, and was scattered over a vast extent of territory. Owing to these causes, and the lack of funds, their growth at first was slow, but as population increased, new school districts were established and revenues augmented. Fine brick structures were erected in Prescott and Phoenix, competent teachers were employed, and the attendance steadily increased. Congress by an Act, dated February 18, 1881, has set apart seventy-two sections of the public domain in Arizona for university purposes. This land has been located in the San Francisco mountain country, is heavily timbered, and should yet be a considerable source of revenue to the schools of the Territory. The public schools of Arizona are maintained by a direct tax, levied on all property.

According to the new school law framed by the Legislature of 1883, a Territorial tax of fifteen cents upon each one hundred dollars of taxable property is collected annually, for school purposes. A county tax of not more than eighty cents on each one hundred dollars of valuation, is also imposed for the same purpose. The schools are under the control of a Superintendent of Public Instruction, at a salary of two thousand dollars a year, and the Governor and Territorial Treasurer, who form a Board of Education. The Superintendent is required to visit the schools of each county at least once a year. He also apportions the school moneys among the several counties, according to the number of children of school age in each, and is the executive head of the public school system of the Territory.

The Probate Judge of each county is ex-officio Superintendent, and exercises a general supervision over the schools in his county, making his reports to the Superintendent of Public Instruction. Each school district is under the control of a Board of Trustees, consisting of three members, elected by the qualified electors of the district, including women, who have the right to vote for these officers. The Trustees provide school-houses, employ teachers, prescribe rules, and do all other things required for successfully conducting the schools under their charge. A Census Marshal is appointed for each district, who makes a proper enumeration each year of the number of children between the ages of six and twenty-one, in his district, and on which census the apportionment of the public moneys to each county, is based. The school year begins on the first day of September and ends on the last day of August, and is open for all children between the ages of six and twenty-one years. The course of study embraces the following branches: Reading, writing, orthography, arithmetic, geography, grammar, history, physiology, drawing, chemistry, elements of book-keeping and such other studies as the Territorial Board of Education may prescribe. No books, tracts or papers of a sectarian character, are allowed to be used or introduced in any public school of the Territory, and any school under the control of any religious denomination or teaching any sectarian doctrine, is not entitled to receive any portion of the moneys set apart for public instruction.

The law of compulsory attendance is in force in Arizona, but owing to the condition of the country and the long distances between settlements, its provisions are a dead letter. According to the report of the Superintendent of Instruction, the total receipts from all sources for school purposes in Arizona for the year 1882, amounted to \$101,967.35, and the expenditures for the same period \$98,267.93, showing a balance on hand of \$3,699.42. The same report gives the total number of children of school age in the Territory at 10,283; and the whole number of teachers employed at 126. The number of school districts in the several counties is as follows:

Yavapai county	29
Pima	10
Cochise	11
Apache	15
Maricopa	10
Graham	6
Pinal	7
Gila	3
Yuma	3
Mohave	3

Total 97

The total valuation of school property in the Territory for the same year was \$116,750.50. As population increases, new districts are being constantly organized, and there is scarcely a camp or settlement in any portion of the country without a school for at least three months in the year. In the large towns fine school-houses have been erected, and those of Prescott and Phoenix, already alluded to, would be a credit to any city in the land. The immigrant with a family to educate, who thinks of settling in Arizona, will find here as perfect school facilities as exist in any of the Territories. In every town, village, farming settlement and mining camp, the people are keenly alive to the blessings of the public school system, and are liberal in its support. It has taken a firm root in the soil, and will grow and prosper as the country advances in wealth and population. Although but yet in its infancy, it has done much good and gives promise of incalculable benefits in the future. A country that maintains and fosters it is on the high road where culture and progress walk hand in hand with prosperity.

Although Arizonans have not been considered a church-going people, yet the number of churches in the Territory, and the liberal manner in which they are supported would go to disapprove this idea. The cheap wit which has been indulged in on the wickedness and depravity of the old residents is hardly borne out by the sight of handsome houses of worship in all the principal towns. If churches and schools are the criterion of a people's intellectual condition, then surely does Arizona compare favorably with older and more pretentious communities. The tasteful edifices, which are springing up in every town show that the people have brought with them to this remote region an attachment for that Christian civilization in which they were born and nurtured. Arizonans are a liberal people, and care very little what a man's religious opinions may be, providing he does not intrude them upon his neighbors.

All possible religious beliefs can be found in the Territory. Christian and heathen, Jew and infidel, Mormon and idolator live side by side in peace and harmony. A man may worship the sun, or believe the moon is made of green cheese if he so lists. There is perfect freedom, and a man's religious principles are only circumscribed by the bounds of his imagination. Before the American occupation the Catholic faith was the prevailing belief in the Territory. It was the religion first established in the country by the Jesuit Fathers, and all the Mexican portion of the population, together with the Papagos, yet worship at the same shrine. It is only within the last ten years that the sects of the reformed faith have established churches in Arizona, now they are found in all the leading towns in the Territory. Catholics, Methodists, Presbyterians, Baptists, Congregationalists and Mormons have erected places of worship, many of them large and imposing structures, with considerable



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SCHOOL HOUSE, PHOENIX.

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pretensions to architectural beauty. The number of churches owned by the different sects is as follows :

Catholics	8
Methodists	6
Presbyterians	4
Baptists	4
Congregationalists	2
Episcopalians	2

The Mormons have places of worship at their settlements on the Little Colorado, on the Salt, and on the Gila rivers. The Catholics have the largest and finest churches—including that of San Xavier del Bac, already described. Arizona forms a diocese under the charge of an Archbishop, resident at Tucson. The Methodists have a strong organization and are under the jurisdiction of a Bishop who lives at Santa Fé, New Mexico.

Most of the churches have flourishing Sunday-schools and charitable societies which do much good in a quiet unostentatious manner. They all have a humanizing effect in the community, and even those whose religious convictions are of the most vague and undefinable sort, must acknowledge the benefits which they confer. A country where churches and schools flourish, always attracts the best and most desirable class of immigration. Men with families will naturally seek a home where those civilizing influences exist. They know that such a country offers the best safeguards against lawlessness and the best security for a peaceful and a happy life.

From what we have written about churches and schools the reader will readily infer that Arizona is not that land of lawlessness the sensational head-lines in Eastern newspapers would lead him to believe it is. The truth is, life and property are more secure than in the great centers of civilization. While the nightly wayfarer in the large cities is in constant danger of being waylaid, garroted, robbed and perhaps murdered, a man can travel through the streets of an Arizona town without fear of danger, any hour of the day or night. In the newest mining camp as in the older towns law and order prevail, and the rough elements which flock to every new mining region, are compelled to observe a decorous and mild-mannered attitude. With the exception of the late Indian raid, which was confined to one corner of the Territory, Arizona has enjoyed perfect peace and the best of order for the past eight years. The strong arm of the law has asserted itself everywhere; bad men from whatever quarter they came, were made to understand that their lawless deeds would not be tolerated here. In the "live" mining camps, where "toughs" most do congregate and where affrays are looked for as a matter of course, the best of order has been maintained. Even the doings of the "Cowboy" have been tame and trifling; and despite the efforts of correspondents to cast a halo of

romance about his commonplace pilfering, and hold him up as a daring mosstrooper of the Sonora border, he remains but a common cattle-thief, whose exploits have been greatly exaggerated.

The settlers of Arizona are of a class that will not tolerate outrages on law, order or decency. They believe in equal and exact justice to all men, and they most always get it. Surrounded by churches, schools and newspapers, the people are among the most intelligent, progressive and liberal-minded of any like number in the Union. In the leading towns will be found a society whose culture and refinement will be an agreeable surprise to the stranger who comes to Arizona to make a home. All the comforts and luxures of our modern civilization will be found here as in older and more populous communities; and law, order and enlightened public opinion control the Territory from the Utah line to the Sonora border.





CIVIL AND MILITARY.

Executive Officers of Territory—Powers and Privileges of a Delegate in Congress—
The Legislature and Judiciary—Land Offices—List of Territorial
Officers—Military Department of Arizona—Posts in
the Territory—Number of Troops,
etc., etc.

ARIZONA, as one of the Territories of the Federal Union, has her Governor and leading executive and judicial officers, appointed by the President, and confirmed by the Senate. These officers hold their places during the pleasure of the Chief Executive of the nation, and until their successors are appointed and qualified. The Territory is entitled to one delegate in Congress, who is elected every two years. This representative has no vote in the national councils, and has not even the privilege of speaking, unless some member of Congress should extend that courtesy by allowing him a portion of his own time. In fact, under the present system, a delegate from a Territory is little more than a figure-head in the halls of Congress. Being deprived of both voice and vote, he has few opportunities to make known the wants and requirements of his distant constituents, and is compelled to beg for those favors which in right and justice he should demand. The present delegate system works serious hardship to the people of the Territories, depriving them of their only legitimate means of making known their wants, and setting forth their grievances to the Federal Government.

A Territorial legislature and all county officers are elected every two years. The session of the legislature is limited by congressional enactment to sixty days. They receive a per diem of \$4, which is paid out of the federal treasury. They are clothed with power to frame all needful laws, subject, however, to approval or rejection by Congress. The Territory is divided into three judicial districts, each of which is presided over by one of the three judges, who compose the federal judiciary of the Territory. Terms of court are held at the county seats of the different counties, at least once a year, and in the more thickly populated counties two terms are held, one in the spring, and the

other in the fall. Owing to the immense area over which population is scattered, and the rapid increase of legal business during the past three years, the present number of judges is inadequate to the task of meeting it, and litigants are subjected to heavy costs, and vexatious delays. There is a universal demand for another judge, and Congress, by appointing him, will only have performed an act of simple justice to the people.

Two land offices have been established in the Territory, one being located at Tucson, and the other at Prescott. Persons desirous of entering the lands of the public domain, can do so at either of these points, where all information regarding their location and the mode of procedure may be obtained.

The federal officers of the Territory at the present time are as follows:

Governor.....	F. A. Tritle
Territorial Secretary.....	H. M. Van Arman
Chief-Justice.....	C. G. W. French
Associate Justices.....	Daniel Pinney, A. W. Sheldon
United States Marshall.....	Z. L. Tidball
Surveyor-General.....	J. W. Robbins

Tucson Land Office:

Register.....	B. M. Thomas
Receiver.....	C. E. Daily

Prescott Land Office:

Register.....	W. N. Kelly
Receiver.....	George Soatell.

The present delegate in Congress is Granville H. Oury, of Florence, who is now in his second term.

The following Territorial officers are appointed by the Governor, with the consent of the Legislature:

Territorial Auditor.....	E. P. Clark, Prescott.
“ Treasurer.....	T. J. Butler, “
“ Attorney-General....	Clark Churchill “

W. B. Horton is Territorial Superintendent of Public Instruction, his office being at Tucson. This officer is elected at each general election, and holds his place for two years. As has been before stated he has entire supervision of the public schools of the Territory.

With the present rapid growth in population and material wealth, it is not too much to expect that within two years Arizona will be applying for admission to the honors and privileges of Statehood. In a territorial condition the country is compelled to suffer that neglect which seems to be the fate of all the political wards of the government. But with representatives on the floors of both houses of Congress she will be in a position to command the ear of the general govern-

ment, and compel recognition where now she is obliged to sue for favors.

One of the most pressing wants of the Territory is a branch mint and assay office. Arizona is already second on the list of silver-producing States and Territories, and with the present rapid increase the day is not far distant when she will occupy the first place. If the product of her mines could be coined at home it would give a grand impetus to the mining industry, and also be a source of large revenue to the government. An appropriation for the finding of artesian water in the dry, grassy valleys of the Territory is also a matter deserving the attention of the Federal law-makers; and no wiser act could be passed by that body than the making of such an appropriation, and the effort to reclaim the millions of acres of fine grazing and agricultural lands now valueless and unoccupied. These, and other matters of vital importance to the country, demand the prompt and favorable consideration of the national government, but so long as Arizona wears her territorial swaddling-clothes, Congress is not apt to give a very attentive ear to the wants of her people.

The Territory of Arizona constitutes a separate military department, with headquarters at Fort Whipple, near Prescott. Brigadier-General George Crook is the present commander. Ever since the country was acquired from Mexico, the government have maintained garrisons at several points within its borders. It can be truthfully said that to the military arm of the government the Territory is indebted for much of its present prosperity. It conquered a permanent peace and brought to terms the hitherto unsubdued Apache. The many posts which have been established throughout the country have been the nucleus around which have gathered thriving settlements. Without the aid and protection of the military, Arizona would have made slow progress on the road to prosperity. The officers and men who for years battled against the savages, and at last brought them to terms, who opened to settlement and civilization this region of the southwest, will always be held in grateful remembrance by the people of Arizona, and their long struggle with the savage foe will make one of the brightest pages in her history.

The first military posts established in the country were known as Forts Buchanan and Breckenridge, and were situated east of Tucson, in the southern part of the Territory. From the time these posts were first garrisoned down to the year 1874—a period of nearly twenty years—the troops stationed here were nearly always engaged in active hostilities with the Apache. Many an officer who afterwards rose to high command during the Civil War, gained his first experience of campaigning in the wilds of Arizona. The famous rebel, General Ewell, was for a long time in command at Fort Buchanan, and had many an encoun-

ter with the savages, and Heintzelman gave the Yumas so thorough a chastisement that they have never since shown any disposition to go on the warpath.

Probably there never was a band of Indians in the United States, of equal numbers, that gave the government more trouble to put down than the Chiricahua Apaches. No tribe on the continent have been guilty of more fiendish and atrocious murders—none have shown more daring and ingenuity. Their leader, Cochise, possessed all the savage characteristics of his race. An adept in all the stratagems of Indian warfare; brave, cunning and sagacious, he proved no mean adversary, and in his many encounters with the troops, he showed skill and audacity, and often proved more than a match for his white foes. The history of the Apache wars yet remains to be written, but he who shall undertake the task will be called upon to record many a gallant fight, and many a daring exploit performed by the officers and men who took part in that long and bloody struggle.

At the present time there are ten military posts in the Territory garrisoned by troops. They are situated as follows:

Fort Whipple, the headquarters of the department and the residence of the commanding general, is on Granite creek, one mile east of Prescott.

Fort Mohave is built on a bluff overlooking the Colorado river, and in the county of the same name.

Fort Verde is forty miles east of Prescott, and has a pleasant situation on a *mesa* overlooking the Verde valley.

Fort Apache is in the foot-hills of the Sierra Blanca; has a delightful location, and a fine climate.

Fort Grant is fifty miles north of Tucson, on a bench of the Graham mountain. It is one of the most important posts in the Territory, and is usually garrisoned by four or five companies.

Fort Thomas is near the Gila river, at the lower end of the Pueblo Viejo valley. It is the nearest post to the San Carlos reservation, and consequently an important military point.

Fort Bowie is situated in Apache Pass, the former stronghold of Cochise. It is about eight miles south of the railroad at Bowie station.

Fort Huachuca is situated in a delightful valley on the northern slope of the Huachuca range. It is one of the largest posts in the Territory, and its site, near the Sonora border, makes it a point of much strategical importance. Quarters to accommodate ten companies are now being erected at this place.

Fort McDowell is near the junction of the Salt and the Verde rivers, and about twenty-five miles east of Phoenix.

Fort Lowell is situated about seven miles from Tucson, in the midst of pleasant surroundings, at the base of the Santa Catalina mountains. It was formerly the headquarters of the Department before they were removed to Whipple.

The total number of troops in the Department is about 1,200, distributed among the posts we have mentioned. Considering the importance of the trust confided to their keeping and the multifarious duties to be performed, the number is entirely inadequate. To securely keep the long line on the Mexican border and watch that nest of marauding thugs on the San Carlos reservation, is no easy task; but in justice to the General in command and his able lieutenants, it must be said they have done all that was possible with the limited number of men at their disposal.

Once the Apaches are removed from the Territory—which is a consummation most earnestly desired by every friend of Arizona—there will be little necessity for maintaining troops in the Territory, except, perhaps, at some few points along the Sonora border. As population increases, as railroads are built and the hills and valleys become dotted with mining camps and farming settlements, the soldier will find his occupation gone in Arizona. It has been so in all the Territories and States of the West, and so it will be here. The frontier posts which twenty years ago marked the line of civilization are now flourishing towns and cities, and the country around them filled with thrifty and prosperous people.

And so, no doubt, in a few years will disappear those landmarks around which has grown up the towns, settlements and prosperous communities now scattered throughout the length and breadth of Arizona. But though they disappear, the work they have accomplished will stand as a monument commanding the homage of future ages; and the memory of the gallant soldiers who wrested this Territory from the grasp of savage dominion will be treasured by its people, and their bravery and devotion find a fitting place in the pages of its history.





THE INDIAN TRIBES.

The Bloody Work of the Savages—The Slaughtered Pioneers—Our First Glimpse of the Apache—Their Numbers and History—San Carlos Reservation—The System of Tribal Government—Habits, Customs and Religious Beliefs—The Chiricahua Tribe—The Pima and Maricopa Tribes—Their History, Mode of Life, Religious Ceremonies, Tribal Relations, Customs, Etc.—The Papagos—The Colorado River Reservation.
—The Yumas—The Hualapais—The Ava Supies—The Moquis and Their “Seven Cities”—The Warlike Navajos—Number of Indians in the Territory—The Reservation System.

ARIZONA has long been considered the home of the most savage and bloodthirsty tribe of Indians on the North American continent. The tales of their sickening tortures, fiendish massacres, and deeds of deviltry and daring, which have been sent broadcast over the land, have given the Territory a most unenviable reputation abroad. Looking through the lurid atmosphere which the reports of death and devastation have thrown about Arizona, people at a distance have long regarded the region as the dark and bloody ground of the West; a country where every man went armed to the teeth; where every bush and rock sheltered a savage foe, and where life and property was entirely at the mercy of a murderous horde.

And it must be confessed that this opinion was once well-grounded. The neglected graves which mark every road and mountain trail speak mutely, but eloquently, of the fierce struggle waged here for years. The pioneers who rest in bloody shroud on plain and mountain side, attest the nature of the contest, and the list of those who fell victims to savage treachery tell how fierce was the battle between civilization and barbarism, and how stubbornly the red-man resisted the advance of the pale-face. From the time of the American occupation up to the year 1875, it is estimated that not less than 1,000 men, women and children were ruthlessly slaughtered by the Apache. The few whites in the country, isolated from the centres of population, and surrounded on all sides by the ever-watchful foe, were always in a state of siege and were never without their arms.

But they were of the stuff which no dangers could daunt or no obstacles could deter. Surrounded by a wall of fire, they bravely pressed on, and blazed the path over which progress and civilization have since moved hand in hand. The story of their deeds of daring, their privations, their pluck and their indomitable perseverance, would make the most thrilling chapter in the history of the border. No writer of Indian romance ever imagined such a struggle whose thrilling facts outstep the wildest dreams of fiction. The lonely ambush, the hand-to-hand encounter, the midnight attack, the shrieks of helpless women and children, the flames of burning dwellings, the terrible tortures and the terrible sufferings of unfortunate captives, would make a volume, horribly fascinating in its record of murder, rapine and robbery.

But the red-man had to yield to his destiny. Here, as everywhere else, the light of civilization blinds and consumes him. The survival of the fittest holds here as elsewhere, and the dominant race has asserted itself. But of all the aboriginal tribes in North America the Apache has most stubbornly resisted the march of progress. He has successively opposed the advance of Spaniard, Mexican and American, and has only submitted after being thoroughly beaten and subdued. Our first glimpse represents him as a veritable Ishmaelite, with his hand against all his neighbors; a born murderer and marauder, who delighted in blood and pillage. This was the character he bore with the Pimas and other peaceful tribes when the Spaniards entered the country, 350 years ago. He was then, as now, a wild man, making his home in the rugged and most inaccessible mountain regions, and often swooping down on the fields and flocks of his industrious neighbors. The early Mission colonies were subject to his constant raids, and nearly all of them were at last destroyed by this wild freebooter.

It has been thought by many that the ancient race which once flourished here were wiped out by this horde of savage banditti. And it is not an unreasonable proposition when we consider how persistently they have resisted the advance of a more perfect and vigorous civilization. But his power for evil is past, and in a few short years there will be nothing left of the fiercest race of savages that ever roamed in North America, save a name linked with a thousand deeds of savage ferocity, and unadorned by a single virtue, save perhaps, that of savage courage.

The Apache tribe in Arizona number about 5,000. Since the year 1874 these Indians have lived on the San Carlos reservation. This reservation is situated north of the Gila river, in the eastern part of the Territory. It embraces portions of Gila, Graham, and Apache counties, is watered by the San Carlos, Cibicu, Eagle creek, Rio Bonita and other tributaries of the Gila, and contains 4,440 square miles. It embraces some of the finest farming lands in the Territory, and some of the most ex-

tensive grazing ranges. It is also known to be rich in minerals, of gold, silver and copper; has some extensive forests of fine timber, and is in all respects one of the fairest portions of the Territory. The streams are alive with fish, the forests are full of game, the soil is of the richest and the climate superb. It is estimated there are at least 50,000 acres of land within this reservation that could easily be brought under cultivation. Of this immense tract not over 1,000 acres have been reclaimed by the aboriginal agriculturists. After all the expense which the government has incurred in purchasing tools and agricultural machinery, a beggarly 1,000 acres is all that can be shown after nearly ten years of trial.

A large school-house has been built and fitted up with dormitories, bath-rooms, and other civilized conveniences. Some thirty scholars receive board and tuition at this institution. The effort to teach the young Apache idea how to shoot in the peaceful paths of learning has not proved much of a success, and the study of orthography is far less interesting than the knowledge of how to make away with some neighboring cattle-grower's stray stock. The reservation at San Carlos is in charge of an agent, with the modest salary of \$1,500 per year. As assistants he has one clerk, one store-keeper, one physician, one chief of scouts, one blacksmith, one carpenter, three butchers three teamsters and two interpreters. The agent has sole control over the Indians, and is responsible only to the Interior Department for his conduct.

The Apache nation is divided into a number of sub-tribes of which the following are the most prominent:—Coyoteres, White Mountain, Chiricahuas, Pinals, Tontos, Aguas Calientas, Apache-Yumas, Apache-Mohaves. These sub-tribes are again divided into bands. Each tribe is governed by a chief, and each band by a captain. As far back as we have any knowledge of them, this system of tribal government prevailed. At no time was there one head chief acknowledged by the whole nation, although the chiefs of sub-tribes, like Cochise, Mangus Colorado and Francisco, exerted a strong influence over all the nation, and often led to war contingents from many bands. In their civil polity the Apaches are republicans of the most advanced type. The chief is elected by the popular voice, and when his course becomes obnoxious to the majority he is requested to resign, and another is chosen in his place. The chieftainship is hereditary in one family, only so long as the succeeding heirs have the ability to perform its duties satisfactorily. Where an incompetent succeeds his father he is often displaced to make room for some obscure captain, whose deeds as an accomplished thief and successful raider commend him to the suffrages of his tribesmen.

As may be imagined from this, the authority of the chief is merely in name. The Apache is jealous of all restraint, and

will brook no interference with the exercise of his individual license, and there is probably no tribe of Indians on whose shoulders the cares of government sit so lightly. The Apaches are polygamists, and keep as many wives as their fancy may dictate, or as they can induce to live with them. No marriage ceremony is indulged in. The bridegroom, having made his choice, visits the abode of his inamorata, and after making a present to her father, according to his financial standing, carries her off from the parental *wickiup*. The women are the hewers of wood and the drawers of water, the Apache braves, like all other Indians, disdaining all manual labor. Their morals have not been improved by contact with the whites, but in their wild state they observed a code almost Draconian in its severity. Infidelity on the part of the wife, among the Coyoteros, was punished by cutting off the nose, but this has been done away with since their intercourse with the pale-faces, as its strict observance threatened the mutilation of the entire female portion of the tribe.

The Apaches, like all other American Indians, believe in a Great Spirit and another existence in the "happy hunting grounds." They are very superstitious, believe in witchcraft and spiritualism, and have almost implicit confidence in their medicine men. They are cremationists and burn their dead. Their habits are filthy; they are lazy, indolent and thievish. The latter accomplishment they have reduced to a fine art, and the tales of their exploits would put to the blush the most expert cattle-riever that ever swung a lariat on the border.

Physically, the Apaches are below the medium height, but sinewy and well put together. Their complexion is a dirty black, and the expression of their features tells of their villainous and bloodthirsty natures. They are capable of standing much fatigue and hardship and can make long journeys over the barren plains and mountains without food or drink. They are thieves by nature and murderers by instinct. In their wild state they had no fixed habitation, and roamed through the mountains, improvising a rude shelter for a few days where game or *mescal* was abundant. Yet this handful of savages have virtually maintained a reign of terror in Arizona and northern Mexico until within the last few years. They are adepts at savage warfare and are masters of every stratagem to entrap the unwary traveler. Never giving battle on the open plain, they always lay hidden behind some rock or bush and surprised their victim when he least expected an attack. Of all Indians, the Apache seems less disposed to adopt the habits and mode of life of the white man. He is a savage, pure and simple, and can no more be tamed than a tiger or a wild-cat.

Of all the Apache race the Chiricahuas are the most warlike. Their country in southern Arizona extended from Tucson east to the line of New Mexico, and south of the old Overland Stage

Line. Under the leadership of their famous chief, Cochise, they marked every mile of the old overland road with the grave of some victim, and carried their forays all over the northern States of Mexico, even spreading dismay to the very gates of Durango. It is believed that this band of savages have murdered more persons—American and Mexican—than any tribe of the same number in North America. It is this band which has caused all the trouble in southern Arizona for the past two years, and who are now raiding through Mexico. For such demons there can be only one treatment—extermination—and the authorities on both sides of the border have at last arrived at this conclusion. They have done more to retard the progress of the Territory than all else combined, and the brightest day in her history will be the one that sees the last of them pass over to the happy hunting-grounds. The Apaches are gradually decreasing; their power is forever broken; the contact with civilization is too much for them, and this savage autocrat, who for centuries kept Pima, Moquis and Papago on the defensive, will soon pass away.

The Pima and Maricopa tribes have a reservation set apart for them on the Gila river. It begins about nine miles below the town of Florence, and extends down the stream to its junction with the Salt, a distance of nearly thirty-five miles, embracing some of the richest valley land in the Territory. By an executive order, dated July 14, 1878, another tract of rich land on the north side of Salt river, was set apart for their use. The Pimas number about 4,500; the Maricopas, about 500. Both tribes are semi-civilized, till the soil, own cattle and horses, live in permanent abodes, and are peaceful and industrious. They cultivate about 400 acres on the Salt and 800 acres on the Gila. Their wheat crop will average about 2,000,000 pounds a year. It is much superior to that of their white neighbors on the Salt, both in cleanliness and quality, makes a better article of flour and commands a higher price.

Besides wheat, corn, pumpkins, beans, sorghum and vegetables are raised in large quantities. They manufacture *ollas*, or earthen jars, for holding water, baskets and other articles of stone and willow-ware. They formerly made some very fine blankets and cotton fabrics. Their farming is of the most primitive style; the grain is cut with sickles, and threshed by being laid on a smooth earthen floor and driving a band of ponies over it. They live in small villages, the inhabitants of each holding their lands in severalty. Their houses are built by placing a number of poles in a circle, arched at the top. These poles are then covered with grass and mud, a small opening being left for a door. When completed, they look like a gigantic beehive.

The Pimas were settled in their present abode when first visited by the Spaniards, three centuries and a half ago. Then, as

now, they cultivated the soil, manufactured earthen vessels and fabrics of cotton and wool. They had no knowledge of their origin, and could tell their visitors nothing of their history. They have not changed, in any way, in the past 350 years, and are the same in manners, customs and habits, to-day, as they were when Cabeza de Vaca dropped in amongst them in his tramp from the everglades of Florida. They are governed by one head chief, the position being hereditary in one family. The tribe is subdivided into bands, each band being ruled by a captain, who is elected by the popular vote. Each village has a council hut, where the leading men frequently meet and discuss the "affairs of State." In cases of trouble or disagreement among members of the tribe, a council of the old men is called, and the matter settled by arbitration.

They observe the family tie, and are very particular about marrying near relatives. They believe in monogamy, but sometimes a plurality of wives is allowed, as when a brother's wife is left without support it is considered the correct thing for the surviving brother to take charge of her. The marriage ceremony is simple. A young man goes with a friend to the residence of his intended, and asks the "old man" for the hand of his daughter, at the same time stating his own prospects for the future. The old party replies, and sometimes the future mother-in-law expresses her views. If the verdict is favorable, he takes his bride by the hand, leads her to his *wickiup*, and from that time on they are considered man and wife. Divorces are common among the Pimas. When either party becomes dissatisfied, through infidelity or any other cause, he or she, as the case may be, packs traps and leaves the *rancheria*. The party to blame loses all the common property; the mother takes care of the children, if there are any.

In case of murder among them, the task of avenging the victim is left to his relatives. But crime is little known, and the best of order always prevails. They have great faith in their medicine-men—so long as they are successful in effecting cures. Repeated failures, however, are apt to lead to unpleasant consequences. A case lately occurred where an unfortunate disciple of Galen, having sent three patients in succession to the happy hunting-grounds, was summarily dealt with by having his brains knocked out with a club. They have some dim notion of a Creator and a hereafter. They are also strong believers in witchcraft, and club to death those whom they believe guilty of it. They bury their dead. The Pimas have a tradition that the Casa Grande and the other towns which once existed on the Salt and the Gila rivers were destroyed by an army who came from the east. They were at one time a large and powerful nation, with villages extending down as far as the center of Sonora. The entire country, to the Gulf of California, was called by the Spanish explorers, Pimiera Alta and Pimiera Abajo.

The Pimas have always been friends of the whites, and the enemy of the Apaches. They gave succor and assistance to the early settlers and their doors were always open to the unfortunate American hard-pressed by the savage foe. They are a peculiar race and for centuries have lived and labored, and passed away in their quiet valley under the shadow of the Sierra de Estrella. Empires have been founded and overturned; wonderful discoveries have been made; the earth has undergone vast changes, but nothing has disturbed the peaceful serenity of the Pima's life. Shut out from the rush and roar of the busy world, he is to-day as he was ages ago.

The Maricopas are on the same reservation with the Pimas, but live separately. They were once a part of the Yuma tribe, but were driven out, and joined the Pimas, over eighty years ago. They have intermarried with their protectors, and adopted their habits and many of their customs. Their language is different and both tribes but imperfectly understand each other. In one particular they resemble the Apaches, they cremate their dead. Both the Pimas and Maricopas are expert warriors, and have nearly always worsted the Apache. In 1857, the Yumas, Mohaves and Apache-Mohaves, came up the Gila and attacked the Maricopas near Maricopa Wells. The Pimas came to the assistance of the latter, and a bloody battle ensued. The Yumas were surrounded and, being deserted by their allies, were cut to pieces. Only two or three lived to carry the dismal tale to the Colorado. When the battle ended, ninety Yuma braves lay stretched stark and stiff on the sandy plain. Since then the Yumas have never ventured far up the Gila river.

The Papagos were once a part of the Pima nation, but were converted to Christianity by the Spanish missionaries, and took the name Papago, (baptized) after being received into the church, of which they yet remain faithful members. Of all the Indian tribes of the Territory they are the most industrious, peaceful, virtuous, temperate and thrifty. Like all Indians who are inclined to peace and industry, they receive no aid from the Department; it is only the bad Indians who are pampered and coddled by our paternal government. The Papagos are farmers and stock-raisers. They speak the same language as the Pimas, and the only thing that distinguishes them from the latter is the manner of cutting the hair; they also wear hats and dress after the manner of the lower class of Mexicans. The tribe have a reservation on the Santa Cruz which includes the old Mission church of San Xavier. This is one of the finest tracts of farming land in the Territory. A large part of it has been brought under cultivation and fine crops of wheat, barley, corn, pumpkins, melons, etc., are raised.

The tribe own a great many cattle and horses. They have also a settlement on the Gila, below the mouth of the Salt, where they cultivate about 400 acres. During the long and

bloody contest with the Apache, the Papagos done good service, fighting side by side with the whites. In their combats with the common enemy they have always come off victorious. They are good laborers, and numbers of them are employed by the farmers of the Salt and Gila river valleys during the harvest season.

Papageria, the land of the Papagos, extends west from Tucson to the head of the Gulf. It is a wild and uninviting region; water is scarce, and vegetation not abundant. Isolated, barren mountains and dry plains are the striking features of the country. At certain points the Indians have dug wells and established villages around them. Little patches of corn and pumpkins are planted, and shallow reservoirs formed to catch the rain-fall, which sometimes pours down on these arid plains with tropic fury. A great many of the tribe still live in this, their old home. The Sisters of St. Joseph have established a school at the old church of San Xavier, which is largely attended, and is doing much good for the tribe.

The Colorado river reservation was established by Act of Congress, March 3, 1865. It is situated between Ehrenberg and La Paz, and embraces an area of about 600 square miles, and a total Indian population of 1,010, composed of the following tribes: Chim-e-hue-vis, 208; Mohaves, 802. The Mohaves, who have lived along this portion of the Colorado ever since we have any knowledge of them, are a tall, muscular and rather handsome race. They were once in active hostility to the whites, but the crushing defeat which they sustained at the hands of Col. Hoffman, of the regular army, in 1859, completely broke their spirit, and ever since they have evinced no desire to go on the war-path. Morally, they have long been considered among the most degraded of all the Arizona Indian tribes. Prostitution is almost universal, and the marriage tie is scarcely regarded. Contact with the whites has brought disease and death, and the powerful tribe of Mohaves are but an insignificant band of tatterdemalions whose days are already numbered.

The Chim-e-hue-vis, on the reservation are much farther advanced than the Mohaves. They dress in light cotton stuffs, and their women are especially noted for their good looks. Their country is on the California side of the Colorado, opposite Ehrenberg and La Paz. The government has expended a large sum in constructing irrigating canals on this reservation, with the hope of making the occupants self-sustaining, but it appears to have been money thrown away. The Indians cultivate a few small patches and raise a little corn and wheat, and a few melons, pumpkins, etc.

An agent is in charge of them, besides a physician, clerk, farmer, carpenter, blacksmith, teacher, matron and cook. With such an imposing staff it would be expected that some tangible results would be obtained; but the effort to light the torch of

civilization on the Colorado river reservation has proved a lamentable failure, and the people are compelled to support a lot of worthless vagabonds, too lazy to earn their own livelihood. Formerly the Mohaves were in close intercourse with the Apaches. Through their intermarriages sprung the tribe of Apache-Mohaves, who inhabited the country between the Colorado and the mountain region of northern Arizona. This mongrel race inherited all the savage vices of the Apache, without his courage and daring. The remnant of them are now on the San Carlos reservation.

The Yuma tribe live on the lower Colorado, ranging from Castle Dome down to the Gulf. They number about 1,200; are a tall, well-proportioned race, with a strong liking for whiskey and tobacco. The name "Yuma" signifies "son of the river," they having always made their home in the valley of the Colorado. They were once a strong and warlike tribe, and gave the early settlers in this region much trouble. Missions were established among them by the Spanish fathers, but they did not take kindly to the new doctrines, and after two years of existence the mission buildings were destroyed and the inmates massacred. Colonel Heintzelman inflicted severe chastisement upon them in 1851, and ever since they have been docile and well disposed. They cultivate small patches on the Colorado bottoms, and raise some corn and vegetables. Their morals are on a par with the Mohaves, and like them, they are becoming fewer every year. They spend most of their time loafing around the streets of Yuma, doing small jobs for the pale faces. There is a rumor that the government intends to establish a reservation for these Indians near the junction of the Gila and the Colorado. There is plenty of rich bottom-land in that vicinity, amply sufficient to sustain the tribe, by constructing irrigating canals. Something should certainly be done for the Yumas, who have long shown such a friendly disposition toward the whites, and who now are on the verge of starvation more than half the time. They are not indisposed to work, and many of them are employed on the boats which ply on the waters of the Colorado.

The Hualapai tribe are an offshoot of the Apache nation, and, in appearance, much resemble the latter. They live in the barren mountain regions of Mohave county, eking out a precarious existence on roots, lizards, rats, mesquite beans, *mescal*, and the little wild game which the country affords. They also hang around the different mining camps, doing odd jobs and picking up any crumb which may fall from the table of the miner or prospector. They were at one time on the Colorado reservation, but the enervating climate of the river bottoms was fatal to Indians born and bred in the pure, bracing air of the mountains, and they returned to their native hills.

The Hualapais are a brave and warlike race, and caused the



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GROUP OF APACHES.

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early settlers of northern Arizona much trouble. They number about 800, with a head chief, and many small bands ruled by captains. They did good service against the hostile Apaches, many of them enlisting as scouts and fighting bravely by the side of the troops. They are experts in the use of the rifle, and long intercourse with the whites has taught them all the vices of the paleface. These Indians have been several times on the brink of starvation, and have to depend nearly altogether on the bounty of the settlers. Although they "have done the State some service," and earned the gratitude of the people by their services against the common enemy, they are neglected by the government, and allowed to gain a subsistence as best they may. But it does not seem to be the policy of the Indian department to reward or encourage peaceful tribes. Flour, beef, coffee, sugar, clothing and other good things are only given to those "gentle savages" who can point with pride to the white scalps which adorn their *tepes* on the San Carlos. But such is our Indian policy.

The Ava-Supies are one of the most interesting tribes in the Territory, or in the United States. They have their homes in the deep cañon of Cataract creek, a tributary of the Little Colorado, and which has its source in Bill Williams mountain. The narrow valley in which they live, averages from 100 to 500 yards wide, with walls of sandstone rising perpendicularly on either side, to a height of from 2,000 to 4,000 feet. The descent from the level of the plateau is by a steep trail, which winds along the walls of the towering cliff. Through the center of the narrow valley, runs a cold, clear stream. The soil is rich, and produces grain, fruits and vegetables. Down in this lovely vale the climate is almost perpetual summer; and while the icy winds of winter sweep over the plateau above, this sequestered glen sees the flowers bloom and the grass green, all the year round.

The tribe numbers about 300, men, women and children, and is made up of a heterogeneous mixture of many tribes, who, it is said, were driven out or fled from their former homes on account of some misdeed. However this may be, it is certain that the Ava-Supies are peaceable and industrious. The few whites who have been down to their village were kindly treated, and found them intelligent and thrifty. They cultivate the soil, and do a brisk trade with the Moquis, exchanging dried peaches and buckskins for cotton stuffs and other articles. Thus, literally shut out from the world, the Supies live in their beautiful home, blessed with everything to supply their simple wants. They are ruled by a chief who is elected by the popular voice, but their customs and civil polity are but little known. They seldom emerge from their secure retreat, and neighboring tribes do not trouble them, knowing their prowess with the rifle and the bow.

The Moquis occupy several villages in the northeastern portion of the Territory. They were the ancient "Cities of Cibola,"

of which Cabeza de Vaca and Padre de Niza told such wondrous tales, and which Coronado found to be but a collection of wretched hovels. The Moquis of to-day occupy the same villages their ancestors did, centuries ago; and there is no change in their customs or mode of life since they were first visited by the Spaniards. Their pueblos are situated on rocky *mesas*, which rise from 300 to 600 feet above the level of the surrounding plain. On one of these isolated *mesas* are situated four of their villages; three other villages occupy as many bluffs. The houses are built of rough stones, laid in mud and fashioned like terraces. These terraces are approached by ladders, the entrance to the dwellings being from the upper story. At night the ladders are drawn up, and all access to the interior cut off. Like the Pimas, the Moquis are partly civilized, cultivate the soil and manufacture many articles of earthenware and coarse woolen fabrics. Although the soil at the base of the rocky bluffs on which they make their homes is sandy and barren-looking, it produces good crops of corn, melons, pumpkins and peaches. Heavy rains fall in this locality, and no irrigation is required. They have large flocks of sheep and goats, which at night are driven into stone corrals around the base and rocky sides of the *mesas*, and carefully guarded. Their warlike neighbors, the Navajoes, who live to the north, have very loose notions respecting the rights of property, and frequently sweep down on the unguarded flocks.

It is generally conceded that the Moquis are of the same race as the Zunis and other pueblo Indians of New Mexico. Travelers whose imaginations have more than made up for their paucity of facts, have supposed they are a part of the Aztec race, and in their religion, customs, and form of government, have traced a resemblance with the people who inhabited the city of Mexico. But there is nothing to show that there ever was any affinity between the two peoples, and save a dim tradition respecting Montezuma, which some visitors assert exists among them, there is nothing to prove that they had any knowledge of the powerful nation which fell before the conquering sword of Hernando Cortez. A communal government prevails among the Moquis. Each village holds the land in severalty, and each is ruled by a chief, whose office is elective.

In religion they are said to be sun-worshipers; they also indulge in idolatrous ceremonies and incantations, and are firm believers in witchcraft. The government has provided an agent for them, and established a school which is said to be proving a success. For several years Mormon missionaries have been among them, and have made many proselytes. The tribe numbers about 1,000.

The Navajoe tribe have a reservation in the northeastern corner of the Territory, adjoining the line of New Mexico, and embracing an area of about 5,000 square miles. This reserva-

tion contains some fine farming and grazing lands. The tribe also roam over all that region between the Moquis villages and the Rio San Juan, and west to the Colorado. There is some fine grazing land in this locality, and every summer large herds of horses and sheep are pastured on it. The Navajoes are the main branch of the Apache nation, and are the most intelligent, active, and enterprising of all the Indians in Arizona. They are a lithe, sinewy and rather handsome race, with keen eyes and a proud and independent carriage. For years they were on the warpath, and it was only after the expenditure of millions of dollars and the loss of many men that they were finally subdued. After being conquered they were removed to a reservation on the Pecos river, but the climate proved unhealthy, and after many had died they were allowed to return to their old home. Since then they have made rapid progress in population and wealth, and are to-day the richest tribe outside of the Indian nation. They number about 15,000, and are one of the few tribes that are increasing.

They own over 15,000 fine horses, nearly 500,000 head of sheep, some 5,000 head of cattle, besides mules, *burros*, goats, etc. "Navajoe blankets" are famous all over the west, and as high as \$150 is not unfrequently paid for those of fine workmanship. Besides blankets they manufacture sashes, saddle cloths, fancy bridles, lariats, and other articles. Over \$30,000 per annum is derived from the sale of these articles. Every family has its loom, where the women are constantly employed.

Near their agency, at fort Defiance, they have a large tract of land under cultivation, and raise fine crops of corn, wheat, barley, vegetables and fruits. Some members of the tribe are wealthy, one old chief having several hundred acres under cultivation, and quite an army of peons about his *hacienda*. Before their submission to the government they were nearly always at war with their Mexican neighbors, and for years terrorized the whole Rio Grande valley, often capturing important towns, and carrying the women and children into slavery. From this source the tribe have received a large infusion of Mexican blood. The Navajoes are born warriors, adroit thieves, and the finest horsemen in the west. They have always been a thorn in the side of their peaceful Zuni and Moquis neighbors, who entertain a well-grounded fear of their prowess. Although the government supplies them with annuities, the tribe is self-sustaining, and rapidly growing rich. The Navajoe reservation extends into New Mexico, so that the whole tribe cannot be said to properly belong to Arizona. Of all the Indians in the Territory the Apache is the only one who continues to give any trouble. Although the tribe was subdued and placed on their present reservation in 1874, the events of the past two years have shown that there is no sure guarantee for permanent security so long as one of them remains within its borders. It is true, the

outbreak was made by a small band, and did not extend beyond a narrow strip along the Sonora border; it is true that life and property in the rest of the Territory was as safe as in New York city; it is true that the damage done was grossly exaggerated, but all these circumstances do not overcome the fact that the outbreak has injured every material interest and seriously retarded the Territory's advancement.

The handful of renegade Chiricahuas who have been raiding in northern Mexico and a portion of southern Arizona for two years past, have brought the Territory into bad prominence abroad once more; and her unenviable reputation as a hostile Indian country, which was gradually being forgotten, has come back with all its former force since the Cibicu fight. Capital, ever timid, has taken the alarm and hesitates to invest in a country where there seems to be no protection for property; immigration halts in its onward course, doubtful about making a home where life is at the mercy of murderous savages. All branches of industry suffer from the deadly blight of savage outbreaks. It makes no difference that the rising was quickly put down and that the devilish work of the red fiends was confined to a very small portion of the Territory; people abroad who read of it, believe the whole country overrun with savages, and imagine the principal towns besieged and the people fleeing for their lives to places of safety! It is thus that an Indian outbreak affects the progress and prosperity of Arizona.

The number of Indians in Arizona is nearly as follows:

Apaches.....	5,000
Navajoes.....	15,000
Moquis.....	800
Ava-Supies.....	300
Yumas.....	1,200
Hualapais.....	800
Papagos.....	6,000
Pimas.....	4,500
Maricopas.....	500
Mohaves.....	1,000
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Total.....	35,100

The reservation system has been tried and proved a failure. It has become a breeding-place for assassins, an asylum for murderers and marauders, a home for thieves and outlaws, a shelter for the most bloodthirsty villains that ever cumbered the earth. For years the government has expended money with a lavish hand in maintaining these wretches in idleness and ease. Abundance of food and clothing, and the best medical care have been theirs. Living in one of the finest farming regions in the Territory, and provided with the latest improved and costliest of farming ma-

chinery, no effort has been made to compel these lazy vagabonds to till the soil and make themselves self-sustaining.

The people are taxed to support a horde of banditti who learn nothing but the vices which spring from idleness and sloth. Into the hands of these untamed thugs the government has placed arms and ammunition. Whenever life on the reservation becomes too monotonous, they hie themselves forth, killing and destroying everything in their path. When hard-pressed they cross the border into Mexico, and there indulge in the same devilry. When they tire of this pastime, and rations run short, they steal back to the San Carlos, there to rest and feast until they get ready for another raid. This is the way the reservation system has worked in Arizona, and is it any wonder the people have become exasperated, and that many of them demand total extermination as the only solution of the Indian problem.

The people of Arizona demand a radical change. They believe the presence of so large a body of Apaches almost in the heart of the Territory, is a constant menace to its peace, and a steady drawback to its material advancement. They know that some of the finest grazing and farming, and the richest mineral lands are closed to occupation and settlement on account of the presence of these worthless savages. They also know that a large portion of the public domain has been set apart for the exclusive use of Indians, and believe thither they should be sent. There is abundance of room in the Indian Territory and there let the Apaches go. Let them be made to work and learn to become self-sustaining. This is the true solution of the Arizona Indian problem, and the one which will meet the approbation of every citizen who has the interests of the Territory at heart. A few thousand savages, whose worthless lives, all combined are not worth that of one honest white man, have too long retarded the advancement of one of the richest regions of the West, too long have obstructed the path of progress, and cast a shadow on the Territory's prosperity. The Apache must go. The land he has so long cursed with his presence will rejoice when the last of his race shall have passed beyond her borders.

The total area of the several reservations in the Territory is as follows:

Navajoe.....	4,452 square miles.
San Carlos.....	4,440 " "
Moquis.....	4,000 " "
Colorado.....	600 " "
Pimas and Maricopas.....	275 " "
Papago.....	195 " "
Supies.....	60 " "

Total.....17,822 square miles,

Or nearly one-seventh of the entire area of the Territory given over to savages. The people find no particular objection to any but the Apache tribe. The other Indians are peaceable and well-disposed, and inclined to earn a livelihood by their own exertions. While it is true that the Reservation set apart for the Pimas and Maricopás contains some of the finest farming lands in the Territory, and is much larger than they will ever bring under cultivation, still their white neighbors do not complain at their petty pilfering, and the trouble and annoyance which they often cause to settlers. But for the Apache they have no room. For long years they have suffered at his hands and seen some of their best and bravest offered as a sacrifice to his insatiable hate. His history is written in blood, and his presence is a continual menace to the peace, and an obstacle in the path of the country's every interest. He occupies one of the most desirable regions in the entire Territory, and prevents the coming of immigration and the investment of capital. Let him be removed and his power for mischief will be at an end.





THE EARLY SPANISH MISSIONARIES.

The Pioneers of the Cross in Arizona—Padre Marco de Niza—The First Mission in Arizona—The Labors of Father Kino—Prosperity of the Missions at the Time of his Death—Uprising of the Pimas—Expulsion of the Jesuits—Raids of the Apache—The Franciscans take Charge of the Missions—Establishment of Missions on the Colorado—Destroyed by the Indians—Pedro Font and Padre Escalante—Abandonment of the Missions—San Xavier del Bac—San Jose de Tumacacori.

NO work on Arizona Territory would be complete without some account of the labors, the hardships, the sufferings and the triumphs of the Mission fathers. Following in the wake of that band of daring adventurers, whose conquest of the vast and powerful empire of the Montezumas will never lose its romantic interest, came a few earnest and pious men, whose standard was the Cross, and whose mission the spreading of the doctrines of the Nazarene. While the mail-clad warriors who followed Cortez and Coronado were filled with the thirst for gold and glory, the humble disciples of Loyola and Francis of Assisi had a higher motive in penetrating these western wilds, and looked for their reward, not in the treasures they might discover, but in the savage souls they might redeem from barbarism and idolatry. To those sincere and self-sacrificing men belongs the honor of first planting the germ of Christian civilization in what is now known as Arizona.

Although they did not come with the pride and circumstance of an invading host, the peaceful conquest they achieved has been far more lasting. While Coronado and Espejo swept over the land, and left behind only a name linked with avarice and brutality, the poor friars who came after sowed the seeds of honesty, virtue, temperance and industry, which bear fruit even to the present day. As has been mentioned elsewhere, Padre Marco de Niza was the pioneer of the Cross in this remote region. On hearing the tales told by Cabeza de Vaca, of the great cities of Cibola, the zealous father set out on his perilous journey to discover them. We have already given an account of his trip, and the fate which befell his blackamoor attendant,

Estevan. Evidently the good friar did not think the time propitious, or the temper of the Moquis in a suitable condition to receive the gospel truths,¹⁰ so he contented himself with setting up the Cross, and returned to Sinaloa.

It is but charitable to suppose that the glowing accounts which the good father gave of the riches and extent of the Moquis villages, was done with the object of having an expedition sent thither, thus affording an opportunity of spreading the true faith among the natives. If this was his object, he succeeded in part, at least, and the expedition of Coronado was the result. But the rough soldier cared more for the treasures he expected to gather than for the conversion of the heathen. When he found a collection of stone and mud hovels instead of gorgeous palaces flashing with gold and precious stones, he turned his back with disgust and disappointment on the "Cities of the Bull," and Father de Niza was compelled, in sorrow, to abandon a field where the harvest was ripe and ready for the reaper.

More than a hundred years elapsed, after the expedition of Coronado before the first mission was founded in "Arizuma," although the Cross had been planted as far north as Sonora and the Valley of Taos, some time before. It is claimed by some that the first efforts were made at the Moquis villages, and were undertaken under the direction of the Duke of Albuquerque, then Viceroy of Mexico. It is said that after professing the religion of Christianity, the Moquis apostatized, and joined the general revolt among the tribes of New Mexico in 1680. All efforts after this to convert them proved abortive, and unto this day they adhere to the idolatry of their fathers. This is given on the authority of Manuel Variegas in his History of California, but as there are no proofs to sustain it, and as the Moquis have no knowledge of the religion of the Redeemer, it is not entitled to much credence.

The first mission established in Arizona was at Guevavi, some thirty miles south of Tucson, in the year 1687. Francisco Kino and Juan Maria Salvatieraz were the pious pioneers who laid the foundation stone. Although the exact date is not at hand, it is supposed that the missions of Tumacacori and San Xavier del Bac were founded about the same time, or shortly after. According to authentic documents we know the latter existed in 1694, and was then the most northern of the Sonora missions. While establishing these missions, Father Kino and his companion pushed north, and were the first to preach the doctrines of Christianity to the Indians living along the Gila. An effort was made to establish a mission among them at Casa Grande in 1695, but was frustrated by an uprising of the Indians, who assassinated some of the fathers and compelled the others to flee. No efforts were afterwards made to convert the Gila tribes.

On the seventh of February, 1699, Father Kino visited the Yumas and Maricopas of the Colorado river, but no permanent

missionary establishments were made among them at that time. This was the last work of the good father; death soon after removed him from the scene of his earthly labors. He was the animating spirit of the Arizona missions, and his zeal, self-sacrifice and untiring energy was proof against every obstacle. Like the illustrious Las Casas, he was the friend of the Indians, and labored unceasingly to ameliorate their condition. He procured an order from the *Audience* of Guadalajara that his neophytes among the Pimas should not be parceled out to work in the mines, under the system that then existed under the viceregal government of Mexico.

Under the paternal and humane care of the good priest, the Papagos made rapid advancement in the arts of civilized industry. In 1710 this noble man yielded up his pure and unselfish spirit to his Maker, and was sincerely mourned by the people among whom he had labored so successfully for nearly a quarter of a century. At the death of Father Kino there were eight missions in a flourishing condition within the Territory of Arizona. These were named, respectively, Guevavi, San Xavier del Bac, St. Joseph de Tumacacori, St. Gertrude of Tubac, San Miguel of Sonoita, Calabasas, Arivaca and Santa Ana. They possessed herds of cattle, sheep and horses; cultivated a large area of land, which yielded cereals, fruits and vegetables. Many rich silver mines near the missions were worked extensively, and with the rude reduction facilities at hand, produced large quantities of the precious metals.

This was the most prosperous era in the history of the Arizona missions; but the elements of discord and decay were already at work. The wise counsel and directing hand of their founder was missing, and in 1721 the Indians rose in rebellion, killed a number of the priests, and destroyed many of the missions. From this blow they never entirely recovered. In 1743, Father Ignacio Keller was commissioned to proceed to the Moquis villages and make an attempt to win the inhabitants to the Christian faith. He was thoroughly qualified for the enterprise, having passed several years among the Indians of the Gila. In September he set out, accompanied by several Pimas, as guides. He passed the Gila and the Salt rivers, and journeyed north into a mountainous country, where he encountered hostile Apaches, who attacked and compelled him to retrace his steps.

In October, 1744, Father Jacob Sedelmeyer again made an attempt to reach the Moquis. He went no further than the Gila, being dissuaded from the expedition by the Pimas, who assured him that the mountains to the north were infested with fierce Apaches, who would certainly massacre his whole party. So the father had to give up his project, and resign the Moquis to their sun-worshipping idolatry. He explored portions of the Rio Salado and the Verde, and ascended the Gila some distance, but was driven back by the Apaches. He then de-

scended the stream to the Colorado, and visited the Cocomaricopas and Yumas.

The Arizona Missions received a visit from Don Benito Crespo, Bishop of Durango, in 1727, who wrote to Philip V, giving a detailed account of them. The Spanish monarch ordered that they should be afforded every protection, and aided from the public treasury. It is believed that the funds thus obtained were used in the erection of the beautiful church of San Xavier, as it was completed a few years later. In 1767 the prosperity of the missions received a terrible blow from the decree ordering the expulsion of the Jesuits from Spain and her colonies. With heavy hearts the members of the Order took leave of their charges, and left the land which for years had been the scene of their unselfish labors, and which the disciples of the soldier monk were the first to redeem from barbarism.

In May, 1768, fourteen Franciscan Fathers from the College of Santa Cruz de Queratero, arrived at Guaymas, destined to take the place of the expelled Jesuits in the missions of Pimiera Alta, as Arizona was then called. They found the several establishments in a declining condition; life and energy seemed to have departed with the Jesuits, and, where once all was order and industry, slothfulness and confusion now reigned supreme. The Apache, until then but little known, made constant raids on the more exposed of the missions, driving off their herds of sheep and cattle. The Franciscans set themselves to work industriously, and in some measure succeeded in bringing back the order and prosperity so long enjoyed by their predecessors. It is very probable that the mission of San Augustin, in Tucson, (now called the old pueblito), was one of the first founded by the Franciscans. The author of the *Rudo Ensayo* says that in 1762 there were at Tucson a sufficient number of Indians to form a good mission, but that the priest of San Xavier could not take charge of them, having more than he could do to attend to his own flock.

The Franciscan fathers visited the tribes on the Gila and Colorado, and after many failures they at last succeeded in founding two missions on the last named stream. In January, 1774, Captain Juan Bautista Ainsa, in pursuance of orders from the Viceroy, undertook to establish communication by land between Sonora and Alta California. He was accompanied by Fathers Garcez, Pedro and Elrach, who visited the Maricopas, Yumas, and other river tribes, and for nearly two years labored persistently among them. Father Garcez visited the Mohaves and Yavapais, and explored a large portion of Central Arizona, everywhere preaching the doctrines of Christianity among the wondering savages.

In 1776 Captain Ainsa returned from California, bringing with him from the Colorado Palma, and other chiefs of the Yuma tribe, praying for the establishment of missions among them.

In compliance with their request, Father Garcez was selected as the man best fitted for the task, and in 1779 three missions stood on the banks of the Colorado—two on the western and one on the eastern. One was on the hill opposite the junction of the Gila, where Fort Yuma now stands, and was known as La Conception; another was established near Chimney Peak, and was called San Pablo, and the last was opposite the Castle Dome mountain, and named San Pedro. A presidio was established on the hill of La Conception, and a small garrison, for the protection of the missions, maintained therein under the command of Don Jose Maria Ortega. On the 17th day of July 1781, the Yumas rose against the Spanish authorities, massacred the officers and soldiers of the garrison of La Conception, and the priests and civilian employees of all the missions. The women and children were made captives, the buildings destroyed, and thus ended the missions of the Colorado. After a brief existence of three years, the beacon-fires of Christianity which flashed across its turbid waters, were quenched in blood, and no effort was afterwards made to rekindle the flame.

Among the adventurous pioneers of the Cross who explored Arizona from 1773 to 1776, mention should be made of Fathers Pedro Font, Francisco Garcia, Sylvestre Escalante and Francisco Dominguez. These zealous sons of Saint Francis visited and made a thorough examination of the Casa Grande, traversed a large part of Central Arizona, penetrated to the Moquis villages, but it does not appear any attempt was made to found missions there. Escalante's party crossed the Colorado above the Grand cañon, and reached the Uintah mountains. He also explored the country as far east and south as Moro, in New Mexico. He published an interesting account of the region through which he passed, and the different tribes he encountered.

Escalante appears to have been the last of that pious and zealous band who followed in the footsteps of Marco de Niza, and carried the Cross among the savage tribes of Arizona for nearly 250 years. After the destruction of the missions on the Colorado, the depredations of the Apaches became more frequent. They swept down from their mountain strongholds, leaving death and destruction in their track, and keeping the peaceful neophytes in a constant state of alarm. The breaking out of the Mexican War of Independence was a heavy blow to their prosperity. Deprived of the fostering care and protection of the vice-regal rule, they languished and declined. The government of the republic did not exhibit a friendly spirit, and in 1827 a decree was published, ordering their suppression. Shortly after they were abandoned to the tender mercies of the Apache, and the fruits of 150 years of patient industry, unremitting toil, privation and self-denial, were given back to the savagery from which they had sprung.

That the missions of Arizona at one time attained a high de-

gree of prosperity and gathered about them a large Indian population, is shown by their baptismal records, several of which are in a perfect state of preservation to-day. From 1720 until their abandonment in 1827, the missions of Tubac, Tumacacori, San Xavier and Tucson, have had in succession forty-seven priests, many of whom fell martyrs to their faith, and moistened with their blood the seeds of Christian truth planted in the wild regions of "Arizuma." As showing the mode of life among the Indian neophytes, we insert the following, written by Bishop Salponite, of Tucson.

"Early in the morning the Indians had to go to church for morning prayers and to hear mass. Breakfast followed this exercise. Soon after a peculiar ring of the bell called the workmen. They assembled in front of the church, where they were counted by one of the priests, and assigned to the different places where work was to be done. When the priests were in sufficient numbers they used to superintend the work, laboring themselves, otherwise they employed some trustworthy Mexican to represent them. Towards evening, a little before sundown, the workmen were permitted to go home. On their arrival in the houses, which were located around the plaza, one of the priests, standing in the middle of this plaza, said the evening prayer, in a loud voice, in the language of the tribe. Every word he pronounced was repeated by some selected Indians, who stood between him and the houses, and last, by all the Indians present in the tribe." An alphabet of the Pima language was prepared, and the converts had made some progress in learning to read and write. They were taught the arts of agriculture, and under the direction of the fathers large tracts were reclaimed and made productive, and many a smiling grain field and fruitful vineyard and orchard flourished where now all is ruin and desolation.

Of all the mission churches, built by the Jesuits and Franciscans in Arizona, that of San Xavier del Bac is the only one remaining in a state of preservation. This mission was among the first established in the Territory, but the present building is supposed to date from 1727. When the priests were driven from the missions in 1827 the Papagos took charge of the church, and preserved it from destruction by the Apaches. In 1863, thirty-five years after its abandonment, it was again taken possession of by two members of the order who founded it. These priests were from Los Angeles, California, and accompanied the first Commissioner of Indian Affairs, Mr. Poston, when he visited the Territory.

Great was the joy of the simple Papagos at having the "black gowns" once more among them. The gold and silver vessels of the altar, and all the other valuable ornaments, were brought forth from the secure hiding-places where they had remained undisturbed all these long years; nave, chancel and altar were

gaily decorated; lights flashed from every column, and the voices of the happy Papagos filled the dim aisles and lofty arches of the old church with songs of joy and gladness. Since then religious services are held regularly, and a school has been established by the Sisters of St. Joseph, but the pastor resides in Tucson, and the edifice is left entirely in charge of the Indians, who take the greatest care of it.

The church of San Xavier del Bac has the form of a cross. It has a length of 105 and a width of twenty-seven feet, inside the walls. The foundation is of stone and the upper walls of brick, covered with a coating of fine cement. The style is that peculiar type of church architecture met with in Spain and all Spanish-American countries. It has been called the Spanish Renaissance, and its predominating features are one of the legacies which the Moorish invaders left to Castile and Leon. The building faces to the south, with a beautiful facade, highly ornamented in scroll-work and adorned with the arms of the Franciscan order. Two lofty towers surmount the front, one of which remains in an unfinished condition. Over the main chapel, in the north end, is a massive dome, whose strength, lightness, and perfect proportions are the admiration of all who gaze upon it. Around the walls of the roof, from which springs the dome, is a balustrade of brick coated with cement, with griffins' heads, also in cement, at each angle and corner. The interior fairly dazzles the beholder, being a mass of elaborate gilding, painting, and frescoe-work. The nave is divided into six parts, marked by as many arches. On the right-hand side as you enter, and between the door and the main altar, there is a frescoe representing the "Coming of the Holy Ghost," and on the left a work of similar style illustrating the "Last Supper." These frescoes are still in a good state of preservation, and show no little artistic ability. The main altar is dedicated to St. Francis Xavier and is adorned with small-sized figures of the Saint, the Virgin, and the Holy Family.

Four frescoes near the altar represent the "Adoration of the Wise Men," the "Flight into Egypt," the "Adoration of the Shepherds," and the "Annunciation," all still well-preserved. Statues of the twelve apostles are placed in niches in the massive columns along the main aisle, while the main altar, and those on either side are decorated with columns and arabesques in relief, gilded and painted in the Moorish style. The lofty ceiling was once a mass of brilliant frescoe-work, much of which has been defaced by moisture trickling through the roof.

Near the main door are two small openings leading to the stairs, which conduct the visitor to the towers. The first flight leads to the choir, which is decorated with some fine frescoes. Two flights more and the belfry is reached. Here hang four small home-made bells, whose chime is said to be remarkably sweet and musical. A few steps more and the visitor is in the

little dome, covering the tower, about seventy-five feet above the ground. From this coign of vantage there is a fine view of the Santa Cruz valley and the peaks and mountains which surround it on every side. At this point the valley is under a high state of cultivation, and its green fields of grain form an agreeable contrast to the barren plain, and bare and rugged mountain, which meets the eye in every direction.

When we consider the age in which it was built, and the facilities at hand for its construction, the church of San Xavier del Bac must always appear a remarkable structure. As has been well said, "the entire edifice is perfect in the harmony of its proportions, and in every point of view the eye is satisfied." The traveler who first beholds its graceful outlines standing in solitary grandeur on the edge of the desert waste, is astonished to find in this remote region a building, which would adorn any capital in Christendom.

It stands a noble and impressive monument to the zeal, energy and self-sacrificing devotion of the Mission fathers, who were the first to open to civilization and settlement the wild region, now known as Arizona. They were no ordinary men, and were inspired by no ordinary motives, who could rear so imposing a structure as this in the southern wilds fifty years before the immortal Declaration was read from the steps of Independence Hall. And although the bones of its founders have long since mingled with the dust, the fruits of their labors are seen in the happy and prosperous tribe they redeemed from barbarism, and taught the arts of peace and civilized industry.

The ruins of San Jose de Tumacacori is the only other relic of the numerous missions which flourished in Arizona. It stood on a gentle slope within a few hundred feet of the Santa Cruz, near the old presidio of Tubac. This mission was taken by the Apaches in 1820, and all the occupants massacred. The church was smaller and less pretentious in its style of architecture than San Xavier. Its shape was that of a Greek cross, with a basilica. The latter is still standing, crowned with the emblem of Christianity. The material used in the construction was adobe, or sun-dried brick, which was plastered with cement and coped with burnt brick. The roof was flat and covered with tiles. The rich valley adjacent was brought under a high state of cultivation, and bloomed in richness and beauty. The remains of crude smelting works, and the slag from the same, go to show that the old Jesuits practiced the mining industry here, long before a pound of bullion was produced in any portion of the vast territory now known as the United States.

Of all the other Mission churches reared by the pious hands of Jesuit and Franciscan, nothing remains but piles of shapeless ruins, the work of the red fiends. But while hardly one stone remains upon another and the outlines of the former structures

can scarcely be traced, the truths which they taught and the germs which they planted have bloomed and blossomed, and are to-day bearing the fruits of a vigorous and progressive civilization.

Tumacacori at one time was the richest of all the Arizona missions, but the Apache "came down like a wolf on the fold," and nothing remains of Jesuit enterprise and endeavor save the crumbling ruin of the old church, and the abandoned shafts and tunnels, overgrown with brush and filled with debris, which are frequently met with in the surrounding mountains. The old padres sleep in bloody graves; but so long as piety, zeal, courage, energy and self-denial shall command the admiration of men, Arizonans will remember the struggles and triumphs of the early Mission fathers.





PRE-HISTORIC ARIZONA.

The Traces of an Unknown Race—The Ruins of Casa Grande—The Ruins of Pueblo Viejo, and along the Gila—Of Salt River and Tonto Basin—Ruins about Prescott, and along the Verde—Remains of Towns and Irrigating Canals in the Salt River Valley—A Remarkable Cave—The Cosonino Cliff Dwellings—Who were the Ancient Race and what has been their Fate?

THE traveler through Arizona cannot fail to notice the peculiar mounds and the traces of immense *acequias*, or canals, which he encounters in the large valleys. Along the cliffs, bordering many of the water-courses, he will find excavations in the solid rock, which were evidently at one time the abode of human beings. Fragments of coarse pottery are generally found scattered about near mounds and caves. In digging into these *tumuli*, stone hammers, and axes, rudely fashioned earthen jars, often filled with charred corn and beans, and in some instances human skeletons, have been unearthed. The evidence is indisputable that the valleys of the Gila, the Salt, the Verde, the San Pedro, the Colorado Chiquito, and all the principal water-courses throughout the Territory, were, at some time in the dim past, filled with a dense population.

The outlines of artificial water-courses, which are found near every stream, and the smooth and perfect configuration of the land—with an almost imperceptible slope toward the river bed—leaves no doubt that a teeming population once lived and labored here. Not unfrequently the modern husbandman upturns from the soil some rude implement, used by his unknown predecessor, or cuts, with his plough, into some old adobe wall, once the habitation of the ancient tiller of the soil, whose bones have long since mouldered to their kindred dust.

In many a valley, now a desolate waste, these mute evidences of thrift and industry are seen on every hand; and vast regions, now given over to the solitude of nature, were, at some remote period, the homes of a race who made them bloom with beauty and smile with industry. There is every reason to believe that where one acre is cultivated in the Territory to-day, twenty were made productive by the people who once occupied the land.

This may well be called the pre-historic period of Arizona, when the country presented a far different appearance from what it does to-day. It was a period when valley, vale and glen blossomed with the fruits of peaceful industry; when comfortable homes dotted the plain and mountain side, and when a happy people dwelt in peace and plenty, surrounded by everything which could gratify their simple wants. But the race which once made these arid plains and deserted valleys to smile with verdure, have passed away, leaving behind no trace of their origin, their history or their extinction. A few crumbling and shapeless ruins is all that remains to tell the tale of their existence; and the flickering and uncertain gleam of conjecture is all that is left to guide the explorer in discovering the fate that befell them. As helping to cast some light on the life of these unknown people, a short description of some of the principal ruins they left behind them, is here appended:

First among these pre-historic relics, both in its extent and state of preservation, is the famous Casa Grande. It is situated in the valley of the Gila, about five miles south of the river, and six miles below the town of Florence. The ruins were first discovered by Cabeza de Vaca, in his journey across the continent, of which mention has heretofore been made, and was thoroughly explored by Coronado, when he led his famous expedition northward, two years later. It was then (1540) four stories high, with walls six feet in thickness. Around it were many other ruins, with portions of their walls yet standing, which would go to prove that a city of no inconsiderable dimensions once existed here. As showing its great antiquity, it is mentioned that the Pima Indians, who then, as now, were living in the immediate vicinity, had no knowledge of the origin or history of the structure, or of the people who built it. It had been a ruin as long as tradition existed in the tribe, and when or by whom erected, was as much of a mystery to the Pimas as to their European visitors. Fathers Kino and Mange visited the Casa Grande in 1694, and gave a detailed description of the ruins as they then appeared.

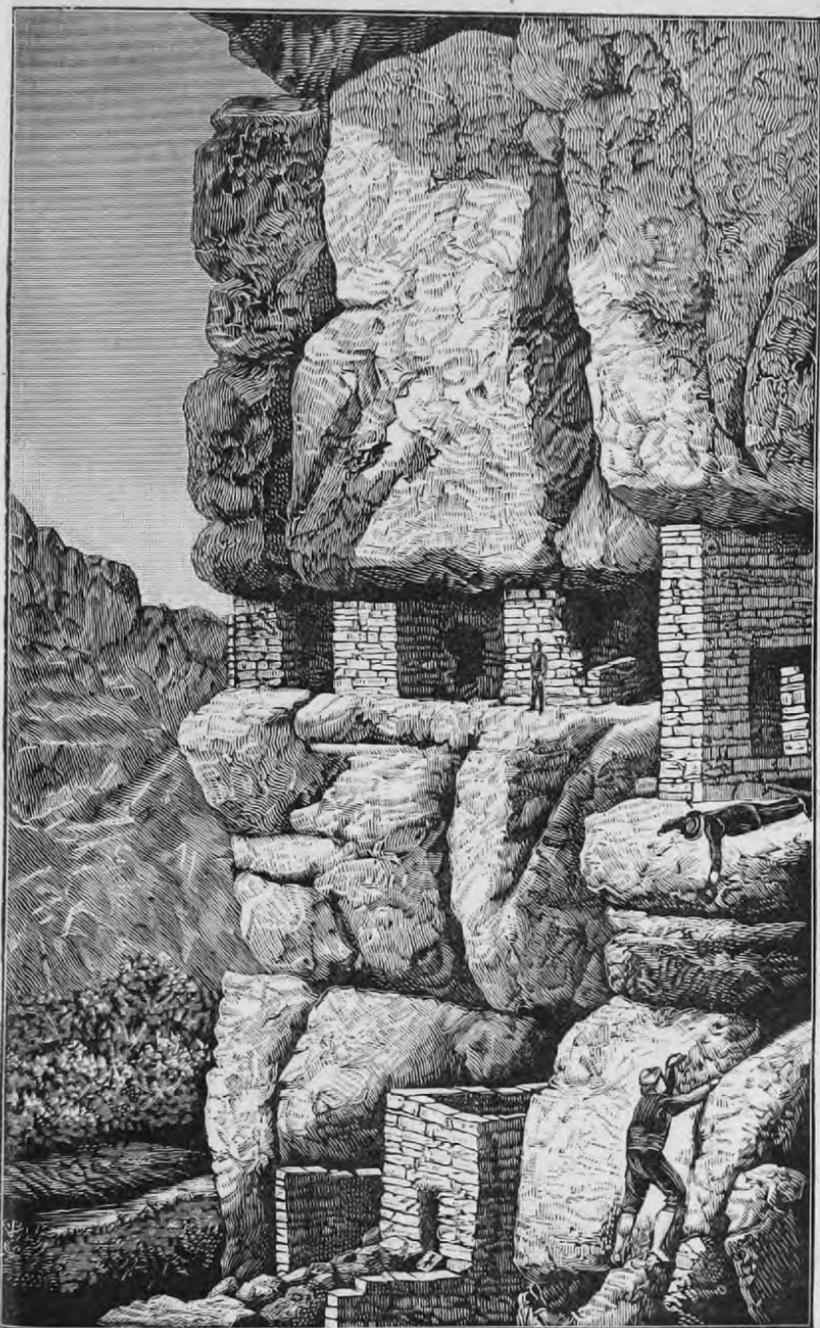
They found the remains of a great edifice, having a large room in the middle, four stories in height, with walls six feet in thickness. They also give an account of twelve other ruins in the vicinity. Father Pedro Font visited the ruins in 1777, and found them much in the condition they were when seen by Kino and Mange. He describes the main building as "an oblong square, facing to the cardinal points of the compass. The exterior wall extends from north to south 420 feet, and from east to west 260 feet. The interior of the house consists of five halls, the three middle ones being of one size, and the extreme ones longer. The three middle ones are twenty-six feet in length from north to south, and ten feet in breadth from east to west." This was Casa Grande over 100 years ago, but the

rains and winds of a century have left their mark on its crumbling wall. The building stood upon a slight eminence, and was no doubt the main structure in the city which once existed here. The walls were composed of a concrete, made of mud and gravel, held together by a hard cement. This concrete was made in large blocks, which were put in place and firmly cemented together. The inner surface was coated with this peculiar cement, and is as hard and smooth to-day as when it dried under the hands of the ancient builders.

The dimensions of the ruin still standing are about fifty by thirty feet. Each succeeding year sees a gradual diminishing, and it is only a question of a short period when Casa Grande will be an undistinguishable mass of mud and gravel, like the mounds that surround it. The walls still standing show round holes in which are found pieces of cedar poles which supported the floors. The ends of these poles show that they were cut with some blunt instrument, and as a number of stone axes, bone awls and other implements of the stone age have been excavated from the ruins, it is evident the people who built these remarkable structures had no knowledge of the use of iron. In the immediate vicinity the traces of an immense irrigating canal have been followed to the Gila river, forty miles distant. This canal no doubt brought water to the city, and irrigated the rich valley which surrounds the ruins in every direction.

Casa Grande is one of the most interesting remains of the pre-historic age to be found on the continent. In gazing upon its weather-beaten front, which has so bravely withstood the storms and floods of centuries, the question so often asked, but never answered, instinctively comes to the lips: "Who were the people that raised so massive a structure? From whence did they come, and what has been their fate?" But, sphynx-like, the mysterious ruin stands amid the solitude of the desert plain, while from its weather-beaten crest voiceless centuries look down upon the curious inquirer.

Along the valley of the Gila, for nearly its entire length in Arizona, ruins of buildings and irrigating canals are met with. Wherever the river forms a valley of any size it was evidently cultivated. On the Upper Gila is a large and rich body of land, known as Pueblo Viejo (Old Town). In this valley extensive mounds, traces of buildings, canals, broken pottery, etc., are met with in every direction, and it is certain that the entire valley—containing between 40,000 and 50,000 acres—was at one time under cultivation. Stone hammers and axes, broken *ollas*, or earthen jars, are found in nearly all these ruins. On Eagle creek, Bonita and all the principal streams running into the stream, are found the same evidences of an older and cruder civilization. On the San Pedro, near its junction with the Gila, are the remains of what must have been a large city. The foundations were of stone, laid in a hard, coarse cement, and some of



CLIFF DWELLINGS.

the ruins show that the buildings were large and solidly constructed. In the Tonto Basin, situated between the Mazatzal and Mogollon ranges, and north of Salt river, extensive ruins are found. These are of stone, many of them showing the material dressed, and laid in cement equal to that in use at the present day. Many cliff dwellings are also found in this region, and the valleys of all the streams running into the Salt show the same style of building.

On Coon creek, at the foot of the Sierra Ancha, in this basin, are many cliff dwellings hewed out of the solid rock. On the south side of Salt river, near the mouth of Tonto creek, are also many caves in the rock, which were evidently the abode of man in ages past. On the Mazatzal range, near the Four Peaks, are found the ruins of many stone dwellings, and the remains of what appear to have been fortifications. The solid walls of the buildings that once stood on this lofty perch can be traced along the range for a distance of nearly fifteen miles.

In one of the caves on the south side of Salt river the bones of a large animal, evidently of the mastodon species, have been found. One massive piece was more than three feet in length, and over eighteen inches through at the thickest part.

In another cave, on removing the debris, pieces of cotton and cotton-cloth have been discovered six feet below the present floor. These relics were in a good state of preservation, the cotton being of a fine silky fibre. One of the pieces of cloth showed a rude attempt at ornamentation, having small eyelets worked by some sharp-pointed instrument. A piece of coarse matting, made doubtless from native grasses, and in a good state of preservation, was also found. Numerous ruins of houses, cliff dwellings, fortifications, etc., are met with along the Verde river and its tributaries, also in the Agua Fria valley, and in nearly every mountain and valley for a distance of more than fifty miles north, east, south and west from Prescott. Nearly all these remains are of stone, showing that the ancient builders used that material in preference to the adobe or concrete whenever they could get it.

The Verde valley must at one time have contained a very large population. Traces of the early inhabitants can be found on all sides. Opposite the fort are a number of stone ruins overlooking the river; and two miles below, on an elevated *mesa*, an ancient burial-ground has been discovered; and some excavations made therein show that a large number of this ancient race sleep their last sleep within its boundaries. On Beaver creek, which empties into the Verde four miles above the Fort, the cliffs on either side are lined with cave dwellings. They are walled up in front resembling the rocky bluffs out of which they have been excavated, and were no doubt reached by ladders, which at night were drawn up by the occupants. Large cisterns, made of cement, and still in a good state of

preservation, are found near many of these dwellings. One of the caves is eighty feet across its front, and nearly 100 feet above the base of the cliff. The interior shows a number of rooms cut out of the rock—a coarse kind of felsite. The wall in front is pierced by loopholes, through which a view of the country for some distance around can be obtained.

On Oak creek, near its junction with the Verde, there rises a round, rocky hill, which is literally honey-combed with small rooms, and which is one of the most singular and interesting of the pre-historic remains found to be in the Territory. In fact, along the entire length of the Verde to its junction with the Salt, cliff dwellings, and the ruins of stone houses, are of frequent occurrence. They all show a uniformity in form and structure, and all about them are scattered quantities of broken pottery. Occasionally a stone implement of some kind is unearthed, but no metal instrument has yet been discovered in any of them.

In Chino valley, twenty miles north of Prescott, many interesting stone ruins have been discovered; several human skeletons have been exhumed from them, and also many large *ollas* filled with charred corn and beans. The doors and windows of these dwellings were partially walled up, evidently as a protection against a foe who had besieged the inmates, who, there is every reason to believe, met a violent death. In the vicinity of Walnut Grove, twenty-five miles south of Prescott, the ruins of large stone buildings are found crowning the elevated mountain tops, some of them being from thirty to forty feet square. On the Hassayampa, and all through the mountainous country south of the Prieta range these ruins are encountered everywhere; and were evidently built on their commanding positions by people constantly harassed by foes. That the race who left these ruins behind them followed the business of mining as well as farming, is proved by the gravel beds of the Hassayampa; and the large pine trees, whose age is numbered by hundreds of years found growing where the ancient miner once searched for the yellow metal, will give the reader a faint idea of the ages that have elapsed since he occupied the land.

Prescott, the modern capital of Arizona, is built, it is believed, on the site of a pre-historic city and the many relics of its former inhabitants, which are occasionally brought to light, serve to strengthen this theory. Near Fort McDowell, above the junction of the Verde with the Salt river, are the remains of a large fortification, and near it the outlines of an immense irrigating canal. This canal brought under cultivation a fine body of rich land. Near this point, the bones of a man, estimated to have been over seven feet tall, were unearthed. That the ancient race were of this gigantic stature, is hardly probable, as bones exhumed in other localities would go to show that they were not above the ordinary size. The valley of the Colorado

Chiquito, shows traces of mounds and irrigating canals over its entire extent, and it is certain that a large population once flourished there.

Near Tempe, in Salt River valley, are found the remains of extensive buildings which are supposed to have been even larger than the Casa Grande. They are now a mass of mounds, but the foundations of one which has been traced, measures 275 feet in length and 130 feet in width. Excavations made in these mounds have brought to light several *ollas* filled with charred bones and many stone implements. The mounds cover a wide area, and are, no doubt, the remains of a large city. The marks of a canal are traced from the ruins to the banks of Salt river, showing how the water was brought to the ancient pueblo. All over the valley of Salt river and on the immense plain, which stretches between it and the Gila, west of the Superstition mountain, the ruins of dwellings and the lines of old canals are plainly discernable. Everything goes to show that this fine valley was at one time thickly populated; and where to-day the American farmer has built a pleasant home and ploughs, sows and reaps with the aid of all the modern improvements, the ancient agriculturist crudely cultivated the soil centuries before Columbus sighted the shores of San Salvador.

On the Rio Bonita, about fifteen miles above its junction with the Gila, the ruins of many buildings are yet found in a good state of preservation. These structures were of a square form and were built of round stones laid in a peculiar coarse cement. On the shelving rocks along the river are the ruins of dwellings, which cannot be reached except by the aid of ropes, but were evidently at one time approached by a stairway cut in the sandstone cliff. At the foot of the Sierra Natues, in Graham county, there is a cave nearly 100 feet square. There is one large chamber in the centre, surrounded by small rooms with doors and passage ways excavated in the solid rock. The walls are adorned with many hieroglyphics in red and yellow paint. At the end, and nearly opposite the main entrance, a clear, cool spring bubbles up and flows in a tiny stream through the cave to the sunlight. The rock is a soft sandstone, and must have taken years of labor to excavate, as nothing save some flint and stone instruments have been found in or near it.

Many of the narrow valleys and cañons of northeastern Arizona show evidences of being once densely inhabited by a race of cliff dwellers. In the neighborhood of the Rio de Chelly and its tributaries, as also along the streams which flow into the Little Colorado, the ruins of these cliff dwellings are numerous. In the cañon of Cosnino creek, in Apache county, there was once a large settlement of this pre-historic race. The cañon is nearly 2,000 feet in depth, and averages from 100 yards wide in the bottom, to 300 at the top. Along the walls of this gorge, ledges of rock project outward from ten to twenty feet. Between these

layers of rock seven tiers of buildings can yet be traced, many of them in a good state of preservation. Several thousand people must have made their home here at one time. From the lower tier to the bottom of the cañon is 200 feet, showing the immensity of time it has taken the water to wear away the rock that depth. The front and side walls are of solid masonry and are yet well preserved.

And now the question again recurs: Who were those people who built imposing structures, dug immense canals, and redeemed from the desert such vast stretches of land? From whence did they come, and what has been the cause of their extinction? Did war, pestilence, famine, or some mighty convulsion of nature destroy them? Nothing is left to tell the story of their existence, save the few earthen vessels which have been found in the ruins, the stone implements occasionally met with, and the fragments of pottery which lie scattered about their former abode. As to their customs and religious beliefs, all is conjecture, but from the few hieroglyphics which they have left behind, it has been supposed they were sun-worshippers.

As to their pursuits and mode of life, it is clear they were a pastoral and mining, as well as an agricultural people. As has been before remarked, the evidence is conclusive that many of the rich gulches in the Sierra Prieta range were worked for their golden treasures, ages ago. That this unknown people, who have left such interesting remains of their skill and industry behind them, had made considerable progress in the arts of civilization, there can be no doubt; but that their condition was materially different from that of the Zuni and other pueblo Indians of the present day, there is no reason to believe. They have left nothing to show they had got beyond that condition which may be best expressed by the word semi-civilized.

The age in which they flourished is as yet a matter of speculation, but from the total absence of anything like metal tools or instruments, we may well imagine that its antiquity is great. That they were subject to constant attack, and were surrounded by enemies, would be judged from the style of their cave dwellings and fortifications in the mountains. These were evidently built for defense, and from the commanding positions which they occupied, it can well be imagined the people were always on guard against a sudden attack.

Some have advanced the theory that the foe, against whom they were ever on the alert, was the Apache, and that he at last compassed their destruction. But it could hardly be possible that a people, so numerous as those ancient dwellers in Arizona undoubtedly were, and so far superior to the savage Apache, would allow themselves to be overmastered by the latter. They have been called Toltees and Aztecs, and many learned theories have been advanced as to their origin and history, but all is

conjecture and speculation, and nothing is yet absolutely known of one of the most remarkable pre-historic races of the western world. They lived and labored and passed away, and a new and more vigorous civilization has redeemed the land; but there will always be a glamour of romantic interest attached to those early Arizonans, which the mystery that enshrouds them helps to intensify.

There is here an interesting field for the savant who desires to trace the growth of a civilization whose origin is shrouded by the mists of time, and whose crumbling monuments yet proclaim its ancient vigor and wide extent.





WHAT CAN I DO ?

The Class of Immigration Desired—The Opening for Farmers—For the Horticulturist—For Stock-raising—For Wool-growing—For the Dairyman—Opportunities for Manufacturing Enterprises—Openings for Investment in Mining Enterprises—Demand for Female Labor—
A Field for Men of Energy and Industry.

THIS is the first question which the reader, who may have some thought of emigrating to Arizona, will naturally ask, after a perusal of the foregoing pages. And it is a very important one. People who desire to seek homes in new lands, and who are about to sever the ties and associations which years have woven around them, want to know what will be the opportunities for engaging in the business or calling for which experience has best fitted them, in their new home. In this chapter we will try and answer the question; and hope to be able to show that in Arizona to-day, the man of enterprise and energy will find a field for the exercise of these qualities, equal to any within the broad limits of the Republic.

And let it be understood even the following remarks are addressed to people of moderate means and with some little capital. It is not the object of this publication to encourage a large immigration of poor people to this Territory. While a man who is in the possession of health and strength, is temperate, frugal and industrious, has the capital which insures success the world over, it is not the intention to hold out any specious inducements for such a class of immigration to Arizona. To every new country there will always come more than enough of poor men. With the opening of mines, the establishment of manufacturing industries, and the full development of the varied resources of the country, there will be an increased demand for labor, skilled and unskilled. But at present the supply is fully equal to the demand. For those, however, who have some means, and are desirous of making a home in a new land, we say, come to Arizona.

“But what can I do there?” Almost anything and everything. Are you a farmer, here are hundreds of thousands of acres of as fine land as the sun ever shone on, capable of producing nearly everything grown in the temperate and tropic

zones. Here is a climate of perpetual summer; a balmy air, a bright sunshine, and an atmosphere of wonderful purity and healthfulness. Here no freezing gales or inhospitable snows make life a burden for half the year. Here no epidemics, cyclones, plagues or floods, destroy the fruits of the farmer's toil and sweep away in an hour the labor of years.

For the husbandman nature has done everything in Arizona. The soil is fertile, the yield is large, the cost of cultivation light and the market always a sure and profitable one. The demand for everything grown is steadily on the increase; and it has been demonstrated that the farmers of Arizona are able to compete against their eastern and western neighbors, and can produce grain, vegetables and fruits as cheaply as in California or Kansas, thus having the important item of freight in their favor, and always insuring a ready market and a good price. So, if you follow the trade of Adam, and till the soil for your daily bread, Arizona offers as inviting a field as you will find in the West. Good land can yet be had at low rates. In its broad valleys the industrious immigrant can make a beautiful home, and in a few short years surround himself with every comfort in a country where the temperate and tropic zones unite to produce the most perfect climate on the continent.

"Are you a horticulturist?" Here in the broad valleys and beautiful mountain glens of Arizona is one of the finest fruit regions of North America. Here the orange, the lemon, the olive, and other fruits of the tropics grow side by side with the apple, the peach, and the pear of a more northern clime. Here is a land where, in a few years, the thrifty settler can, literally, sit under the shadow of his own vine and fig tree, and, assured of a steady income from his orchard or vineyard, pass his days with pleasure and profit. The fruit-raising industry is yet in its infancy in the Territory, but it promises to become an important branch of industry. It has been demonstrated that the soil and climate are especially adapted for it, and in a few years Arizona fruits will find their way to the markets of the east. Wine-making, fruit-canning and raisin-making are all profitable pursuits for those who have the experience and the capital to engage in them. Good land, suitable for vineyards or orchards, can be had at a nominal figure. So, reader, if you are acquainted with fruit culture, and are looking for a country with the requisites of soil, climate, and a ready market, come to the Territory. You will here find all these favorable conditions, and in a few years you will have a pleasant home and a respectable bank account.

"Are you a stock-raiser?" If so, here is a veritable paradise for your calling. Millions of acres of fine grass lands are yet unoccupied, and can be had for the taking. Here are no northern snows, no Texas blizzards, no disease. Here your cattle can roam over hill, mountain and plain, and keep in

prime condition during every month in the year. Here you are not required to lay up large stores of winter feed, and do not run the risk of losing your herd by the freezing snow and storms of more northern regions. Here the increase is something phenomenal, and the profits enormous. Here the quality of beef is unequaled for richness and flavor. The market is at your door, the local demand is steadily on the increase, and two transcontinental railroads give you the choice of shipping either to the east or the west. Good ranges can be had at low figures, while in many of the large, dry valleys, covered with rich grasses, water in abundance can be had by sinking.

There is yet room for millions of cattle in Arizona, and no business which the new-comer can engage in promises larger or surer returns. The stock interests of the Territory are only second in importance to its mineral wealth; and the fortunate man who is in possession of a good range and a few hundred head of cattle has found a short and easy road to fortune. He can sit in the shade of his *hacienda*, enjoy the good things of life, and see his wealth increase on every hill and valley that surrounds him. If you are a stock-grower, come to Arizona and grow up with the country. There is no shorter, surer or safer road to wealth.

"Are you a wool-grower?" The remarks on cattle-raising will also apply to the business of sheep husbandry. The northern portion of the Territory is especially adapted to sheep. The grass keeps green and nutritious the entire year; sheep are remarkably free from disease; the increase is very great; the quality of the wool excellent, and the profits from the business are remarkably large. Rail communication gives you cheap and rapid facilities for sending your product to market. There is money in sheep in Arizona; and there is room for five times the number now in the country. If your line is wool, you will find few regions of the west better suited for your business, and none where the risks are less and the profits larger.

"Are you in the dairying business?" If so, you cannot do better than come to Arizona. Although grass and other feed is plentiful and cheap, butter is worth from fifty cents to one dollar per pound, and even at these figures, three-fourths of the butter consumed in the country is imported from California and the east. The grasses in the mountain regions and on the Upper Colorado plateau are sweet and nutritious and make a finely flavored article, while in the cultivated valleys the alfalfa, which keeps green all the year round, makes very fine feed for cows. The country should produce all the butter required for home consumption, and that at a handsome profit to the dairyman. There is always a steady demand and a good price; and those who are engaged in the business are making money. Cheese could also be profitably manufactured as cheaply and of as good a quality as that made in California. Heretofore the dairying

business has been neglected in Arizona, but there is a fine opening for men who understand it.

If you are desirous of engaging in manufacturing enterprises and have the requisite capital to do so, Arizona offers as desirable a field as you will find in the west. Outside of lumber and flour there are no manufactories in the Territory. Everything else that is worn or consumed is brought from abroad. Thousands of hides are annually shipped away, and sent back again in the shape of boots and shoes. This one item alone is one which could be turned to profitable account by men who have the skill and the experience. There is no good reason why all the leather needed in the country should not be made here at home.

The raw material in abundance is ready to hand; the water-power is here, and the tanning material also. As has been stated before, there are among the native plants and shrubs of the Territory several rich in tanning qualities, which, it has been demonstrated, make as fine leather as any manufactured on the coast. Hundreds of thousands of dollars are annually sent out of the country for foot-wear, nearly all of which could be kept at home if tanneries were established. Leather can be produced here as cheaply as abroad, and the number of men to whom steady employment would be given would be another source of prosperity to the Territory. Capital can find no safer investment, or one which will yield more lucrative returns than the establishment of tanneries in Arizona.

Millions of pounds of wool are sent out of the country every year, and yet every woollen fabric used or worn is imported. Here is another profitable opening for the investment of capital. Why should not the raw material be manufactured here, and the money now sent abroad be kept in circulation at home? There is no good reason why it should not. The wool grown in the territory is of a good quality, suitable for the manufacture of blankets and woollen goods of every variety. Every facility for the successful prosecution of such an enterprise is at hand. There is water-power in abundance, and labor can be had as cheaply as in California. The cost of shipping the raw material out of the country and bringing back the manufactured article, will be in favor of the home-producer. Here is an opportunity which is not often found. The outlay required for a suitable "plant" will not be large, while the profits will be sure, and the market steadily growing.

There is a large and increasing demand for paper, rope, mats, etc., all over the United States. Arizona has the raw material in any desired quantity for the manufacture of such articles. The leaves of the *mescal* and of the *amole*, or soap weed, contain a fibre from which a very good quality of paper, rope and coarse cloth can be made. The Indians, in their crude way, have been making the two last articles ever since we have any knowledge

of them. Late experiments have demonstrated that an excellent quality of paper can also be produced. The price of this article has risen very rapidly within the past few years, and as the demand has increased, various substitutes, such as wood pulp and straw, have been used in its manufacture instead of rags. But they have not given satisfaction, and the product has not been of a first-class quality. But from the native plants of Arizona, an article of superior texture and finish can be produced; and there is enough raw material in the Territory to supply the people of the United States with all the paper they require for years to come. On every valley, *mesa* and mountain-side, the material is found growing in profusion.

Mexico has already begun to realize what a treasure she has in her *mescal* fields, and besides making them a source of large revenue to the State, has fostered and built up several profitable industries from them. There is no reason to doubt that the ancient race who once had their home here, utilized these plants, and made from them cloth, ropes, matting and other fabrics. But little attention has yet been paid to the grand possibilities of this branch of manufacturing industry in Arizona. Such valuable raw material will not much longer be allowed to remain idle. The cultivation of the *mescal* plant, and the manufactures which will grow from it, will yet be a leading industry, and many articles useful to man will be produced from its valuable fibre.

Soap, candles, matches, several lines of furniture, straw-goods and wooden-ware, can be profitably manufactured, and the capital required will not be large. It is well-known that straw from irrigated grain is much tougher than that grown by rainfall, and for the coarser variety of straw goods is unequalled. These are some of the enterprises which present themselves to a man of means and energy in Arizona. Who will be the first to engage in some of them, reap this virgin field and glean a golden harvest?

The grand opportunities for the investment of capital in mining enterprises have been alluded to in another place. There is no mining region on the globe that has yielded better returns for capital invested than Arizona. This is indisputable. Taking the total amount invested within the Territory, and then comparing the dividends with the assessments, she can make a better showing than any country on the coast. In nearly all other mining regions the amount required to get a dollar out of the ground has in nearly every instance equaled, and in most cases exceeded, the dollar; but in Arizona the reverse has been the case, dividends have been the rule and assessments the exception.

In this short chapter we have told many of our readers what they can do in Arizona. It is presumed they are in possession of some surplus cash, and in a position to take advantage of the many opportunities which we have pointed out to

them. For those who have only strong hands, stout hearts, temperance and industry there is always an opening here as in every land under the sun. A man may be poor in purse, but so long as he possesses the qualities we have mentioned he is sure to make his way in the world; and while Arizona does not wish to encourage people without any means to come here, she will always have a welcome for those who bring to the development of her grand resources, health, strength, industry and sobriety. For immigrants of such character, who are not afraid of work, and can "rough it" in a new country, there are grand opportunities which they can hope to find nowhere else.

In the foregoing, nothing has been said about the inducements which the Territory offers to women. The right of the weaker sex to compete with man in almost every walk of life is now generally conceded, and the people of this Territory cheerfully accord them such a privilege. As will be seen by the census, there is a great disparity in the sexes in Arizona. Female labor is scarce, difficult to be had, and commands a good price. In the towns and settlements Chinamen have taken the place of women, and nearly all domestic service is done by them. This labor is of a character performed by women in civilized countries, and would be done by them here, if there were a sufficient number to be had. The difficulty of obtaining female domestics is a constant source of annoyance to people throughout the Territory, and if a family is fortunate enough to secure one, she is sure to be taken in the matrimonial net in a short time.

It is safe to say that 400 or 500 female servants—cooks, chambermaids, nurses, etc.—could find steady employment in the Territory, and at wages ranging from \$30 to \$40 per month. For women who are not afraid to work, and are willing to cast their lot with Arizona, there are opportunities here to better their condition which they can never hope to find in the crowded centres of population.

Besides the openings for labor and capital here mentioned, there are many others growing out of the conditions and surroundings of life in a new and progressive country, which are continually presenting themselves. A man with energy and industry can always find something to turn his hand to, and those seeking investment will find no safer or better opportunities in the west. The vast forests in the eastern part of the Territory, which railroads will soon penetrate, are mines of wealth to those who have the capital to engage in the many enterprises soon to be presented here. There are vast deposits of iron ore in the Territory, which will yet become valuable, and with the steadily increasing demand for the manufactured product on the coast, the day is not far distant when the raw material can be profitably worked here.

To enumerate all the advantages which Arizona offers for the investment of capital, or the inducements it holds out for immi-

gration, would occupy more space than can be given in a publication of this nature. Suffice it to say that in the leading branches of industry—mining, farming and grazing—there are opportunities for industrious, energetic and active men, which they will look for in vain elsewhere.

But the man who comes to Arizona from the East must be prepared to meet different conditions from those he has been accustomed to in his old home. He must come prepared to turn his hand, if necessary, to anything that offers; but if he has the grit and the determination to win, he is bound to succeed. Should he come poor in purse he need not long remain so, and he will find in no part of the United States a more generous reward for his labor, or an easier road to fortune.





A LOOK AHEAD.

The Past and the Future—All the Elements of Prosperity here—A Land for Happy Homes—Arizona's Future, Etc.

“**T**HUS far our chronicle.” Our pleasant task is finished, and there remains but to make our bow and retire. In the preceding pages, necessarily brief, we have endeavored to give the reader a fair and impartial description of Arizona Territory as it is to-day. No attempt has been made at coloring, everything like exaggeration has been carefully avoided, and a plain and simple statement of actual *facts* set forth. We have shown the opportunities which the country presents to the immigrant and the capitalist; we have shown its many grand resources, now lying dormant, and only awaiting the magic touch of capital, skill and industry. We have given a glimpse of its dim and misty past, and before parting, may be pardoned if we cast a glance ahead and catch a beam from the sun of its prosperity, already beginning to flash above the horizon.

Arizona has all the natural resources which build up prosperous and powerful States. Since the dawn of time, agriculture, mining and stock-raising have been the chief occupations of man. They have been the corner-stones of prosperity in every age, and in all nations. Few countries are so blessed as to possess all three, and those so favored by Nature have reached the highest pinnacle of power and prosperity.

Arizona contains all these sources of wealth; she has rich mines, fertile farming lands and extensive cattle-ranges. She has a climate unsurpassed for salubrity, and a soil capable of producing nearly everything grown in the tropic and temperate zones. Generous nature has done everything for this sunny land, but thus far man has done but little. Like the first American settlers of California, the pioneers of Arizona entertained the idea that the country was unfit for the home of a white man. They came here to dig and delve after the buried treasures in her rugged mountains, “make their pile,” and then hie them away to some other country for a home. It is only within a few years that the fertility, productiveness and magnificent climate of the valleys of the Gila and the Salt rivers have been understood and appreciated, or any attempt made to build permanent homes therein. Yet these valleys have all the



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THE CHURCH OF SAN XAVIER.

BANCROFT-LITW-S.F.

gifts of a most favored clime, and under the hand of cultivation will yet become gardens of beauty and fruitfulness. As pleasant homes can be established there as in any portion of the great West or the Pacific coast, and man can surround himself with every comfort and luxury found in older lands or more densely settled communities.

As we have seen, Arizona was the home of a vast population in the past; there is no good reason why she should not support as many in the future. With all the aids and appliances of a new and more perfect civilization, the latent resources of the country will be more thoroughly developed. Where the pre-historic man followed, in a crude way, agricultural pursuits, and depended mainly upon the products of the soil, the modern occupant will wrench from the rocky hills the treasures so long held in their grasp, and cover mountain, valley and plain with flocks and herds. He will erect manufactories, build railroads, sink artesian wells, excavate canals, and make valley and plain bloom with beauty as in ages past. Pleasant homes embowered in groves of living green, adorned with flowers, and furnished with all the luxuries of modern civilization, will beautify the plain; lowing herds will cover hill and dale; the music of the quartz-mill will awaken the echoes in mountain and glen, and a happy, prosperous and progressive people will dwell beneath these sunny skies.

Railroads are being built or projected through all parts of the Territory; population is following in the wake of the iron steed, and capital is beginning to appreciate the many opportunities which the country offers for investment. Peace and security reign throughout the land; the war-whoop of the savage is heard no more, and the domain over which for centuries he was the absolute lord and master, will soon know him no more.

The elements of power and prosperity are here, and it requires but the skill and industry of man to fashion from them one of the richest and most prosperous States in the American Union. The great natural resources of the country have long remained unknown and unnoticed; isolation and savagery have long stood in the way and barred the path of its advancement. But both are being swept aside by the onward march of enterprise and industry. The dawn of a newer and more perfect civilization for Arizona has already been ushered in. On the ruins of a past age and an unknown race there rises a structure of social, material and intellectual strength, perfect in all its proportions.

To the man of means seeking safe and profitable investments, there is no region of the west that offers so many advantages. Mining, cattle-raising, manufacturing and many other branches of industry, invite investment and guarantee large returns. No mining country on the continent has made better returns for the outlay than Arizona, and there is no richer or safer field for the mining man. To the immigrant desirous of making a home

in the west, we say, come to Arizona; cast your lot with its liberal, enterprising, and progressive people, enjoy the heritage which its future has in store, and pass your days in a land where health and happiness walk hand in hand with progress and prosperity.

Arizona's past has been a dark and a bloody one. Its history is written in the crimson tide from the hearts of its slaughtered pioneers, and their lonely graves, on hill, plain and mountain side, silently attest the sacrifice made to wrest this rich domain from the grasp of the murderous savage. For many a long and dreary year his shadow fell across the land, obscuring the sun of its progress and prosperity. Under this dark cloud murder and robbery held high carnival, life and property were at the mercy of a band of red fiends, who made of the country a perfect Pandemonium. It seemed as if the flickering light of civilization would be quenched in blood, and the country abandoned to savagery. But against all obstacles the undaunted pioneer bravely battled. The Apache was subdued, and the country redeemed from his barbarous sway; the barriers of isolation have been cast aside; the iron rail has drawn the Territory into closer intercourse with her sister States and Territories, and Arizona has entered on the high road that leads to power and prosperity.

The past is but the memory of some horrid nightmare; the future is bright with the halo of promise. No Territory in the United States is endowed with grander gifts, and there is no region on the continent where man can make a happier home, and more thoroughly enjoy the many blessings which generous Nature has showered on this favored land. With wealth beyond computation in her vast mineral beds, with the finest grazing grounds in all North America, and with immense stretches of arable lands, unsurpassed for richness by any on the Pacific coast, the country has all the resources to build up a great State. With a climate among the healthiest of any on the globe, and with all this great natural wealth, it is not unreasonable to believe that the country will yet be the home of a large population.

The building of the network of railroads, already projected, throughout the Territory, and the influx of immigration, will reclaim many a valley now given over to solitude, and many a vast plain, now a desolate waste, will be covered by cattle and sheep. Mills and reduction works will spring up in camps where now there is no sign of life; prosperous towns will spring into existence on mountain and plain; the shriek of the locomotive will be heard in every town and mining camp; the smoke from many a manufacturing enterprise will float over hill and plain, and the State of Arizona, populous, prosperous and happy, will add another star to the flag of the Union. This is not an overdrawn picture of what this Territory is to be, and within a few years.

There is no region that holds out more flattering inducements to the immigrant, there is none where the opportunities are so favorable for making a home and securing a competency. Come to a land whose sunny skies and perfect climate make life worth living for, and where the mental and physical traits reach their highest development. Come while the openings for the exercise of your skill and industry are so many, and the chances for bettering your condition so much greater than in older communities.

Come to a new land and take a fresh start in the race of life. The course is open to all, and if you have health, strength and industry you are sure to win a prize. You are offered a generous welcome, and will find a free-hearted and open-handed people ready to give you a helping hand. Come to a country that has a future bright as its own cloudless skies, blessed with every gift conducive to the welfare of man, and which possesses every element to build up a powerful and prosperous commonwealth; a land whose matchless wealth will yet make it one of the brightest gems in Columbia's diadem.

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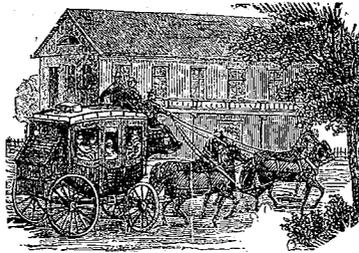
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Stock industry is becoming one of the leading industries on account of the vast plains of everlasting nutritious grasses upon which cattle thrive during the entire year. Agriculture is also attracting much interest, and thousands of acres of land are being reclaimed for farming purposes, yielding large profits to the husbandman. There are yet millions of acres of fine agricultural land unclaimed, and over three-fourths of the grain consumption of the Territory is imported from foreign markets at large cost, which argues the great profit in the farming industry. The STAR will continue to give full and reliable data of the stock, farming and mining interests of both Arizona, New Mexico, and Sonora, Mexico.

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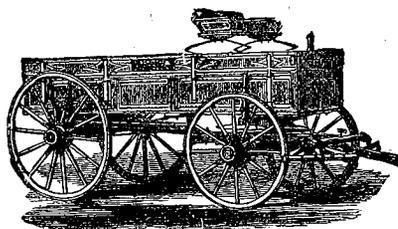
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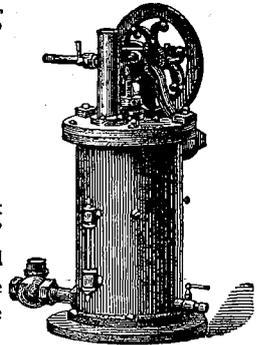
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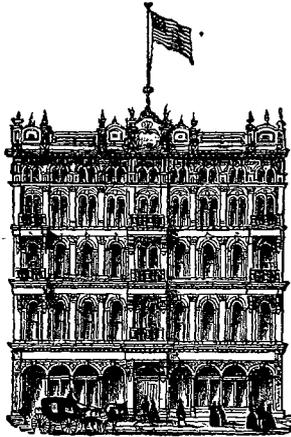
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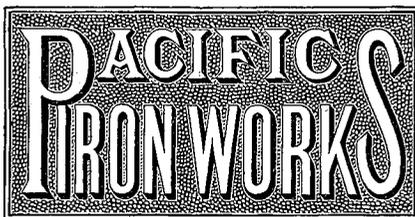
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