

A SOUVENIR

of the

World's Industrial and Cotton
Centennial

Exposition

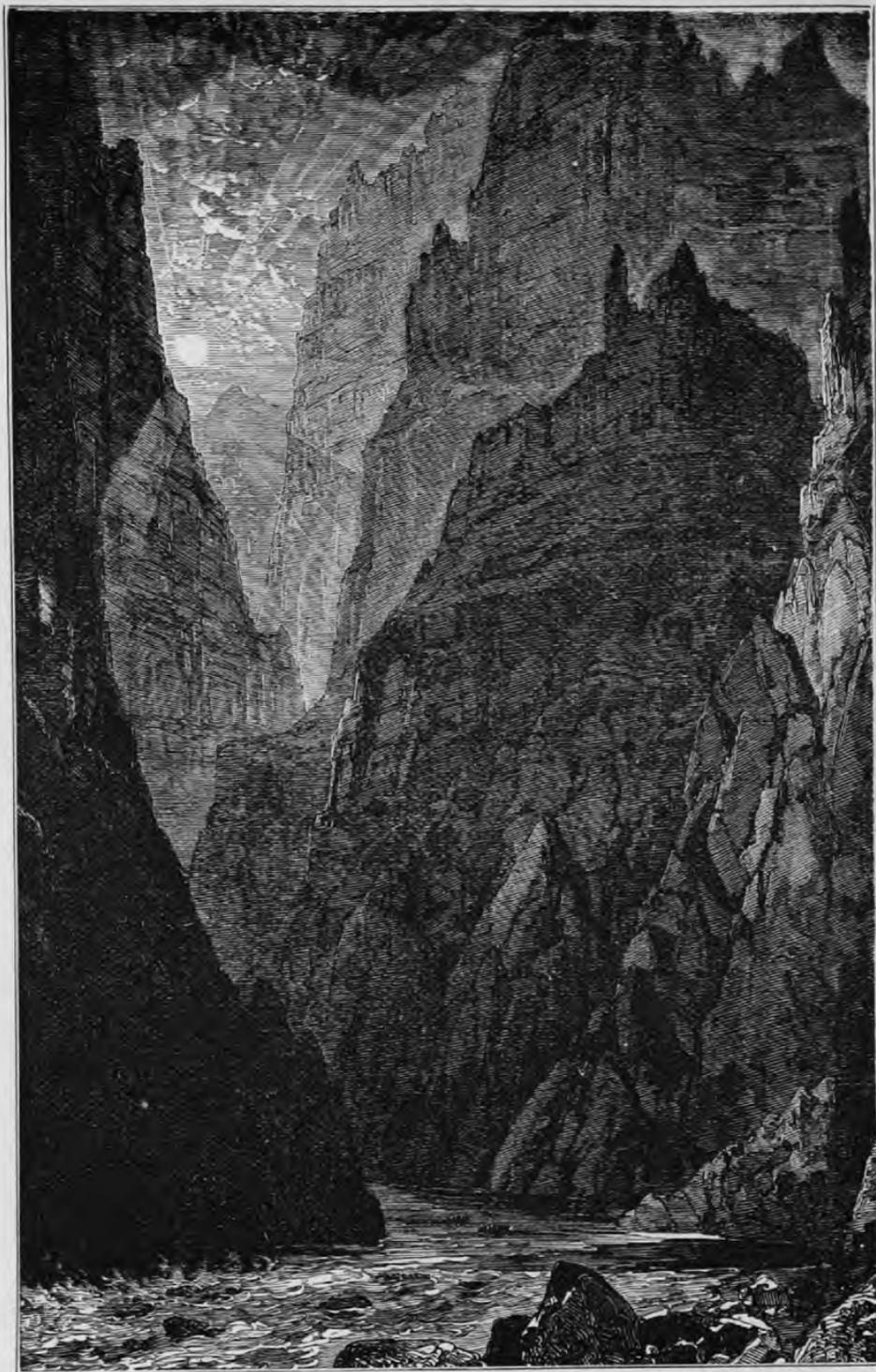
NEW ORLEANS,

1884-85.

Arizona's Exhibit.



Compliments of the Atlantic & Pacific R. R.



GRAND CANYON OF THE COLORADO.

ARIZONA

AT THE

WORLD'S

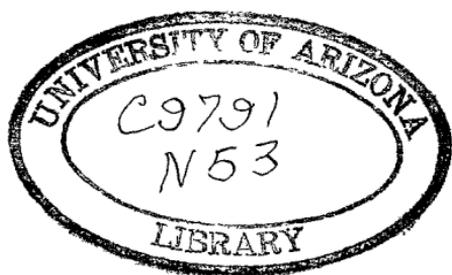
Industrial and Cotton Centennial

EXPOSITION.

NEW ORLEANS, 1884-85.

CHICAGO:
POOLE BROS., PRINTERS.

1885.



ARIZONA

AT THE

World's Industrial and Cotton Centennial EXPOSITION.

Realistic exhibit of the wonderful resources and remarkable products of this coming empire in the Southwest.

A mineral collection unrivaled for richness, extent and variety, unequaled for beauty and unique display.

Cereals and semi-tropical fruits, sugar cane and cotton, timber and stone for building purposes—in fact, every natural product of the continent—is found in Arizona, which may well be termed a paradise for the miner and husbandman; a limitless field of study and research for the historian and scientist; a feast of happy surprises for the pleasure-seeking tourist. Pause and study this wonderful lesson from the land of “Sunshine and Silver;” from the land of which Baron Von Humboldt said: “Here the wealth of the world will yet be found.”

Nowhere on the globe is blended a greater combination of natural wealth, in mountains precious minerals, valleys of rich agricultural lands,

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thousands of acres of grazing lands covered with nutritious grasses, and, withal, a climate than which no finer can be found.

It has been truly written of Arizona: "She has brighter skies, purer air, a more bracing atmosphere, more brilliant star-lit 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 and vigor of mind and body. In the pure, dry atmosphere of her mountains and vales diseases are unknown, and beneath her 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, plain and mesa."

From the exhibit, some idea can be gained of the remarkable wealth of the Territory, the great progress which has been made in development in a very short time, comparatively, and the wonderful possibilities of the future; and some of the popular illusions will also be dispelled.

Residents of the Eastern and Southern States, who have not had opportunities of observation, generally imagine Arizona to be a succession of arid plains or bleak and sterile mountains with a few sparsely timbered hillsides and fewer running streams; the abode of the fierce Apache and murderous outlaw; its only wealth an unknown mineral quantity.

By examining this attractive and interesting collection and listening to the courteous commissioners in charge, the visitor will learn that Arizona has been redeemed from the terrors of Indian warfare and white outlawry; that she has a peaceful and law-abiding commonwealth; that her mines are unsurpassed anywhere and are constantly increasing in number and value; that her valleys are green with vegetation and dotted with handsome farms and villages, with churches and schools; that the soil will produce bountifully everything which blooms and ripens under tropic and temperate suns; that she has forests of excellent timber and thousands of acres of unoccupied grazing lands; that in

Arizona all kinds of industry are highly remunerative and that *nowhere* is a more inviting prospect offered to the immigrant and capitalist.

For the tourist to view the Grand Cañon of the Colorado is alone worth a dozen trips to Arizona. Its wonders cannot be described. It is incomprehensible to the mind of man. No writer dares attempt to portray its awful sublimity. The Territory throughout abounds with grand and wonderful scenic effects and they are easily accessible by rail and stage.

The remarkable petrified forest of Apache county is worth a long journey to see. This fallen forest of silicified trees, situated thirteen miles south of the Atlantic & Pacific Railroad, covering over 1,000 acres, is a most marvelous freak of nature and confounds scientists. Some of the petrified trees are over seventy feet in length and ten feet in diameter, as they appear in broken sections uncovered on the sand. No vegetation lives around them—nothing but a barren waste their burial place. Opinions differ as to the kind of wood this was previous to the transformation, some claiming it to have been redwood, pine and other woods peculiar to California and Nevada, and that the trees floated from the north to their present resting place, while others claim that they must have been peculiarly fine-grained tropical trees of a kind now extinct in North America.

While a few years ago a journey to examine these natural wonders would have consumed weeks and would have been beset with great dangers and difficulties, now the trip can be made in a few days, with all the comfort and convenience of modern railway travel, via the Atlantic & Pacific Railroad.

To the antiquarian, scientist and historian, Arizona yields the richest field for investigation on the Continent. Proofs are seen on every side that the valleys of the Territory were once densely populated by a people now extinct. The outlines of artificial water-courses found near every stream; the fragments of coarse pottery and prehistoric relics of different kinds; the castellated ruins of the famous Casa Grande; the deserted cities of the plains, whose crumbling walls are rapidly mingling with

Mother Earth; the abandoned homes of the Cave and Cliff-Dwellers — are subjects of intense interest to the observer.

The Zunis and Moquis — Indian tribes, whose villages, habits and customs, religion and mythology are now attracting wide-spread attention — live in northeastern Arizona and their towns are easily accessible from the Atlantic & Pacific Railroad.

To the immigrant seeking a home and fortune, the scientist seeking new wonders in nature's laboratory, the capitalist seeking investments, or the tourist traveling for pleasure, the Territory is alike attractive.

The following catalogue of specimens and subjects embraced in the Arizona exhibit has been prepared with a view to embodying the information in as brief a space as possible, and at the same time fully explain the collection. As it would make too cumbrous a work to particularly identify each of the several thousand specimens contained in the collection, many of the least conspicuous are grouped or omitted from the catalogue, although full information in regard to every detail of the exhibit can be obtained from the Commissioner present in charge.





THE START FROM GREEN RIVER STATION.

CATALOGUE OF SPECIMENS AND SUBJECTS
EMBRACED IN THE
EXHIBIT OF ARIZONA TERRITORY
AT THE
WORLD'S INDUSTRIAL AND COTTON CENTENNIAL
EXPOSITION,
NEW ORLEANS, LA., 1884-85.

No. 1.—Group of copper specimens, carbonates and oxides from Copper Queen mine, Bisbee mining district, Cochise county, Arizona. Large specimen in center of group; weight, 7,325 pounds; largest mineral specimen in the Exposition; 30 per cent. carbonate ore from 100-foot level of mine. This wonderful property commenced producing bullion Sept. 1st, 1880, and has produced to date 27,000,000 pounds of black copper and paid \$1,500,000 in dividends; is developed 500 feet in depth and 2,000 feet in tunnels, drifts and winzes.

No. 2.—Collection of silver ores from the Silver King mine, Pinal county, Arizona; 150 specimens, in three upright glass cases, each marked "No. 2." Special catalogue, containing detailed description, with the collection. This famous mine has a world-wide reputation and is entitled to take rank among the great silver-producing mines of the world. Developed 800 feet below surface; has paid nearly \$1,500,000 in dividends and the stockholders have never been assessed.

No. 3.—Collection of ores from United Verde copper mines, Yavapai county, Arizona; carbonates, oxides, sulphurets, azurites and malachites;

also rich specimens of gold and silver ores from the same property. This valuable group of mines is situated twenty-eight miles south of the Atlantic & Pacific Railroad and from the developments the ore bodies seem to be inexhaustible. In a little over one year's operating, with one thirty-ton smelter, the entire subscribed capital stock has been paid from the product of the mines and \$100,000 in dividends besides. The ore is high-grade copper, in many places running high in silver, native and horn, with some gold. The mines are owned by Governor F. A. Tritle and a New York syndicate.

No. 4.—Represents the exhibit from Pima county, which is most magnificent, and consists of a large cabinet of 2,500 beautiful and valuable specimens of gold, silver, copper and lead; also a variety of specimens of every mineral product of Arizona. With this cabinet is a full descriptive catalogue of each specimen. Next to the large cabinet, and facing it, are two glass cases also marked "No. 4," and containing Pima county ores, over two hundred mines being represented in this county's exhibit, many of them extensive bullion-producers. The County Commissioner in charge will explain fully every feature of the collection.

No. 5.—The exhibit from Cochise county is marked "No. 5." This collection covers a space 20x30 feet and comprises a full representation of all the mining districts in the county. Rich specimens from Tombstone district are tastefully arranged in eight large show-cases, each marked "No. 5." Every variety and quality of ore peculiar to the Territory may be seen in the Cochise county collection. The following named mines have valuable specimens on exhibition:

Grand Central, Contention, Stonewall, Bunker Hill, Anchor, Tranquillity, Girard, Empire, Mamie, Bonanza, Sunset, Way-Up, Contact, Wide West, Dwarf, Midnight, San Pedro, Eden Lass, Virginia, Janietta, Good Enough, Copper Queen, Copper Prince, Mammoth, Neptune, Copper King, Copper Monarch, Empire, Maple Grove, Oban, Stirling, Commercial, Blue Bell, Buffalo, Lindell, Mineral Park, First Chance, Arctic, Arbor, Toronto, Juniper, North Gate, Golden Gate, White Oak, Silver Cave, Wisconsin, Mescal, Murphy, Ewell Springs, Bunker Hill,

Buckeye, Single Line, Maynard, Stonehouse, Foothill, Mother, Search Me, Last Chance, True Blue, Minnie Cachete, Dutch Girl, Chieftain, Mary, Northern Light, General Meade, Agnes Bell, Eagle Cliff, Black Hawk, Silver Chief, Berkshire, Widow, Gotham, Magnolia, General Hancock, Peabody, Columbia, Dreadnaught, Vesuvius, Mammoth, San Antonio, Osbourne, Florence, David Crockett No. 2, Silver King, Silver Tip, Problem, Alpine, Manhattan. Specimens from the foregoing mines are all labeled with name, quality of ore and richness.

The Benson Smelting Company have a most interesting exhibit in this collection, consisting of four bars of bullion, a mould of slag, fluxes and fuel, adobe concentrates, flue dust, with different varieties of silver and lead ores. A Commissioner is in attendance competent to explain every detail of the collection.

No. 6.—Exhibit of ores from Globe district, Gila county. The Old Globe copper mines and Black Copper group, owned by the Old Dominion Copper Mining Company of New York, have a fine display of copper ores and bullion. This company works two thirty-ton furnaces, producing from eighteen to twenty-two tons copper bullion daily. Every variety of copper ore may be seen in this collection from the mines of the Tacoma Mining Company and Copper Treasure, Bird's Nest, Domingo, Ballarat and Selby mines. The gold and silver mines represented in this exhibit produce remarkably high grade ores, the specimens ranging from \$500 to \$15,000 per ton. Each specimen is marked with quality of ore, name of mine and assay value. The following-named mines are represented: Fame, Ætna, Fish, Quinn, Florida, Golden Chariot, Tiger, Highland Mary, Julius, DeCameron, Summit, Stonewall Jackson, Gladiator, Boss, Spring, Red Rover, Annie, O. K., El Capitan, Arizona, Minnie, Crown Prince, Golden Eagle, Mt. Morris, Pioneer South, Howard, Golden Wonder, Monarch, Pride of the West, Buckshot, Hillside, Contact and several others. Commissioner and small descriptive catalogue with the collection.

No. 7.—The Graham county exhibit consists of a marvelous collection of copper ores, copper bullion, gold and silver ores. An immense amount of capital is invested in this county in copper mining. Gold

and silver also are found in paying quantities; an extensive coal deposit remains undeveloped on San Carlos Indian Reservation in this county; wood and water abound and mining is made easy thereby. The ores are of high grade. The Clifton copper belt is very extensive and the immense mines around the village of Clifton have perhaps the most extensive workings and the most improved machinery and facilities of any mines in the Territory, consisting of railroads, tramways, the latest improved furnaces and mining machinery. The entire plant is conducted upon the most admirable system of economy. These mines are owned by the "Arizona Copper Company (Limited) of Scotland," and several millions of dollars are invested in the plant.

The Detroit Copper Company also have valuable ores on exhibition and their mines—the Yankee, Montezuma, Copper Mountain and Arizona Central—are great producers; the Hughes and Shannon, Annie, Borden, Mountain Lion, Lulu, Capitan, Greenlee, Union No. 1, Union No. 2, New England, Montezuma, Great Western, Ollie and many others are represented in Graham county collection.

No. 8.—Apache county is represented by a splendid collection of wool and a wonderful pyramid of petrified wood, marked "No. 8." This county is a great wool producer and very little mining is done. The Navajo Indians have thousands of sheep, cattle and horses. The stock ranges are very valuable. The wonderful forest of silicified wood in this county, thirteen miles from the Atlantic & Pacific Railroad, is a great natural curiosity. The specimens of Navajo blankets, showing the Indian skill at weaving, are very interesting. In this county many of the prehistoric pueblos and ancient ruins exist. Agriculture is engaged in to a considerable extent.

No. 9.—Mohave county exhibit is one of rare beauty and value. This county is pre-eminently a mining region. Gold, silver, copper and lead abound in its hills and mountains. Mohave county is rapidly becoming one of the leading bullion-producing counties of the Territory. The Atlantic & Pacific Railroad "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 hundreds 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 ore 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." The ore in this county is of a uniformly high grade and a great deal is shipped away for treatment from which a handsome profit is realized. It is estimated that 3,000 tons per month is shipped from Kingman station, on the Atlantic & Pacific Railroad. The districts of Hualapai, Cerbat, Todd's Basin, Stockton, Maynard, Hackberry, Owens and San Francisco are thoroughly represented. The specimens are beautiful and valuable. Each specimen is labeled with name of mine, owner, etc., and marked "No. 9." To describe each valuable mine represented would require many pages. No county in the Territory has better advantages for successful mining than Mohave and a regular boom is setting that way. The mines are more valuable on account of the transportation facilities afforded by the Atlantic & Pacific Railroad through the very heart of the mining country. Commissioner in charge to fully explain.

No. 10.—Yuma county exhibit is remarkable, not only for the high grade of the ores presented, but for the rare mineral formations. Gold, silver, copper, lead, and all the other minerals found in Arizona, are found in this county, but nowhere else in the Territory can be found such beautiful and rare molybdate crystals. The Castle Dome mines, which have produced over \$2,000,000 in bullion, are well represented; the Kling, Red Cloud, Princess, Nine Mile, New York, Black Rock, Iron Cap, Remnant, Silver Glance, Pacific, Nellie Kenyon, Caledonia, Yuma Chief, Hamburg, Klara, Great Western, Silver Brick, Camel's Teat, Rooster, Mandeville, Empire, No Name, Lost Mine, Clip, Emperor, Regent, King, Queen, Prince, Planet, Centennial, Challenge, Copper King, Snow Bird and many others.

No. 11.—Maricopa county: “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.” In this collection can be seen some of the finest fruits, cereals and vegetables of all kinds to be seen anywhere. The yield per acre of wheat and barley in this county is from twenty-five to thirty-five bushels, and, “after this is harvested, corn can be planted on the same ground and a fine crop raised the same season. Apples, peaches, pears, plums, figs, quinces, apricots, and nearly every other variety of fruit, yield largely. Lemons, oranges and olives can be raised with profit and finer grapes cannot be produced anywhere. Sugar-cane and cotton have also been grown successfully.” The 3,000 pounds of cotton on exhibition from Maricopa county, and marked “No. 11,” will compare favorably with that raised in any of the Southern States, as will also the sugar-cane. The valleys of the Salt river and the Gila are remarkable for the extent and variety of their agricultural products, and thousands of acres of fertile lands await the immigrant. The minerals in this collection, of gold, silver and lead, are of high grade and demonstrate that Maricopa county has valuable mines.

No. 12.—Yavapai county. “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 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. This 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 a sulphuret." The United Verde copper mines; the Copper Basin, where literally copper ores of every description exist by the acre; the wonderful Lawler group, consisting of the Bagdad, Atlantic, Little Chief, Pacific, Copper Creek, South Cement, Lone Pine, Hawkeye, Cement, Mountain Deposit; Black Mesa, Natural Point, Conglomerate, Mint, Carbonate and Wyandotte, where copper ore of every variety and grade exists in immense quantities. This valuable group (owned by John and M. A. Lawler, of Prescott, Arizona,) is easily accessible by good wagon road. Wood and water are abundant, and, when capital shall have discovered and developed these mines, they will rival the greatest copper-producing properties of the country. The immense gravel deposits of Yavapai county, rich in gold, cannot be excelled anywhere in America, and when means are devised for bringing in water in sufficient quantities to work the gravel mines, or other process discovered whereby the gold can be saved, the prophecy of Baron Von Humboldt will have been realized. The silver and gold quartz mines of this county are unexcelled and are numbered by the hundreds. To name and describe them in detail would take many pages. This county's collection, of over thirty tons, contains 3,000 specimens, beautiful and valuable, each marked "No. 12," with name of mine, location, owner, assay, value, etc., and a Commissioner in charge to explain all details. Many parts of Yavapai county are valuable for agricultural purposes and grazing is very largely engaged in.

The foregoing brief summary of the Arizona collection at the great World's Exposition will convey to the reader and observer some idea of the wonderful resources of the Territory and the opportunities that are offered to the capitalist and immigrant, as well as the scientist and pleasure-seeker. Game abounds all through the northern and central

portions of the Territory and the wild grandeur of the scenery is unequaled.

Take the Atchison, Topeka & Santa Fé and Atlantic & Pacific Railroads and visit the country for information and profit.

From the stations on the Atlantic & Pacific Railroad, anywhere between Holbrook, in Apache county, and The Needles, Mohave county, all Arizona is accessible.

The representatives of Arizona at the Exposition are:

HON. F. M. MURPHY,	U. S. Commissioner.	
HON. H. B. MAXON,	Alternate	"
HON. JOHN HOWELL,	Commissioner	Mohave county.
HON. J. J. STEIN,	"	Yuma "
JUDGE A. D. LEMON,	"	Maricopa "
WM. ADAMS, JR.,	"	Apache "
WM. BEARD, ESQ.,	"	Gila "
WM. NIVEN, ESQ.,	"	Cochise "
CHAS. R. WORES, ESQ.,	"	Pima "
HON. J. McCORMACK,	"	Graham "
A. J. DORAN, ESQ.,	"	Pinal "
N. O. MURPHY, ESQ.,	"	Yavapai "

ATLANTIC & PACIFIC RAILROAD

FROM

ALBUQUERQUE, NEW MEXICO,

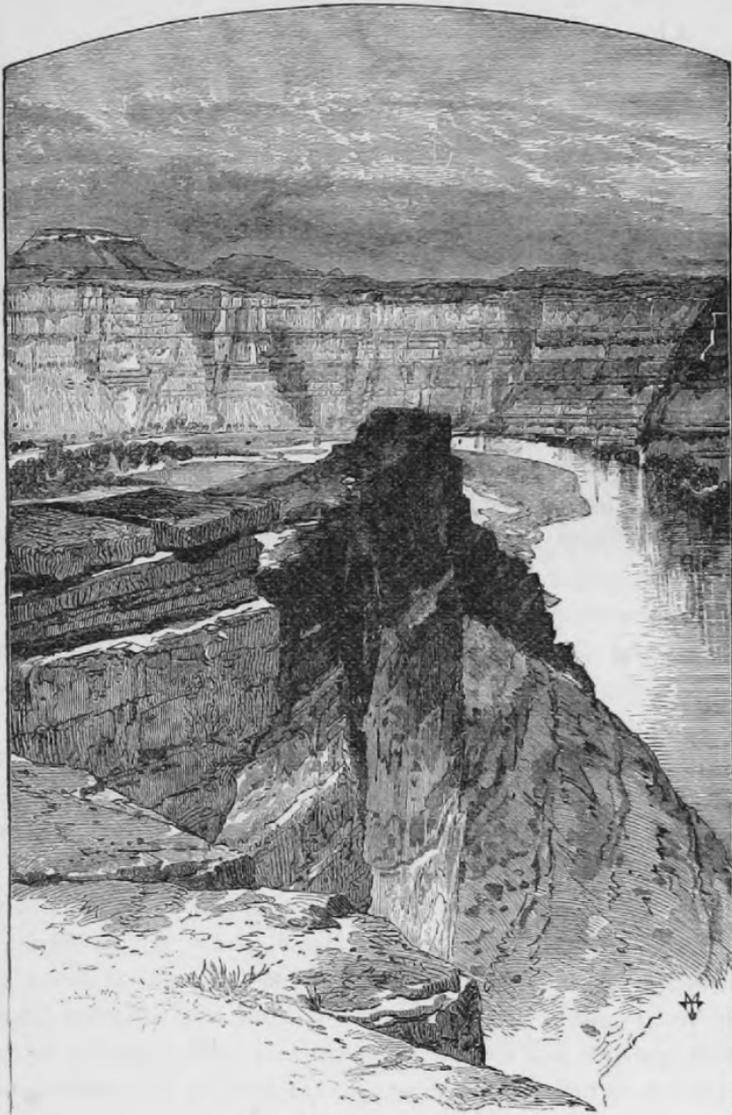
TO

MOJAVE, CALIFORNIA.

The Atlantic & Pacific has, perhaps, no superior among the new railroads which have been constructed in America in the last three years. The rolling stock is of the most approved description, manufactured for both comfort and safety, the passenger coaches being supplied by commodious chairs, handsomely upholstered, and other conveniences for the traveler. They have Westinghouse air brakes, Miller couplers, buffers and platforms, and other first-class improvements, which experience has tried and passed favorable judgment upon. Pullman sleeping cars run directly through now from St. Louis or Kansas City to San Francisco, this route being several hundred miles shorter from Eastern points, via St. Louis, to the "Golden Gate" than any other trans-continental line. In addition to shortening the distance between ocean and ocean, in which regard this railroad was well named, the Atlantic & Pacific, following more or less closely the thirty-fifth parallel of latitude, is troubled neither with winter snows, spring freshets nor intense summer heats; it is, indeed, well named also: "Sunshine Route" and "All-the-Year Line." Its road-bed will compare favorably with that of any new road in the United States, as the commissioners of inspection appointed by the President substantially reported. The track is laid with fifty-six pound steel rails, which is above the average weight for

standard-gauge roads; the rails are joined together by the best arrangement of angle-bars and grip-bolts. The locomotives are of the finest manufacture and were made at the well-known shops of Philadelphia, Manchester and Providence. There was, of course, some very difficult engineering work in the construction of the road, but its alignment is very satisfactory, and neither the grades nor the curvatures (of which there is not an excessive number) offer any inconvenience to the traveler. The line is well supplied with well-built section houses, depots, coal chutes, shops and water-tanks. Excellent eating-houses occur at stations not too far apart and they are pronounced first-class by all who have enjoyed their fare.

The fact is, the Atlantic & Pacific is not behind the very best Eastern roads in any essential particular for the comfort of the traveler, and for the trans-continental tourist is *par excellence* the route to be taken, not only for its easy, rumbling luxury of locomotion, but for absolute safety and immunity from exposure to cold and other dangers at all times in the year, which are boons no other railroad in America can offer in the same sense and with as strict veracity.



SUMNER'S AMPHITHEATRE.

NEW MEXICO.

There are two divisions of New Mexico, the past and the future. Its past runs back to the settlement of those now known as Pueblo Indians, whose large cities, prosperous villages and fertile fields won the admiration of the Castilian. Those cities drifted into oblivion and left only half-vacant villages behind. Tradition grew into history, the Spanish cathedral's spires glistened in the sun and New Mexico's gold filled the coffers of the king at Madrid. When the semi-civilized went there no man may tell. With such a past, to say *New Mexico* is an anachronism in itself. One is occasionally tempted to believe that the country never was new, that the villages always were time-stained, the Indians always ancient and stoop-shouldered. But, with a careless disregard of the conventionalities of history, the American has marched right into the future, and foreseeing a prosperity which shall far exceed all that was accomplished before the Spaniards came, has named it *New Mexico* and called every factor of his Anglo-Saxon civilization to aid him in developing the resources of a section in which the very Indians were thrifty and rich. The past is gone. The Territory stands to-day in the vestibule of the future and is already knocking for admission. Order has been established; law is respected. Spanned by trans-continental and international railroads, New Mexico has received the advance guard of the army of emigrants and is experiencing a rapid and uniform development. When that development shall be complete it will be the home of hundreds of thousands of miners, grazers, farmers and fruit-raisers. The hum of the factory will answer the roar of the locomotive and men will realize how great is the wealth of this mountain State.

HISTORICAL.

There is no history of the Indians of New Mexico. There is evidence which proves that they were there a thousand years before the Spaniards and that even then they lived in towns and cultivated the soil. In 1536 Cabeza de Vaca, who had been lost on the coast, crossed New Mexico from east to west and journeyed southward to Old Mexico. In 1539 Padre Marco de Niza penetrated into the country. In April, 1540, Coronado, with a thousand followers, left Culiacan, in Sinaloa, for his famous journey to the Missouri river. Every school-boy knows the story of this expedition. With it really began the Spaniards' acquaintance with New Mexico. From that time New Mexico was the frontier and many attempts were made to occupy the country. Probably the first was at the Pecos village, now a thing of the past. The ruins of the cathedral still stand a few miles from the Atchison, Topeka & Santa Fé Railroad station, to tell of the priests who came to Pecos and built it in 1550. Santa Fé was a flourishing pueblo before the Spaniards saw it and was first occupied by them in 1583, when De Espejo told the story of the cross to its inhabitants. Spanish rule dates from then. In 1595-99 Spanish soldiers were stationed in the town, and the Spaniards soon began their system of forcing the Indians to work the mines. In 1597 Onate led a colony of "immigrants" into what is now Rio Arriba county and they located at San Gabriel, now Chamita. Pedro de Peralto the first *Gobernador*, came in 1600. For the next eighty years there is no very authentic history. In 1680, however, the Pueblos rose against the Spaniards and drove them out, destroying the churches. Nor were they reconquered till Diego de Vargas marched into the country in 1694. In 1799 there were 23,769 Spaniards and 10,369 mission Indians in the province.

In 1804 Kaskaskia, Illinois, sent the first merchandise across the plains to New Mexico. In 1806 Zebulon Pike, U. S. A., on an exploring expedition, was brought to the Palace at Santa Fé and held as a prisoner. The overland trade from the United States virtually dates from 1822, when New Mexico shared the independence of Old Mexico. The first

newspaper, "*El Crepuscula*" (The Dawn), was issued November 29th, 1835. In 1837 a revolution occurred, and Jose Gonzales, a Pueblo Indian, was proclaimed Provisional Governor. Gonzales had the misfortune to be shot a few months afterward, and a counter-revolution took place. In 1841 the Texans tried to take possession of New Mexico, but were not successful. On the eighteenth of August, 1846, General Stephen W. Kearney, U. S. A., took possession of Santa Fé. The overland trade for 1846 amounted to \$1,752,250. September 4th, 1847, the first English newspaper was established and called the *Santa Fé Republican*. The first legislative body met December 6th, of this year. By the treaty of Guadalupe-Hidalgo, February 2d, 1848, New Mexico became a part of the United States. Senor Vigil had previously been made Civil Governor. Later in the year Lieut.-Col. J. M. Washington, the military commandant, filled the duties of that position.

In 1850 the people organized and asked that New Mexico be made a State. Wm. S. Messervey was sent to Congress and was admitted as a delegate. September 9th, 1850, the act making New Mexico a Territory passed. March 3d, 1851, the Territory was organized, with John S. Calhoun as Governor. The Legislature met at Santa Fé July 14th. Monthly mail routes east were established in 1850. In 1857 they became semi-monthly and in 1858 weekly. It was in this year that the overland mail coach line to the Pacific was established. It required twelve days and fourteen hours to go from Missouri to San Francisco. During 1859, 5,405 men, 1,532 wagons, 4,377 mules, 360 horses and 12,545 oxen were employed in overland transportation. The carrying capacity was 7,660 tons. In 1861 a portion of New Mexico was given to Colorado and in 1863 Arizona was organized out of western New Mexico. During the civil war New Mexico was the scene of several battles. The Union forces were generally successful. In 1869 a telegraph line was established to the Missouri and a daily paper published. In 1877 the telegraph line was extended to the Pacific. The first track laid in New Mexico was that of the Atchison, Topeka & Santa Fé Railroad, November 30th, 1878. The road reached Santa Fé February 9th, 1880, Deming March 10th, 1881, and El Paso June 10th, 1881. In 1883 the

Atlantic & Pacific Railroad was opened, so that there are two trans-continental routes across New Mexico. March of 1884 saw the Mexican Central open to the City of Mexico. This road, with the Atchison, Topeka & Santa Fé Railroad, forms the great International Route to the City of Mexico. The two roads practically belong to the same men. Theirs are the only trains that connect in a Union depot at El Paso for Mexican travel. Since the completion of the railroads, New Mexico has developed in a marked degree. Energy and capital combine to open the vast resources of this Territory, which, ere long, will be clamoring for admission as a State. The mineral wealth is beginning to be appreciated and the agricultural possibilities understood. Manufactories are being established. About one hundred miles southeast of Albuquerque is the Gran Quivera. It is a great city in ruins. The streets are filled to the roof with debris and sand. There is one building one hundred and sixty feet by eighty feet. The ceiling of the ground floor is nearly fifty feet high. Thousands once made this city their home. It is not built of adobe, as the Spaniard builds, and antedates their arrival by centuries. It is the relic of a civilization as interesting, as curious, as far advanced as that of the Nile. It is the past of New Mexico. Soon this Territory will boast a score of Gran Quiveras, but these will be crowded by a busy people. New Mexico's future is at hand.

DESCRIPTIVE.

New Mexico contains 121,201 square miles, or 77,568,640 acres. Its length on the eastern boundary is 345 miles and on the western 390, with an average breadth north of the thirty-second parallel of 335 miles. The Territory consists of high, level plateaus, intersected by mountain ranges, often rising into high peaks, between which lie fertile valleys. Before entering New Mexico from the north, the Rocky mountains divide into two ranges. The loftier one ends near Santa Fé. The Sierra Madre, crossed by many passes, extends across the Territory to Old Mexico. About two-thirds of New Mexico lie east of the Sierra Madre. Other minor ranges extend from the main range as spurs in several parts of the Territory. But New Mexico is much less of a

mountain country than its northern neighbor, Colorado. To realize this, one should remember that the Denver & Rio Grande Railway could do no better than cross the mountains at a height of 10,725 feet, while the South Park Road could find no lower pass than one with an altitude of 11,525 feet. But the highest point attained by any railroad in New Mexico is 7,537 feet above sea-level, at Glorieta, on the Atchison, Topeka & Santa Fé, and all other railroad passes are at a much lower altitude, except that over which the Atlantic & Pacific crosses the range at an altitude of 7,306 feet. The reader will see at a glance that New Mexico is much less of a mountain country than the Territories to the north of it. As a result, a much larger portion of it is adapted to grazing and farming. This gives New Mexico an advantage which needs but to be understood to be appreciated. In northern New Mexico the table lands rise from 6,000 to 7,000 feet above the sea. In the central part they attain an elevation of some 5,000 feet and in the south are about 4,000 feet above sea-level. The tips of the mountains reach from 2,000 to 5,000 feet nearer the sun. Mt. Baldy, eighteen miles from Santa Fé, is 12,202 feet high. Despite the almost universal belief that New Mexico is a mountain Territory, stock may be grazed over near two-thirds of its entire area, and the amount of irrigable and arable land has been estimated as high as 12,000,000 acres. Rising in Colorado, the Rio Grande enters New Mexico at an altitude of 7,400 feet and leaves it at El Paso, 3,660 feet above the sea. From the west, the San Andreas, Chama, Jemez, Puerco of the East, Alamosa, Cuchilla Negra, Palomas, Las Animas, Perche, and many minor streams, come from the mountain tops to swell the waters of the royal Rio Grande. The Castilla, San Cristobal, Taos, Picuris, Santa Cruz, Santa Fé, Galisteo, Alamillo and others pay their tribute from the east. Northeastern New Mexico is drained by the Canadian. The Cimarron, Mora, Sapello, Concha, Pajarito, Ute, Trujillo, and a number of others, empty into it. The Pecos has its source in the mountains, between Las Vegas and Santa Fé. It runs nearly due south, swings over into Texas, and finally reaches the Rio Grande, 170 miles southeast of the New Mexico line. Among its tributaries are the Gallinas, Salado, Buffalo Creek, Wylie's Creek, the Rio

Hondo, Rio Felix, Cottonwood, Rio Penasco and Black river. The San Juan flows through northwestern New Mexico, receiving the waters of the Rio de los Pinos, Las Animas, La Plata, Largo, Chusco and other streams. The Zuni river, Rio San Francisco, and other streams, rise in western New Mexico and flow into Arizona towards the Rio Colorado. In southwestern New Mexico the Gila river takes its rise and flows into Arizona—one of the greatest rivers on the Pacific slope. The Rio Mimbres also assists in watering this part of the Territory. A glance at the map will show that there are a host of streams in New Mexico. And one can understand that there are large, fertile valleys, with plenty of water for irrigating purposes. When the valleys shall be settled and developed, artesian wells will be dug on the mesas and the great plains now devoted to stock-raising will be made into farms.

AGRICULTURE.

In 1883 there were 46,566 acres planted in corn in New Mexico. The total yield for the year was 930,100 bushels, an average of twenty bushels per acre. Of wheat there were 65,195 acres sown, with a yield of 977,900 bushels, fifteen bushels per acre. 11,760 acres were sown to oats, with an average yield of seventeen bushels, a total of 199,800 bushels. There were 631,131 acres in farms, with an average value of \$8.74 per acre, so that the farms are worth \$5,514,399. The value of the farm products for 1883 was \$1,897,974. On the first of December, 1883, an average price for corn, the Territory over, was eighty-three cents per bushel, for wheat \$1.05, for oats sixty cents, barley eighty cents, potatoes \$1.00, per bushel. All of these facts are from the December report of the United States Department of Agriculture, which further says that thirty-five per cent. of the people are engaged in farming. For countless generations the Pueblo Indians have tilled the soil. Around every farming community is a great mining community depending on the farms for food. Irrigation assures the crop and the mines assure the farmer of good prices. Wherever there is a foot of soil to which water can be conducted, farming will pay. It is a mining country, but every man who can farm is sure of a paying

business. And yet there are those who will say: "Oh yes, I know New Mexico is good enough for a mining country, but then you can't farm any. It's no good for farming." Well, nobody pretends that it will rival Kansas as an agricultural State. Of course it is a mining region. But it is about time men should know that valleys and mesas are wondrous fertile and offer excellent inducements to the settler. Wherever water from the royal Rio Grande or its tributaries is turned on the soil, it blooms into beauty and blossoms into fruitage.

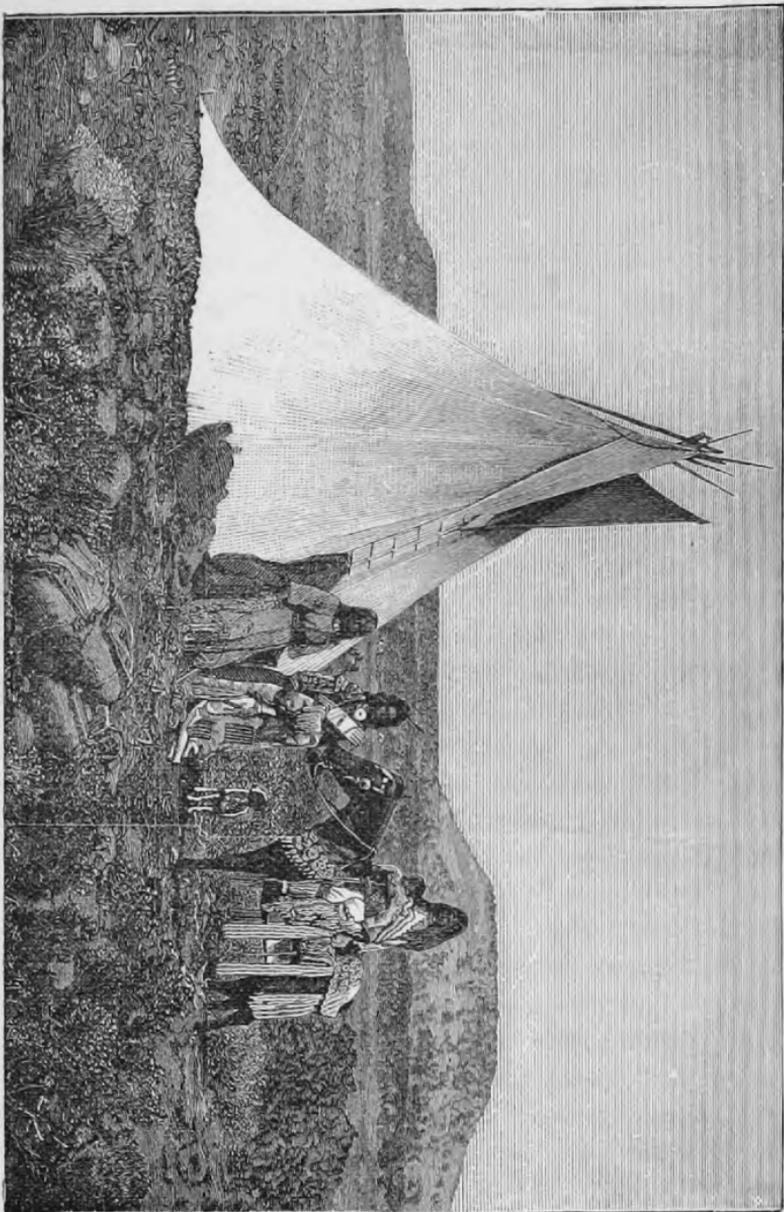
Except in the mountain parks, irrigation is always necessary. This is, however, no objection, but rather a benefit. It insures a crop every year, and it is universally conceded that much better crops are grown by irrigators than by those who depend on the clouds. It is irrigation that has made Los Angeles, California, famous for the variety and extent of its agricultural and horticultural development. So far from being against the country, it is one of the strongest arguments in its favor that it possesses superior facilities for extensive and successful irrigation. It has been estimated that there are 12,000,000 acres of irrigable and arable land in New Mexico. And it must be remembered that there are 121,200 square miles in the Territory. Of course a great deal of grain will be grown and vegetables will be produced in immense quantities, but it is evident that horticulture will be the leading rural industry. Particularly in the southern part of New Mexico, where the grape flourishes in an almost phenomenal way, this will prove true.

STOCK-RAISING.

The immense areas of mesa lands, covered with a rich growth of nutritious gramma grass, have made possible the extended growth of the stock interests which has taken place. It is still an open question as to which will eventually take the lead, the stock or mining interests. Men have accumulated fortunes by raising cattle and sheep which rival, and sometimes surpass, those of the miners, both in amount and in rapidity of acquisition. Hundreds of thousands of acres of the range are still practically free to any one who will drive his cattle over them. There are fifty millions of acres of grazing lands in New Mexico. Water for

millions of head of stock is found on the Rio Grande, Rio Pecos, Canadian, their tributaries and minor streams. As the valley and the mesas adjacent to the streams are occupied, the great plateaus will come into use, and a vast number of artesian wells will supply water in sections where the grass is abundant but surface water scarce. Nor will the water supply be confined to artesian wells, as the settler will often find water at an ordinary depth. It is too early, by a hundred years, to attempt to estimate the number of cattle and sheep that will finally be pastured in New Mexico. What is possible on those almost boundless plains there is yet no means of accurately estimating.





INDIAN LODGE IN THE UINTA VALLEY.

ARIZONA.

Arizona! The musical word. What associations cluster thickly around thee. The newest part of the new world, and yet thy vast ruins of an ancient civilization, extending all over thy bosom, tell that thou art older than the historian can tell. Of late years Arizona has been the "dark and bloody ground" of the frontier. Her name has been linked with savage massacres, fiendish murders and sickening torture at the hands of the blood-thirsty Apaches, who slaughtered all who fell into their hands, sparing neither age nor sex. No portion of our country has witnessed a more deadly struggle than that waged by the pioneers of this country against the savages who swarmed around them. For years this warfare was maintained by the handful of whites scattered over the Territory from Utah to the Sonora line. Isolated from the centers of population, and surrounded on all sides by their savage foes, the gallant and heroic band maintained the unequal contest, and although hundreds of them fell victims to savage treachery and left their bones to bleach on the desert plain and mountain side, the red man was compelled at last to yield to his destiny.

No writer of Indian fiction ever imagined more desperate combats, more hair-breadth escapes, more daring courage and self-sacrificing devotion than the history of the Apache wars in Arizona will show when the future historian shall have collected the facts and written them up. The intrepid daring and self-sacrifice of the early pioneers who won this rich domain, foot by foot, from the savage occupants yet remains to be written and will be one of the bloodiest pages in the history of our frontier settlements. But this is all changed now. With the advent of railroads the Indian massacres disappeared; with the Atlantic & Pacific

Railroad crossing the Territory, the whistle of the locomotive is ringing through the valleys and the neigh of the iron horse is heard among the mountains, instead of the war-whoop of the savage and the cries of his murdered victims. The smoke of the smelter, the furnace of the manufacturer and refiners, now ascends to heaven, instead of the smoke of the burning homes of the pioneers. Across the Territory the palace car carries the travelers with speed and in safety.

A new era has dawned for Arizona—an era of peace, progress and prosperity. The demon of isolation and the curse of savage dominion, which so long brooded over the land, have been swept away by the tide of advancing civilization, and Arizona's future is bright with the promise of a powerful and a prosperous State. The word Arizona is derived from two *prima* words: "Ari," a maiden, and "Zon," a valley or country. It has reference to the traditional maiden queen who once ruled over all the branches of the *Prima* race. Its early history, or rather the history of the early Spanish adventurers, is the same as that of New Mexico, which I have already given. Long before the founding of San Augustine, long before Puritan or Cavalier had stepped upon Plymouth Rock or Jamestown, Spanish adventurers had invaded what is now Arizona, and the wonders of the "Seven Cities of Olbola" was well known to them. The thirst for gold and glory, and the desire to extend the influence of the cross, bore down all opposition. Of the many expeditions of the old Spaniards, and their cruelty and treachery to the peaceful Indians whom they found, I need not relate. Their trail was marked by desolation and blood. The kindness of the Indians whom they found was rewarded with cruelty. Following closely in the wake of that army of cruel and daring adventurers, fired with the thirst for glory and gold, who conquered the vast empire of the Montezumas and penetrated to the wild regions of the Northeast, came another army, which made up in fiery zeal what it lacked in numbers; an army proclaiming "Peace on earth and good will to men," whose standard was the emblem of Christianity and whose mission was the spread of the Gospel among the tribes of the Southwest. And their cruelty was little less than the Spanish hordes who preceded them. Here they found a peaceful, industrious

people, living in houses in cities, tending their flocks, raising corn, wheat, potatoes, melons, beans and other agricultural products.

Notwithstanding the country was invaded in 1538, it was not until toward the close of the seventeenth century that any permanent settlement was made in Arizona. At the close of the Mexican war, by the treaty of Guadalupe Hidalgo, in 1846, all that portion of Arizona north of the Gila river was ceded to the United States. At that time there were not 300 white people in the Territory, and they were at Tuscan and Tubuc; and, outside of a few Indian pueblos, the savage Apache was lord of mountain, valley and mesa. In 1854, under the Gadsden Purchase, the United States acquired from Mexico that portion of the Territory between the Gila river and Sonora, the price paid being \$10,000,000. Arizona remained part of New Mexico until February 24, 1863, when an act was passed organizing it as the Territory of Arizona. The capital was at Fort Whipple at first, but it was soon afterward removed to Prescott, where it still remains.

The Territory of Arizona comprises the extreme southwestern portion of the United States and contains 114,000 square miles, or 72,906,240 acres, being as large as New York, Pennsylvania, New Jersey, Maryland and Delaware combined.

The physical features of the Territory may be described as a series of elevated plateaus having an elevation of from 100 feet in the southwest up to 7,000 feet above the sea-level in the north. The mountains of Arizona are among the most interesting physical features of this wonderful country and excite the admiration of all who behold them. Their general direction is from northwest to southeast, extending over this lofty plateau the entire length of the Territory, not in continuous ranges, but often in broken and detached spurs. The San Francisco, the highest and most wonderful in the Territory, rise out of the level plain, having been thrown up by volcanic action, the mighty mass of rock now standing on edge, lifting their old, scorched edges up into the pure air 14,000 feet. Their sides are covered with heavy pine timber and the finest grass in Arizona is to be found here. Narrow valleys and wide, open plains lie between the mountains, while deep cañons and gorges, formed by

the rains and floods, which sometimes rush with irresistible fury and force from the mountain barriers, cross the country in every direction. The most extensive of these grand mesas or table lands is the Colorado plateau in the northern portion of the Territory, occupying nearly one-half of its entire area and which has an elevation of 6,000 feet. It is not a level plain, but its surface is diversified by lofty peaks and isolated ranges and is covered with fine grasses; numerous rivers meander through it, in some places having cut deep cañons and again widening out into beautiful and fertile valleys. In no other land can be found such a beautiful panorama of mountain and valley, river and cañon, mesa and hills of strange and fantastic shape. Through this portion of the Territory the long line of extinct volcanoes, and the immense lava fields, show conclusively that Arizona was, in ages past, the scene of active eruptive agencies.

The southwestern portion of the Territory may be described as composed of wide, sandy plains, covered in places with a sparse growth of grass and dotted with peaks and detached spurs of mountains. The southeastern portion is made up of mountain ranges, which sometimes rise in commanding peaks, like the Santa Ritas and Mount Turnbull, with grassy plains and rich valleys lying between.

The central portion of the Territory can show some of the most attractive scenery on the continent, if not in the world. It is also the best watered portion of it and contains the largest body of agricultural land in Arizona.

The geological character of the Territory exhibits almost every formation to be found on the American Continent. Around the "Grand Colorado" the surface rock is a pure sandstone. The main ranges through the central portion of the Territory are composed of granite, porphyry and slates. The mountains extending southeast from the great cone of the San Francisco are mostly of volcanic origin. In the southwest is granite, limestone porphyry, trap and much metamorphic rock. The lower portion of the Great Colorado basin, and central and southern portions of the Great Colorado plateau, bear traces of violent volcanic disturbances and are covered in places with scoria and ashes; its

upper portion is composed of granites, porphyry and slates, with here and there isolated ranges and ragged peaks scorched and riven by the fiery floods that have swept over this park of Arizona in ages when our earth was new.

No wonder that Humboldt, nearly a century ago, and other scientists since, have wandered to Arizona for scientific study, for it is a land of marvels for the scientist, the tourist and the sight-seer. Nowhere on the globe can the operations of nature be traced more clearly and distinctly. Arizona is a land that offers to the geologist and mineralogist a field both instructive and interesting — a land where the great book of nature lies open with the record of countless ages stamped in its broad, open pages. Torn and riven by stupendous gorges and deep cañons, crowned by lofty mountains and diversified by immense plains and grassy parks, beautiful valleys and elevated masses, this country in variety, weird beauty and massive grandeur is not excelled anywhere. The marks of water, and in many places the fossils of marine animals, show conclusively that Arizona was once an inland sea; and the isolated mountain masses, rising like islands above its surface, and the fantastically castellated buttes which dot its immense plains, show plainly the erosion caused by the retreating waters.

THE COUNTRY

OPENED BY THE

ATLANTIC & PACIFIC RAILROAD

is rich in minerals, in timber, and in its adaptation to agriculture and stock-raising, while the climate is not equaled by that of any other portion of our country. It has been named the "Italy of America," and most deservedly.

MINERALS.

Notwithstanding the fact that until very recently Arizona has been the most inaccessible of all the States and Territories, she ranks fourth in her bullion output, having produced in 1882 nearly \$10,000,000. Going west from Albuquerque, the traveler reaches at Gallup Station, near the western line of New Mexico, one of the largest coal deposits in the world. This coal is not bituminous, but is called lignite, and is almost equal to the best Pennsylvania anthracite. The coal field at Gallup is about twelve miles wide from east to west, but its extent north and south shows it to be well nigh inexhaustible. This deposit is supposed to be the same bed which underlies southwestern Colorado.

North of the railroad the coal belt widens, covering nearly the whole of the Navajo and Moqui Indian reservations and extending into southeastern Utah. When it is remembered that there is no coal of any consequence in California, and that San Francisco and southern California must get coal by water from Oregon or Wales, or by rail from Nevada, and that the Southern Pacific Railroad must get its supply from these fields, their importance can be the better appreciated. At Gallup there are five different veins of coal, one above the other, and

about thirty feet apart, which are two and one-half, four, six, four and two and one-half feet thick, respectively. The daily product of the mines now being worked at Gallup is 200 tons. The operators claim to have discovered recently a good cooking coal.

Aside from the coal interests, the Atlantic & Pacific Railroad will always derive a large revenue from the gold and silver mines west of the San Francisco mountains and in the vicinity of Prescott. Mineral Park has been a camp for years, but some late strikes of fabulous richness have been made and people are flocking into it with booming rapidity. Almost every known mineral, including tin, is found between the big and little Colorado rivers, and a deposit of petroleum has been discovered near Fort Wingate, in New Mexico. The Mineral Park district, Gold Basin and Lost Basin districts, in Mohave county, Arizona, were discovered about ten years ago, and although far away, hundreds of miles from any base of supplies, hundreds of adventurous miners and prospectors have located and held claims through all these years and against all obstacles. Even without any proper facilities for treating ores in the region, and with the enormous expense of supplies and shipment, a number of mines have been worked at a good profit. The ores here are very rich, running away up in the hundreds and thousands, and now that the railroad gives the district a means of cheap supply and cheap transportation, the mines will yield unparalleled profits. The best informed mining men who have visited these districts claim that they are unsurpassed, if ever equaled, in the extent and richness of minerals. The most sagacious miners are taking time by the forelock and getting ready for the great boom that is to come in the spring. The Hackberry district, in the same county, and within a few miles of the railroad, has already started with a boom. The ores here are very rich. People are going in by scores and men of capital and mining experience are taking hold of properties with a confidence seldom witnessed in mining districts. One company is erecting a large smelter and in a short time every facility will be provided for the rapid development of mines. It is the general belief that the coming season will witness a big mining excitement—a grand rush of miners and capitalists to this new

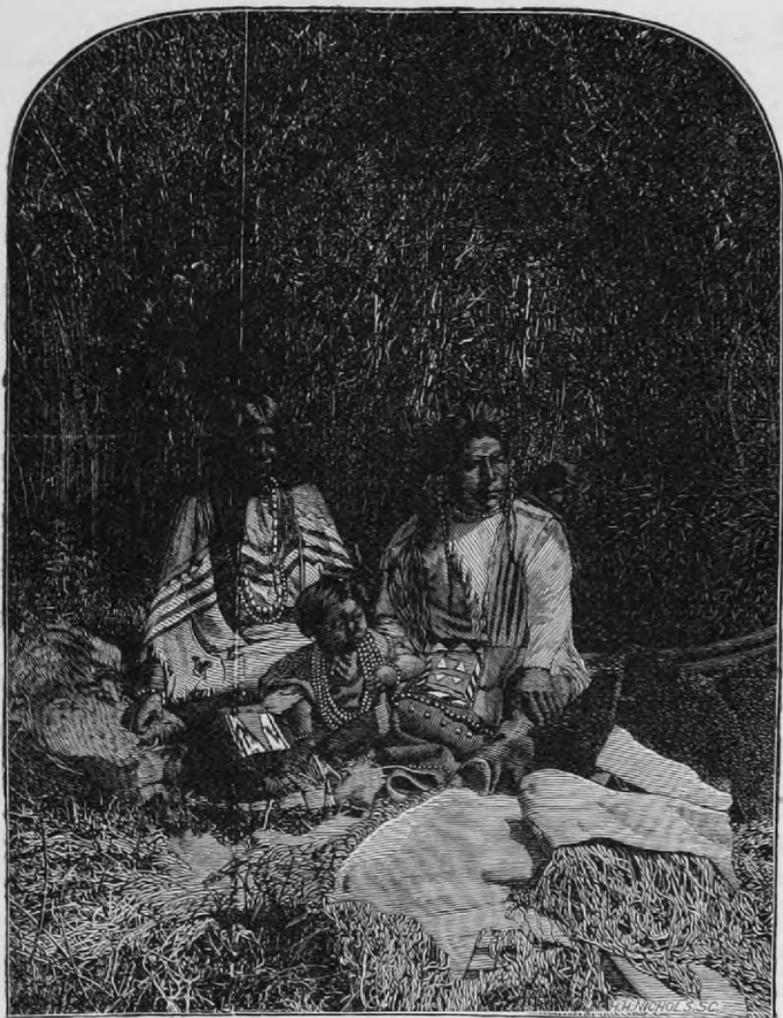
Eldorado of the West. No mining section has ever shown such astonishing results with so few advantages and under such adverse circumstances and no mining section now known offers equal inducements for prospectors and investors. Enough development has been done in the various districts, amounting in numerous cases to 200, 300 and 400 feet, to demonstrate beyond question the existence of gold and silver in the veins in quantities that will pay large profits. The Tonto Basin mining region, near Winslow, also gives big promise. There is always more or less of unfriendly rivalry between the western States and Territories. Nevada sometimes sneers at what she calls the shallow deposits of Arizona, but if they do not go down to an unworkable depth, as in Nevada, they generally pay from the start. It is said that not one of the leading mines of Arizona has ever levied an assessment on its stockholders.

Arizona copper mines are very promising. Their development has only just commenced, but the product in 1882 was 15,500,000 pounds, and this Territory ranks second in this respect in the United States. Some of the ores yield seventy-five per cent. of pure copper.

In the Zuni mountains, in the neighborhood of Grant's Station, New Mexico, some big veins of this ore have been discovered. Albuquerque parties have located claims here reputed to contain bodies of rich copper ore and preparations are being made to develop them. Copper has been found in various places along the line of the railroad and copper mining promises to become one of the most important among the great wealth-producing industries of New Mexico and Arizona.

Salt is found in large quantities in various localities and will constitute an important article of commerce.

Splendid building stone of different varieties is also found in abundance.



SAI-AR, THE INTERPRETER, AND HIS FAMILY.

THE BOUNDLESS WEST.

AN ALMOST UNKNOWN LAND OPENED

BETWEEN

ALBUQUERQUE AND MOJAVE.

INTERESTING AND INSTRUCTIVE ACCOUNT OF A TRIP
THROUGH THE COUNTRY.

BY H. N. RUST.

(Chicago Inter Ocean.)

The Atlantic & Pacific Railroad opens a tract of country heretofore little known and difficult of access.

The accounts given us by explorers have given us items of great interest, but so different from any within our knowledge we could hardly comprehend the truth. Enormous cañons, deep craters, towering palisades and wide-spread lava beds must be seen to be known. These, and much more of interest, may be seen from the windows of the new and elegant cars of this well-equipped road. The Western tourist should spend at least one day at Albuquerque, visiting the old town about two miles from the depot and easily reached by a street railway. The old adobe church, a veritable antique, still in daily use, is in itself well worth the visit. Think of the great throng of ceaseless worshipers who have bowed before this shrine and have long since gone down into the unknown, without even a dream of our beautiful churches and improved

styles of worship. To the traveler who feels an interest in the Aborigines of our country, as historian or philanthropist, a visit to the Indian school one mile further out will be well repaid. The school is supported in part by the government and conducted by the Presbyterian board. It numbers about seventy pupils, gathered from the different tribes, and appears to be well conducted. The school system is evidently one of the best means of settling our differences with the Indian races. Taking a train at Albuquerque for the west, we soon come in near view of the pueblo or village of Laguna, situated to the right of the railroad and built upon a rocky eminence without verdure of any kind. The communal dwelling, built of adobe, two and three stories high, only accessible by ladders, as there are no doors upon the ground floor, is a strange sight, and the strange people who swarm about the dwelling, partially dressed in buckskin and blankets of their own manufacture, form a picture not soon to be forgotten and sure to create a desire to know more of their customs and their ancestry. Were their ancestors the aborigines of this continent and were the Mound-Builders of the States a branch of this family? Did their Adam first see the light of day in this almost unknown wilderness?

Let us look carefully each step and note all the evidences we can find of human occupancy. A few miles farther on we reach McCarty's Station, which, like many stopping places along a new line, has few buildings, save those built and occupied by the railroad employes. Twelve miles from McCarty's Station is the pueblo of Acoma, one of the most accessible and interesting in New Mexico. Mounted upon an Indian pony, we gallop over hill and plain until we reach the Acoma valley. This is a wide cañon from two to three miles wide, the sides of which are almost perpendicular cliffs, with here and there narrow defiles and trails, by which we descended from one to two hundred feet into the valley. As we approached before descending we look across about three miles, where, upon an elevated mass of rock standing isolated in the plain, is built the pueblo of Acoma. It being of adobe, it is with difficulty we could distinguish the building from the gray rock on which it is built. We dismount and lead our ponies down the difficult steep to

the plain. Just at the base of this cliff we find a large spring of good water, most grateful to the traveler in this dry country. After watering our ponies we remount and rapidly gallop across the plain. As we draw near to the pueblo we find there are several great monuments or pillars standing isolated from the main pile upon which the village is built. They will measure from thirty to eighty feet in diameter and from 100 to 200 feet in height.

These great columns, or models of stone, look as if they had been pushed up through the earth's surface. They are of sandstone and are fast disintegrating and wasting away in the wind. Upon a similar eminence, with a level top of about two acres, is built the pueblo. Excepting the southern side, the walls are so nearly perpendicular as to be inaccessible. Here the sand drifts in large quantities and reaches half way up the cliff. Over the hot, loose sand we climb until we reach a narrow trail or path through which we reach the top. A part of the way the path is only wide enough for one animal to pass at a time. In some places steps have been cut in the rock to secure a foothold for man or beast. Reaching the top we have an extended view up and down the valley for many miles. We look down upon the towering monuments we have just passed, which look like sentries standing guard at the entrance of this strange village. The original builders, we are told, selected this site that they might the more easily defend their homes from their enemies. All about in the plain we see patches of corn, beans and pumpkins. The iron age has hardly reached this people yet and no iron or steel plow has yet broken the sod for them. The most primitive wooden plow is still in use and a sharp stick is used for planting the seed instead of the hoe. Large flocks of sheep and goats are seen quietly grazing, carefully guarded by some Indian boy or girl, who have no more idea of school-houses and books than the sheep they watch over.

A few cattle are in sight and at evening about 100 burros were driven up the narrow trail and carefully corraled in an old unused adobe church-yard, which was built about 100 years ago by the Romish Church. Here, in one corner of the church building, my guide has a

few goods stored for trade with these people and here we camp. The natives, noticing our arrival, come about to welcome us and to gratify the same feeling of curiosity which has brought us here.

The dress, and absence of dress, to a stranger, is not likely to impress one favorably, and the prevailing fashion of banging the hair sadly disfigures their plain, honest faces. Our first greeting was in keeping with their general habit of courtesy and kindness. A woman brought a jar (or olla) of water, setting it down in front of us to drink, saying: "I saw you coming over the plain; knowing you would want water when you were here I went to the pool and brought this for you," and when I tell you she had to go in the hot sun nearly half a mile down the steep, rough rocks to reach the pool, and brought the jar of two gallons of water upon her head, you can appreciate the act as one of real, generous hospitality.

Has civilization improved upon this? I cannot here give details of the manners and customs of these people. I went there to study them, to trace, if traceable, evidences of these being the same people who have built mounds of so many forms east of the Missouri. I found them using several implements, duplicates of which I had found in the graves of the Mound-Builders. I saw them planting corn with a sharp stick and grinding it to a fine flour by rubbing it upon a large stone with a smaller hand stone.

I saw the women spinning wool, twisting by a common stick or spindle, weighted with a small disc or spindle wheel, exactly like those I had found in Mound-Builders' graves in Missouri. The common, rough, discoidal stone, generally supposed to be used in games, I saw them using to crush pumpkin seeds for food. I was much interested to examine the whole process of making pottery. They use a soft stone which they reduce to a fine powder in the same way and with the same utensils with which they grind their corn. Adding water they form a putty or clay.

They take a mass of this in globular form, place it upon a small flat stone lying on the floor. Then with the fingers they form the bowl or vessel, raising the walls by pressure, smoothing the sides with a small, smooth, water-worn pebble, often wetting the same.

When the vessel is formed it is partially dried in the sun, then painted with mixed colors, which they pulverize in stone mortars and apply with brushes made of the fiber of the tucca. When ready to bake the vessel is set upon a rock in open air and pieces of dried manure are piled all around and over it, then set on fire, and the whole mass is soon brought to the color of a live coal. Then the coals are removed by a stick, the vessels rolled away from the fire to cool, when they are ready for use. These vessels are made in a great variety of forms and sizes for all purposes of domestic use, some of them nearly as large as a barrel. The water-worn stones which I saw them use in smoothing pottery were precisely like others I had found in the graves of the Mound-Builders, and I consider it fair to conclude they were used for the same purpose.

Awls made of the small bone of the leg of the deer I found in the Mound-Builders graves, and here I saw the same thing in constant use to adjust the warp and woof in weaving.

The raising of sheep and corn, the grinding grain by hand for food, spinning wool and weaving the same into blankets for clothing and making pottery are the principal occupations of this people. Their implements are few and nearly all of perishable material, so that if the Mound-Builders were the same people and used the same implement we could not expect to find more than we do, since in a moist climate all except stone or pottery must soon decay.

We find among all prehistoric remains ornaments and implements of shell and stone with neatly drilled holes. The question is often asked, how could they drill them so correctly? At Acoma I saw the process. An Indian was making beads of shell. He first broke the shell into rough pieces near the size of the bead to be made. The drill is made as follows: A piece of hard wood is formed like an arrow, straight and smooth, about fifteen inches long by half an inch in diameter. In one end is fastened a bit of hard stone, or more generally a piece of file or awl. Attached to the opposite end of the drill are two strings about ten inches long. These are tied to each end of a piece of wood one inch wide and eight inches long, in the center of which is a

hole large enough to receive the drill. Through this hole the drill is put. Then, being held in an upright position and revolved by the fingers, the strings are wound around the drill and the cross-bar raised toward the top of the drill-shaft. It is now ready for use. Setting the drill securely upon the piece of shell or stone to be drilled, and holding the drill steady at the top, the operator seizes the cross-bar in his fingers, pressing it quickly downward. The strings being wound upon the shaft unwind, causing the drill to revolve rapidly. Then loosening the cross-bar, the strings rewind upon the shaft and another downward motion causes the shaft to revolve rapidly in the opposite direction. In this way a constant rapidly revolving of the drill soon forms a round, smooth hole. This is evidently one of the ways in which the prehistoric people drilled hard stones so nicely.

Passing westward from Acoma, we leave Mt. Taylor on the north, snow-capped, 13,000 feet high.

The strange geological condition of the country excites constant wonder and admiration. Near Grant's Station the road winds among lava beds, walled in by great ridges or waves of lava, black and ragged, bare of vegetation, reminding us of the Modoc war; but no angered, cheated red man lurks here; a lonely herder with a few cattle may be seen near the water-courses; a stray wolf or antelope reminds us that animal life is not quite extinct on this broad lonely plain. As we approach the continental divide the valley opens southward into great elevated plains, sparsely covered with a stunted growth of cedar far as the eye can reach.

The road runs along the northern side of this plain and upon the right for many miles stands a line or constant succession of great red and gray buttes or palisades. Terraced and capped with green, sometimes marked in the face with a long line or ribbon of white, here and there an isolated mass stands alone in the plain with a huge bowlder nicely poised on the top, which looks as if it was ready to fall into the smooth, velvet-covered plain below.

From the summit of the divide we look far downward over the Pacific slope and realize we are going west as the train rushes down the

slope at sixty miles an hour. We soon pull up in front of a nice station-house and stop at Coolidge for dinner.

Ten miles farther on we leave the train at Wingate, and, taking a seat in the government mail-wagon, we soon reach Fort Wingate, three miles from the station. This post is pleasantly situated upon a mountain slope, which overlooks a wide expanse of broken country. Prominent in view stands a towering rock known as "The Navajo Church," from its close resemblance to a high church spire. Scarce anything is more agreeable to a traveler in a wild, unoccupied country than to reach a well-conducted military post. The old flag greets you with its friendly protection; the officers, always gentlemanly and polite, give one a feeling of home and rest always grateful. We found the commandant at Wingate, Lieut. Col. Crofton, a most agreeable gentleman, engaged in suppressing what would have been under different management an Indian outbreak, a possible Indian war. A soldier had just shot and killed a young Indian; the father immediately ambushed the soldiers and killed one and wounded the second. The post was notified and a squad sent out, which recovered the body and wounded man. The Indians were promptly notified that they must deliver up for trial the Indian who did the killing, that if he was guilty he must be punished. They did so, and the trial was soon to come on. The Indians seemed to have full confidence in Lieut. Col. Crofton and looked for a fair trial and no further trouble was expected. The general disposition among officers, men and Indians alike to deal fairly with each other was very gratifying and indicates the spirit of the commanding officer.

Our visit to Zuni, forty-five miles away, was full of interest; but Zuni has been so well described by others I will pass it, only saying that the next time the government sends an educated man among them to learn their heathenish ways, he may leave among them some sign that shall indicate that our civilization is a better way. Having seen the pueblos, we now pass on, leaving many other equally interesting Indian villages and great natural curiosities, to examine the Cliff-Dwellers of the Arizona cañons. At Gallup Station we are surprised to see long lines of cars loaded with a superior quality of coal, which is being mined

here at the rate of 200 tons per day. Holbrook is the next dining station and from here five lines of stages are ready to carry the traveler in different directions to points of interest. Sixty miles farther west we dash over the Cañon Diablo, a fearful chasm sharply cut in the level plain 222 feet in depth and 540 feet wide, spanned by a splendid iron bridge. Thirty miles farther we reach Flagstaff, a brisk little village nestled under the shadow of the lofty peaks of the San Francisco mountains.

We are now in the midst of a delightful country, about the same altitude as the City of Mexico. In all directions natural beauty greets the eye; grand, snow-covered mountains, 13,000 feet high, cool the heated atmosphere below. Beautiful natural parks, covered with a rich growth of gramma grass, skirted by a handsome growth of heavy, yellow pine timber, form a picture unusually attractive. A Chicago firm has built a fine lumber mill here and are doing a large business, shipping lumber to Los Angeles and to Mexico. A drive of eight miles southeast from Flagstaff, through one of these beautiful, timbered plains, brings us to an enormous cañon, which we in eager haste descend by a rough pathway. Fortunately the rock is a rough sandstone, which enables us to cling securely where otherwise we would scarcely dare to pass. We reach a bench or ledge about half way to the bottom of the cañon. Turning to the left we see at short distance apart upon the same level the famous cliff-dwellings. Across the deep chasm, up and down the cañon on either side and as far as the windings of the cañon will permit, we see the same kind of human habitation. "Who were they?" "Why did they live here? and when?" and "How did they subsist?" are questions which may possibly be answered by examining the remains of these dwellings and the debris of their lining. After taking a careful look at the walls we carefully and systematically dig over with shovel and trowel all the dirt remaining within the walls of the dwelling, hoping to find such articles as they may have used and which have not entirely perished.

The dwellings are built in the space between two hard strata of rock where the softer has disintegrated and gone. The lower ledge varies in

width from three to twenty-five feet, and upon the wider spaces the dwellings are located; a rough wall laid in clay extending to the ledge above forms the front and two ends of the primitive dwellings, a doorway being left in the front wall. The rocky ceiling is blackened by long-continued smoke and the crevices in the upper part of the walls are filled with considerable quantities of pitch condensed from the smoke, which must have filled the room as there was no chimney to facilitate its escape. The fires were generally built against the rear walls, as evidenced by ashes and smoked walls. The most noticeable articles found in digging over these dirt floors were a few stone implements, fragments of pottery, fabrics woven of cotton and wool, a spindle-wheel of wood, a sandal of the fiber of the yucca, a cushion used on the head for carrying burdens, a small timber used as a seat, each end of which was cut off with a stone ax. All the articles found are now in use among the Pueblo Indians to-day. On the plains, in the vicinity, we saw remains of stone walls, probably dwellings, about which we found grinding-stones and broken pottery in abundance, which correspond exactly to those found in the cave-dwelling near by. After having looked all these evidences over with care, I think I see satisfactory evidence that the people who inhabited these plains and left these ruins of stone dwellings and pottery were the same people who occupied the cliff-dwellings. That they were very similar if not identical with the Pueblos. They certainly raised sheep and corn, spun both cotton and wool. I saw no evidence of their being a warlike people. The cliff-dwellings were not adapted for defence from enemies, but would be more comfortable in winter, being protected from colds and winds. They certainly could not have been as convenient for common use as the dwellings on the plain. Therefore I am inclined to believe they were not for general and constant use, but as a winter resort for those who lived in the plains in summer. About eight miles northeast from Flagstaff, isolated in the plain, stands a small mountain, about 300 feet high. In the south front, extending from the top down the side about one hundred feet, the volcanic rock forms the entire surface and is filled with great cavities, generally globular in form, corresponding exactly to what is known

among furnace men as the blow-holes in pig iron or the slag of the furnace. These cavities vary in size, some from six to twenty-five feet in diameter. All have circular openings, most of which must have been approached by a short ladder or steps. In many instances these openings were protected on the upper side by a rough circular wall built half way around the opening. I counted about twenty of these openings in close proximity, all of which bear evidence of having been a long time inhabited by man. Examinations here gave us the same stone implements and pottery which we found in the cliff-dwellings, but the greater moisture would naturally destroy any fabrics.

We noticed that in almost every cave there was at least one grinding-stone or metatae, but in all instances they were broken, and their being heavy was evidence that they were broken intentionally. In several instances the circular walls protecting the upper side of these openings had been thrown down into the openings and several had the appearance of having been a long time filled up and undisturbed. I judged these broken implements, walls thrown down and dwellings filled up gave silent evidence that an enemy had done this; but the destroyed and destroyer alike have both long passed away and left us very little by which we may know of them. The little evidences left indicate, I think, very surely that the people who occupied the plains, the cliffs and caves were one and the same; were contemporaneous and were the ancestors of the present Pueblo Indians and of very similar habits. No point along the line of the Atlantic & Pacific Railroad offers more attraction to the tourist than Flagstaff and vicinity. The mountain scenery is grand and beautiful. The plains may rightfully be called parks, skirted as they are with splendid timber, covered with a rich mantle of grass, and are beautiful beyond description. Deer and antelope are plentiful and we had no trouble in killing one of each as we rode over the plains.

Prospectors had just gone to locate a road from Flagstaff to the Grand Cañon of the Colorado and a stage will be put on to carry passengers to visit it. Teams can be had to visit points of interest. The altitude is 6,935 feet and the snow-covered peaks of the San Francisco mountains insure a delightful atmosphere at all seasons. Snow never

lies here but a few hours and seldom falls. The new substantial buildings here indicate permanent prosperity. The settlers have certainly come to stay. All the trades are represented and good stocks of all kinds of goods enable them to live comfortably enough, although 2,594 miles inland from the Atlantic coast. Nowhere else in the world can the tourist ride in splendid cars, with sleeping and dining-room accommodations on the train all the way, through such a rich and beautiful country as from the Atlantic coast to the Rocky mountains. The journey passes through great and grand mountains, broad valleys, volcanic peaks and plains, among a strange, aboriginal people. To see these alone is worth the whole journey. Then the Grand Cañon, the river, and antiquities of the prehistoric and probably the oldest occupant of this continent, make this the most attractive route over this most wonderful country. Nowhere have I seen, in 500 miles of travel, so much of interest as between Albuquerque and Mojave.

THE
GRAND CANON OF THE COLORADO

A TRIP THROUGH ONE OF THE ATTRACTIONS OF THE
WESTERN LAND.

BY EDWARDS ROBERTS.

(Denver Tribune.)

The bay of San Francisco never looked more beautiful than it did a few days ago when I sailed over its blue depths to the pier of the Central Pacific Railway at Oakland. Everywhere there were indications that winter was over and that spring had come to California. The rounded hills guarding the bay were green to their very tops, the foliage was thick upon the trees that half hid the houses of Oakland and over the waters blew breezes that were as mild as the mildest zephyrs of an eastern summer. Boarding the train and riding southward for twenty miles we still kept in sight the deeply-colored inland sea which stretches away toward the Golden Gate at our right, while to the left were the vine-clad slopes of the coast range hills, over which we crossed at last to enter the inland valley of San Joaquin, the Garden of Central California. It was too late in the day when we reached this region of farms for one to see how rich its soil is, how cultivated and populated it is; but still the light of the moon showed us many a white-faced cottage standing in the midst of trees, while the lights of the towns we glided past, as we moved rapidly toward the south, spoke of the existence of a population which is to-day counted by the thousands.



CLIMBING THE WALLS OF THE GRAND CAÑON OF THE COLORADO
NEAR PEACH SPRINGS, ON THE A. & P. R. R.—6,000 FEET HIGH.

"Land in the San Joaquin is nearly all taken up, now," said a traveler at my side, "and a man must pay dearly to-day for land that was cheap enough half a dozen years ago. Californians have learned that the valley is better for them than gold mines, and they are making improvements on their farms each year."

If I went to sleep, as I certainly did, while we were traveling through this pet garden of California, I most assuredly awoke in the desert of the State. Some time during the night we crossed a range of mountains that hems the lower San Joaquin valley, and, by what is known as the Tehepechi pass, crawled down into a section of country decidedly differing from that we had entered the night before. Here, where we found ourselves at breakfast time, there was not even a suggestion of fertility.

Far as the eye could see, stretching away to a dim distance, parched and yellow-colored sands appeared. At times a clump of sage or grass had grown bold enough to show its head above the wind-swept earth, and there were a few palm trees to be seen, but during most of the day the ground was as barren as that of Sahara and low-lying clouds, from out of which heavy drops of rain were thrown against the windows of our car, cast a gloom and semi-darkness upon the scene. Desolation reigned. There were no towns in sight, no houses along the way. Now a flock of birds, sisters of these we see along the edges of our great seas, flew away at our approach, and here a lonely *burro* stood nibbling at the hardy grasses; but except for these few signs of life, death was written everywhere. It is said, and proved to many, that in the years gone by this great Mojave desert was covered by the tossing billows of a mighty sea; that fishes swam where the railway runs to-day; that the distant mountains were then but barren islands.

Well, the Atlantic of the old Plato was buried by the waves, and here the sea was destroyed and perhaps the ancient island was submerged when the Lord of Cosmos created this sun-dried region that presses so hard upon the fruitful vales of our tropic State. There was certainly too much water given to one locality and not nearly enough given to another.

There are so many of these arid deserts in America that no road across the continent has yet succeeded in getting eastward from the Pacific coast without encountering one. And so a man may as well get what pleasure he can and not find fault when going toward Arizona by the Central Pacific and Atlantic & Pacific Railways. It is best to be a philosopher for a time; and, after all, there is something interesting about a desert. Its very dreariness, so wild and weird and lonely, offers a sharp contrast to wooded and cultivated valleys, and contrasts are always pleasant things to study, unless it be the contrast between wealth and power, once had, and poverty, which takes their place. As we slowly crossed the Mojave wastes, with the wind blowing great columns of sand high into the air, and the sea birds piping shrill notes of fright as they fled away from us, there was something in the strangeness of the scene that set one off to thinking and communing with himself as he never can do when there is a beautiful prospect from the car window, or when the busy hum of human activity is present to disturb God's stillness.

Toward evening, when the sun had set and grim shadows began to fall upon the sands and the sentinel-like palm trees, we came to The Needles, and to that great, mysterious, unprofitable stream known as the Rio Colorado. The only importance which the town with the name of "Needles" has, is that it is one of the division stations of the Atlantic & Pacific Road and that it stands by the side of that river which has caused so much speculation in the past, but which is now being visited and its cañons explored by those who are enabled to get to its wildest points by means of this new trans-continental road. It was too dark to see much of the stream when we crossed it, but under the bridge we could hear the waters surging against the pillars, and down on its banks a few faint lights were shining from out the windows of the cabins that had been built there, while around us, but distant from the river a few miles, tall, needle-like peaks rose into the blackness of the sky. Once over the Colorado and we were in Arizona, the rough outlines of the Territory being dimly discernible in the darkness and the interior of the Pullman offering more inducements than the wind-swept and

dripping platform. Sleeping, after tiring of trying to see the country traversed, I was wakened at that always uncomfortably early hour of two a. m. by the argus-eyed porter, who was shouting into my sleep-deafened ears the words: "Peach Springs."

Waking, dressing and getting off the car accomplished, I stood at last in Arizona, amid cold winds and colder rain, at the little station which is nearest the Grand Cañon of the Colorado, while the train that had brought me to the place from the Pacific shore rolled away into the blackness of the night.

"Going to stand here all night?" some one said at last.

"Not if I can get a bed to sleep in," I answered, glad of a companion in my loneliness, whoever he might be.

"All right, then, come along; can get you in somewhere," my unknown benefactor added, and together we invaded some sort of a house, where I found a bed that had been already warmed by a departing traveler, and in which I soon fell asleep, the wind singing to me as it whistled around the corners of my new home.

The Rio Colorado is born of two rivers, the Grand and the Green, which have their source the one in northern Wyoming and the other other in northern Colorado.

A year ago, when crossing eastern Utah with a mule team, I camped one night with an old settler whose tent was pitched upon the banks of the Green at a point just north of where it joins the river Grand. I had hoped to reach the Colorado cañons from this place, but my friend of the smoky tent said it was not possible for me to do so, and to enforce his dictum he pointed toward the south, where there seemed to be nothing but hills of various colored rocks, and said:

"See them thar stones? Well, that yer's the kind of things the Colorado runs among. It's the peskiest river I ever did see. Don't more'n get a goin' 'fore down it pops into 'bout the deepest cañons ye ever see. It just kind o' burrows right into the rocks, and the whole country

down there's so bad I haint never yet been able to get anywheres near the cañon an' I don't advise you to try the trip."

"But Major Powell went down the river in boats," I said, "and why can't I?"

"Powell did, eh? Wal, so he says; but thar ain't none o' us as has done it, an' if you see th' rapids once you won't have no great hanker-in' to follow that thar major man. No, sir; the Colorado river beats me and I ain't agoin' to play much with it."

And the old fellow was right. Powell traversed it, for he had every needful boat and all possible aid, but the stream is full of rapids, it runs through cañons ranging all the way from 3,000 to 6,000 feet high, and the regions bordering it, in both southern Utah and northern Arizona, are wild, rocky and almost impassable. So hard, indeed, is, or rather was, the trip that few have yet seen the great natural wonder of the continent, as the deepest cañon undoubtedly is, and yet, at this writing, the Atlantic & Pacific Railroad has made the place accessible to all. Peach Springs station is only eighteen miles from the grandest of all the cañons and teams may always be had with which to make the trip. It is the intention of the Company to erect a hotel at the station and one at the cañon during the coming season, and when this is done it is more than probable that the Grand Cañon of the Colorado will be visited by thousands, who will be attracted by the grandeur of the scenery offered there. At present, as I found, the ride to the justly celebrated cañon is rather a hard one. It is a down-hill road all the way and the trail winds in and out among the rocks of Arizona and over high table lands from which one looks afar off over that country of hidden wealth which is now coming so prominently before the world. Peach Springs itself is about 6,000 feet above sea-level and the river bed is not over half that height, so that in the eighteen miles ride one gets down toward the sea some 3,000 feet and feels, I confess, as though he had climbed down double that distance. Approaching the river the scenery grows in wildness every mile. The rocks are more abundant, the road is steeper, the cliffs are

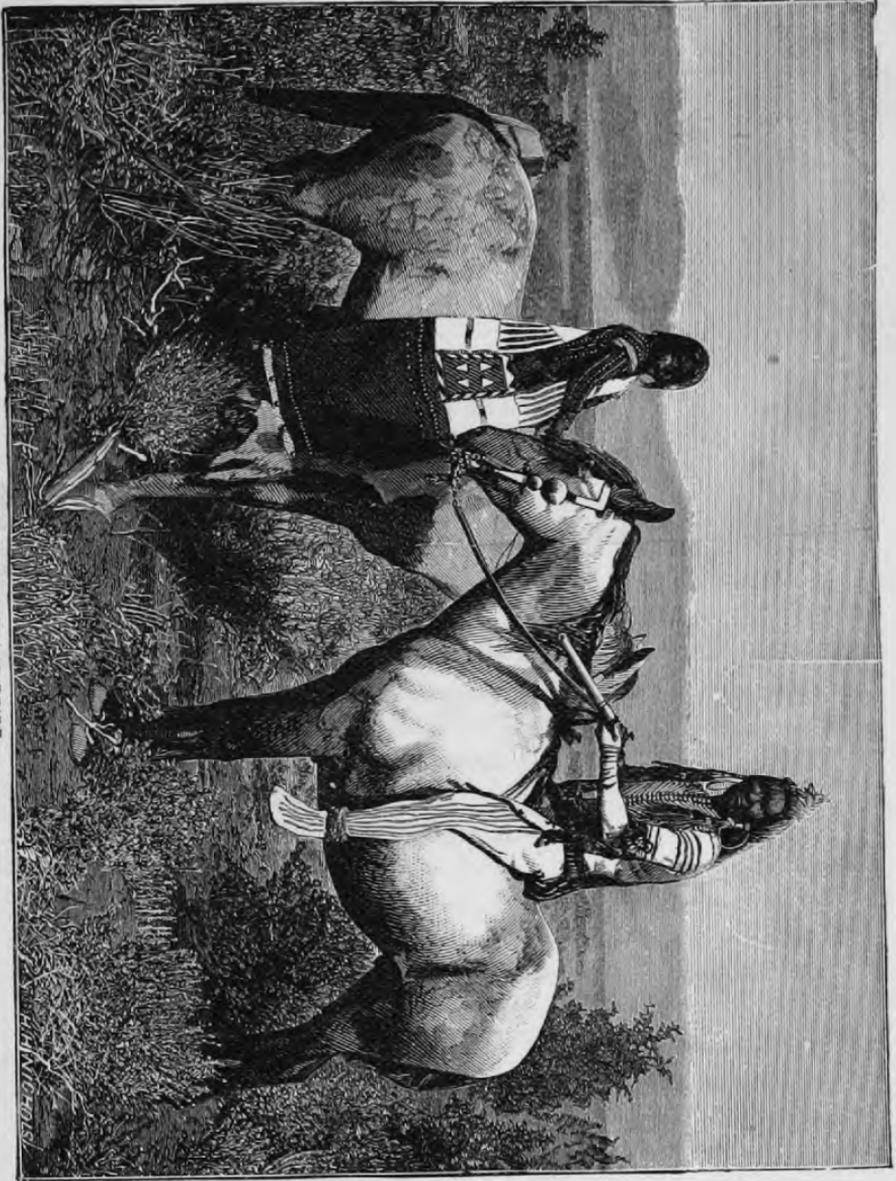
higher, and at last, when the muddy, boiling, hissing waters are rapidly dashing past one's feet, the visitor finds himself in a region which is at once so strange, so grand, so weird and wild, as to appear fit to be the entrance to some infernal region. The face of nature is hardened; man, by contrast, is a pigmy of insignificance; dark shadows lurk among high cliffs, and a roar, loud as that of cannons booming, fills the awful chasm and man's voice is drowned amid the tumult of troubled waters. What words are there, unaided by pencil or by brush, that can do justice to the scene. Adjectives are unavailing.

One stands mute and awe-struck in the presence of the work of nature. Imagine the place. The river is full of life and rolls madly down its rock-bound channel, bedecked with foam, full of whirling pools, tossed aside by projecting ledges that beset its path. Rising skyward from the narrow stream are the awful cliffs. They seem to have no ending to their height and the shadows which they throw reach down into the cañon until a darkness lingers there which would have pleased the eye of Rembrandt or have tickled the fancy of a Dante. Look upward for 2,000 feet and still the rocks appear; gaze upward still another thousand feet, another and another still, and there hang the blackened ledges, shutting out the light of day, bare of trees and clinging shrubs, chipped and scarred and stained by the fierce inroads of time. You stand 6,000 feet below where sunlight falls; you are more than a mile below the surface of the earth. Out of the darkness the river rushes toward you and behind you it disappears into still darker shadows.

There is a fascination in watching the leaping waves, and as for the cañon itself—its darkness, its grandeur, its deafening noises—it appeals to one so strongly that he stands riveted to the spot, depressed and yet exhilarated, afraid and yet enchanted. I stood for hours watching the river surge along its way, seeing the shadows deepen, hearing the waters chafe against the rocks, and later on I climbed the cliffs and, leaning over their edge, gazed down into the deep rent, at the bottom of which ran the river, turbulent as ever, but now so far away that its voice was

hushed, and it had become a thread of gold coiled among black-hued walls. Turning my eyes from it and looking east or west, the cañon could be seen stretching far away and lying like an open mouth beneath the bright, blue sky. Here, high above the darkness below me, there was the silence born of desert lands. The sun shone down its light upon the arid, rock-strewn lands, yet still the cañon gaped, and I knew, even though I could not hear the sounds, that the Rio Colorado still held high carnival there.





THE WARRIOR AND HIS BRIDE.

FOSSILIZED FORESTS.

DESCRIPTION OF THE WONDERFUL SILICIFIED OR PETRIFIED
TREES OF ARIZONA.

BY "TOURIST."

(Denver News.)

The wonderful silicified forest of Arizona is situated in Apache county, south of the Atlantic & Pacific Railroad, and about eight miles south of the station called Carrizo. The space covered with this most remarkable freak of nature embraces an area of fully 1000 acres. In most all of the States and Territories where the precious metals abound we find petrified wood, but, so far as yet explored, Arizona only in this one locality affords the silicified material in its innumerable combinations of colors.

Many scientific men, whose study of geology has been all that years of patient toil and observation could embrace, have, during the last four years, visited this wonder of wonders, and all of them seem to be lost scientifically, and if they attempt to explain the cause of this mysterious production it is only a theory of their own imagination, and their theories are like the pieces of silicified wood, no two alike.

Some say they find the cedar, the pine, the palm, the oak, the hickory, others the cottonwood, the juniper, the ash, the red wood, etc., until if we were to accept all their allegories as axioms we would exhaust our vegetable kingdom in the way of forests and still have some extras. Every color found in nature or the arts is here produced in these fallen

agatized monarchs. The Giants of Yosemite and Calavares in their mammoth grandeur of to-day are the only rivals of this fallen forest of Arizona. Silicified trunks lie around in profusion, measuring from five to ten feet in diameter, and some over 150 long, and containing all the colors of the rainbow, some of whose hearts are solid crystals of amethyst and topaz, brilliant as the king of gems, and only a slight degree under the diamond in hardness; single specimens of these wonderful crystals, weighing less than ten pounds, have been sold for \$250. The wood when polished shows the colors of the jasper, the chalcedony, the onyx, the ebony, the ruby, the carbuncle, the opal, the amethyst, the pigeon blood, the azurite, the malachite, etc., until all colors of the precious stones and gems of the world are exhausted; then, again, we find all these colors blended, mottled or inlaid in one single piece of a few inches surface. We do not profess to be very scientific on geology, but still have our theory. We claim that this act of nature, by whatever process it may have been solidified, either by mineral waters, gasses or earthquakes, was almost instantaneous, and the sap of the wood was retained and gave it its many colors and where there was a cavity filled it with crystals. Again, the prodigious size of the trees leads us to believe that when those trees grew and flourished they were nourished by a tropical sun.

But, of course, many geologists will tell us that this is impossible and that the silicifying of wood or anything else is a slow process, and that these colors are caused by the leaching and precipitating of various minerals from the surrounding country rock, such as iron, zinc, copper, antimony, etc., but when they analyze this material they cannot obtain a trace of any of these metals.

The country rock or formation is a layer of sandstone from fifteen to thirty feet thick, resting on volcanic ash. The wood is principally exposed in the gulches and basins where the sandstone has been washed away and there is every indication that under the sandstone mesas there is as much more wood now buried, as large ends of silicified trees are seen protruding from between the formations, being covered with from twenty to thirty feet of sandstone.

Among the remarkable curiosities of the forest is the great natural bridge, consisting of a solidified tree spanning a box cañon forty-five feet deep and sixty-four feet wide. This tree will average four feet in diameter and is exposed for over one hundred feet after it crosses the cañon. When this tree fell there was no cañon, but the action of water has cut out the sandstone and left the tree as a natural foot-bridge. The largest live juniper tree within miles is now growing directly under the natural bridge and its topmost branches peep over the bridge of agate. At every step the visitor finds something new and interesting, which to attempt to describe would require columns.

In conclusion, we only wish to add a few lines concerning this remarkable country. It has been our pleasure to visit most of the natural curiosities of our great United States and nowhere did we find so many places of interest to the tourist, geologist or scientist as are to be seen in Arizona, along the line of the Atlantic & Pacific Railroad, among which we will mention the homes of the Aztec Cliff-Dwellers, the Grand Cañon of the Colorado and the petrified forest. Our trip was one continued and delightful surprise.

The politeness of the railroad officials, and the royal spreads at the eating-houses along the Atlantic & Pacific Railroad, were to us a new and agreeable feature in railroad travel, and we can safely recommend any and all our friends who wish to cross the continent and appreciate good living and civility to travel this route, and if they can afford the time to visit the freaks of nature in Arizona, which date in their origin thousands of years back of any history we possess, they will surely be rewarded.