

THE  
GEOGRAPHY AND RESOURCES

OF  
*Arizona and Sonora:*

AN ADDRESS BEFORE THE AMERICAN GEOGRAPHICAL  
AND STATISTICAL SOCIETY,

BY

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OF ARIZONA,

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ARTILLERY, U. S. A., CORRESPONDING MEMBER OF THE AMERICAN  
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ticate, make it flow in very rainy seasons into Lake Guzman. The Suanco or Valle de Saux is the next valley on the line of the emigrant road. The waters of this stream are very limited and intermittent. As it approaches the Gila the valley becomes better, but it will never be available for extensive agriculture. The San Pedro river and valley, two hundred and fifty miles west of the Rio Grande, is par excellence the agricultural district south of the Gila. The valley is wide, very rich soil, and is considerably over one hundred miles in length. Owing to the depredations of the Apaches, no settlements have yet been made in this valley.\* There is, near the junction of the San Pedro with the Gila, and at the mouth of the Arivypa, a most beautiful and fertile region. A fine growth of ash covers the valley. The Santa Rita mountains, which separate the San Pedro and Santa Cruz, contain inexhaustible supplies of pine and oak, besides untold millions of the precious metals. A military post of four companies at the mouth of the Arivypa would open this entire country to settlement.

Still following the emigrant and mail road fifty miles, brings us to the old Mexican town of Tucson and the valley of the Santa Cruz. Like most of the streams, the Santa Cruz is intermittent, sinking and rising at irregular intervals.† A portion of this valley is covered with a heavy growth of cottonwood. The mountains in the vicinity contain pine and oak, and the extensive tracts of grazing lands south to the Mexican line, are covered thickly with the mesquit—the best fuel in the world. The town of Tucson now contains about a thousand inhabitants. It once had three thousand, but the Indians, who desolated the whole of the Territory, had driven away all but about two hundred at the time of the Gadsden Purchase. Nine miles from Tucson, as you go up the valley of the Santa Cruz, is the old mission church of San Xavier, to which I have alluded elsewhere. It is still surrounded by a Papago Indian village, a few tame Apaches, and a few whites also live under the shadow of its towers. Incredible as the statement may seem, the church of San Xavier, with its elaborate facade, its dome and spires, would to-day be an ornament to the architecture of this great metropolis. No better evidence is needed of the resources and former prosperity of Arizona than is to be found in the now deserted missions of San Xavier and Tumacacori.

\* See Appendix.

† See Appendix.

The town of Tubac\* fifty miles southeast of Tucson, which now boasts a population of several hundred, was entirely deserted up to 1855, when it was re-occupied in part by the Sonora Exploring and Mining Company. They claim the town, and have given permission to a number of emigrants to occupy the old houses, and build new ones. Over what was once the towers of the barracks of the Mexican troops, now floats a banner bearing the arms of peace, a hammer and pick, the insignia of the company; and in the rooms beneath, which once echoed to the tread of the successful Apache fighter, are now sold the calicoes and cotton goods of Lowell, and all manner of Yankee notions. The great Heitzelman mine, the mines of Arivaca, Sopori and Santa Rita are within a circle of twenty miles from Tubac. Three miles from Tubac is the mission of Tumacacori. Its venerable walls now shelter political exiles from Sonora, and a few enterprising Germans, and its rich lands are cultivated by the American squatter. Twelve miles further up the Santa Cruz is the Ranch of Calabazas, claimed as the property of the Gandara family, of Sonora. The extensive buildings are occupied by American families, and the blacksmith's forge is installed in a room once dedicated to more delicate uses. The Sonoita valley, which opens into the Santa Cruz near Calabazas, is the only one in any degree protected by the United States troops. It is about fifty miles long, in no place exceeding a mile in width, and generally much narrower. When I passed up it to Fort Buchanan, the whole valley was golden with grain. In one field there were one hundred and fifty acres of corn. I counted upon four stalks eighteen full-grown ears, and the average height of the stalks was fifteen feet. When it is borne in mind that this land was but just turned, the corn planted and neither hoed or suckered, I am sure it will be conceded that there is some agricultural land of value in Arizona. On several of the farms two crops were raised last year, wheat and corn, wheat and beans, and other vegetables. The farmer during the past year found a ready market for his produce, his purchasers being the troops and the Overland Mail Company. This valley is almost entirely taken up by an intelligent and adventurous American population; and here is almost the only place in Arizona where you find that greatest of all blessings on the frontier—American women.

\* See Appendix.

The Santa Cruz and San Pedro approach each other near the Mexican line; and by way of Santa Cruz—a Mexican town at the head of the valley in Sonora,—you can pass from one to the other with ease. The whole region between the Rio Grande and the Santa Cruz is broken with conical-shaped hills and mountains, called by the Mexicans peloncillos. At the foot of these hills are found springs, which afforded water to the immense herds of cattle and horses which once covered the country; and at many of these springs are found the ruins of buildings occupied by the herders. The hills are covered to the top with the gramma, and other nutritious grasses.

Twenty miles east of the Sonoita valley, and just north of the town of Santa Cruz, is one of the richest silver regions of Arizona.

The Wachupe mountain is believed to be inexhaustible in silver. The San Antonio and Patagonia\* mines, lately opened, promise a rich yield\* to their owners. One of these is of especial value, yielding, besides a large percentage of silver, 53 per cent. of lead, which is purchased readily by the surrounding mining companies, to be used in reducing their ores.

The once celebrated Compadre mines, lately re-discovered, are in this vicinity. The present fortunate proprietors found them after a long and painful search. The shafts were found carefully concealed, partially filled with rubbish; and thirteen furnaces in tolerable preservation, prove how extensively the mines were once worked by the Spaniards. Here, as in the whole of Arizona, the work of prospecting and exploring has but just begun.† The ores of this district are principally argentiferous galena.

West of the Santa Cruz and South of the valley of the Gila to the Colorado river, the Territory is generally an irreclaimable desert. Its mountains abound in the precious metals, and a sufficiency of water for mining operations can be usually obtained without exorbitant expense. The celebrated Ajo copper mine, now known as the Arizona copper mine, is in this district.

Mr. Edward E. Dunbar, whose facile pen has lately presented to the public, through the columns of the *Daily Times*, some lifelike

\* See Appendix. The Patagonia is now known as the "Mowry Silver Mines."

† See Appendix.

sketches of this portion of Arizona, was formerly the director of this mine, and the first, I believe, to demonstrate the fact that water could be obtained. I take much pleasure in bearing testimony to the conscientious regard for truth which characterizes Mr. Dunbar's statements; and although I am forced to differ with him in some of his conclusions, his knowledge of the country, gained by a long and painful experience, entitle his opinion to much respect. The Arizona mine will one day prove of immense value: like the rest of the mining companies, it needs the outlet on the Gulf of California. The valley of the Colorado is fertile, and will produce all the tropical fruits, as well as the cereals. The Indians, favored by the annual overflow, raise abundant crops of wheat, corn, pumpkins, melons and beans. The remains of extensive irrigating canals show that at some day, long past, a large agricultural population lived here. The extreme heat of the climate in the summer months will prevent white labor from agricultural pursuits to any great extent. Rice, sugar and cotton are best adapted to the soil of the Colorado bottom. There is in places along the bank a fine growth of cottonwood, and the whole valley abounds with the mesquit. This is the only portion of the Territory where the heat is excessive.

The valley of the Gila river, whose waters, flowing from east to west, divide the Territory nearly in the centre, four hundred miles long, can in most places be brought under cultivation to a greater or less extent.

Since the discovery of gold\*, a number of farms have been opened, and hundreds of acres of rich land put under cultivation. The Gila empties into the Colorado one hundred and twenty-five miles above the head of the Gulf of California. It is well to observe here, that the difference in soil in different latitudes has not been sufficiently appreciated. The same soil which, under the climate of Oregon, is barren and worthless, becomes, under the more genial sun of Arizona, fruitful, and, when irrigated, produces the same extraordinary crops as are found in California.

The land cultivated by the Pimos on the Gila, seems inexhaustible. Year after year they cultivate the same crops on the same land, with nothing but water to enrich it, and there is no sign of failure.

\* See Appendix.

The valley known as La Florida, near the mountain of the same name, in longitude 109°, is worthy of especial mention, as having at its head the ruins of a once flourishing town. A large population will again occupy it at no distant day. But little is known of the country north of the Gila; it is\* very mountainous, but contains several valleys of considerable size, nearly all of which bear the impress of an ancient and superior civilization. The principal northern tributaries of the Gila are the Salado, the Tuberoso, the San Carlos, and the San Francisco, (sometimes called the Alamos.) The Salado, according to my informant, *Marcial*, an Apache Chief, has six small branches: four flowing from the east, two from the west. The Salado is the largest of all these streams, and has its source about latitude 34° in the Sierra Blanca mountains.

On all these streams the Apache Indian cultivates crops, principally of corn. The band known as the Coyetero, Pinal, or Sierra Blanca, cultivate most; although they have had the least intercourse with the whites.

The Indians of Arizona are best classed as friendly and hostile. The friendly Indians are the Pimos, Maricopas, Papagos and Yumas, with a few scattering miserable tame Apaches. The Pimos and Maricopas occupy a beautiful and fertile tract on the Gila, one hundred and eighty miles from its junction with the Colorado. A brave and hospitable race:—they live in villages and cultivate the arts of peace. Their regular fields, well made irrigating ditches, and beautiful crops of cotton, wheat, corn, pumpkins, melons and beans have not only gladdened the eye, but also given timely assistance to the thousands of emigrants who have traversed Arizona on their way to the Pacific. The costume of the Pimos is extremely simple, only covering their loins, and a small straw hat—except in the case of the Chiefs, who wear a sort of pantaloons of coarse cotton cloth. The Pimos and Apaches wage hereditary† and fierce war, in which the Pimos are generally the victors. So high were their services valued by the Mexican Government, as a barrier to the incursions of the Gila Apaches, that whenever they visited the Mexican towns, the authorities treated them with marked hospitality and kindness, making them presents of value, to be paid for by the public treasury. Much as we pride ourselves upon our superior

\* See Appendix.

† See Appendix.

government, no measures\* have been taken to continue our friendly relations with the Pimos—and to our shame be it said, it is only to the forbearance of these Indians that we owe the safety of the life of a single American citizen in Central or Western Arizona, or the carriage of the mails overland to the Pacific. The Maricopas live near the Pimos, and by contiguity and intermarriage have become similar in their customs. The Papagos resemble but are inferior to the Pimos, do not cultivate so much, and live in scattered villages in the Central and Western parts of the Territory. The Apache—tribe of fatal memory for Sonora and all Northern Mexico, are best classified under their modern names. The Mescaleros, east of the Rio Grande; the Mimbres, Mogollones, Chir-aca-huis, Coyeteros or Pinaleros, Sierra Blanca and the Tontos. In the order I have mentioned them, west from the Rio Grande, all of these have their homes north of the Gila, except the Chiracahuis. Velasco says these tribes have no fixed residence, no common society, no positive antecedents; they are best compared to the prairie wolf, sneaking, cowardly, revengeful, quick to assassinate the weak, and to fly from or yield to the strong. It is impossible for one who has not seen Northern Mexico to imagine the desolation they have made in a country where nature has done so much. The name Infeliz Sonora—most unhappy—given by all the old writers, is most painfully true:—from the Gila in latitude 32° 30' to Guaymas, in latitude 28°, their ravages are everywhere visible. Horrible as is the statement, more than one-fourth of the Apaches of to-day are Mexican captives, or their descendants. Not only ranches, and villages, and towns, but whole districts, have been depopulated, and the work is still going on. In small parties, and by different mountain passes, they descend into Sonora, surprise and attack a train of travelers or a town, massacre the men, and carry off the women, with such booty as they can hastily seize, to their haunts on the Gila.

I obtained from *Marcial*, a leading Apache Chief, and still a Mexican, much valuable information respecting these Indians. He had been carried off while a child, and had become, like his captors, savage. Velasco† says: "Without hesitation it must be admitted, that under no good treatment does the Apache yield his barbarism,

\* The U. S. Government have since, under urgent pressure of the writer, made some small appropriations for the Pimos Indians.

† Noticias y Estadísticas del Estado de Sonora.—José F. Velasco.

his perfidy or his atrocity; notwithstanding the many treaties of peace made with the Pueblos, and the constant campaigns against them, upon the first opportunity they break faith, and become worse than before.

"Though it is incontrovertible that the Apaches are the most ferocious tribe on our borders, yet the same may be said even of them who, from the time of the conquest, belong among us; they call themselves pacific, yet have never, generally speaking, had sympathy with the whites; they have not adopted our manners and customs, nor have we existing between us that confidence which inspires a same race, when they profess the same principles of social ties; in fact, during the whole period of time that they have been subordinates of our government, they have followed a system of contradiction and opposition against it as far as they were able. The unequivocal proof of this truth have been the frequent assaults that they have made upon us under the pretext of foolish stories with which they were misled, and sometimes without any cause at all."

The whole number of Apache warriors does not exceed two thousand. I have investigated this subject with probably more care than any other person, and am satisfied the number is rather under than over the truth.

Being cowardly, they are afraid of Americans, and do not murder.\* Their depredations in our territory are mostly confined to stealing cattle, horses and mules. Arizona will have no peace, and her great wealth as a pastoral region must remain undeveloped, until the War Department sends a strong force, and reduces them by fear of absolute submission. They must be fed by the Government, or exterminated. They know no alternative but to steal or starve; and Northern Mexico has been their prey for too many years for them to learn the arts of peace.†

The Navajoes are included by Velasco among the Apaches. They live in New Mexico along the 34th parallel, north latitude.

The Yumas, the remains of a once powerful tribe, live on the Colorado, near the Gila; they are quiet; sufficiently agricultural to subsist. A few years will leave only their name.

\* See Appendix.

† Note to first edition—Since this address, information has been received of the murder of several Americans by the Apaches.

The climate of Arizona, except on the Lower Gila and the Colorado, is delicious; never extremely hot, with cool summer nights, it offers great attractions to those who desire more genial skies than those of the North. Snow never lays in the winter—seldom falls; frost is rare, though the nights are often cold, seldom freezing. The season for cultivating is long, fruits blooming in February and March. Cotton, corn, wheat, barley, tobacco, melons, grapes, peaches, and all the vegetables, yield profuse crops throughout the Territory. The grape of the Rio Grande valley has no superior, and wine of good quality is manufactured from it. The rainy season in Arizona is from June to September inclusive.

Professor Henry has, I believe, demonstrated that no rain falls in Arizona or Sonora. I have not seen his paper, but understand it is a beautiful theory. It is much to be regretted\*, for his sake, although not for the country, that the facts are against it. Cultivation in Arizona is by irrigation. It is believed by those who are capable of judging, that with subsoil plowing, good crops can be obtained without irrigation, and the results of one year are quoted in support of the theory. It will take a series of years to prove it satisfactorily to the farmer. The yield throughout Arizona is two crops from the same land each year.

The population of Arizona to-day exceeds ten thousand souls, exclusive of Indians; two-thirds of it is established on the Rio Grande, in the towns of Mesilla, Las Cruces, La Mesa, Don Ana, Amoles, Santo Tomas, Santa Barbara, Pichacho, and the surrounding ranches‡. The American population of the Territory is not far from two thousand:—this is vastly increasing, and the ensuing spring will see it vastly increased. The gold discoveries—the Overland Mail, which runs throughout the entire length of Arizona—the large amount of capital invested in the silver mines—together with the increasing movement westward of our people—will add largely to the already vigorous and enterprising population of the new Territory. It must be added that there is no law or protection from the government: every man redresses his wrongs with the pistol or knife, or submits in silence. †

\* See Appendix.

‡ Including the floating population of the Gila gold mines.

† See Appendix.

The Gadsden Purchase was not originally an integral part of Mexico; it was acquired years after the treaty of Guadalupe Hidalgo, and was only attached to the Territory of New Mexico as a temporary expedient. It must also be remembered that the Gadsden Purchase, with that portion of New Mexico which it is proposed to include within the limits of the Territory of Arizona, is separated from New Mexico proper by natural boundaries; that it derives no benefit from the present connection; and that any opposition to the desired legislation arises from the Mexican population, which fears the influence of a large American emigration. Moreover, that New Mexico contains upwards of 200,000 square miles, and that its organic act provides for its partition; showing clearly that Congress anticipated at no remote day the settlement of the country by an American population, and its erection into several Territories and States. The only effect of the present connection of Arizona with New Mexico is to crush out the voice and sentiment of the American people in the Territory; and years of emigration under present auspices would not serve to counterbalance or equal the influence of the 60,000 Mexican residents of New Mexico. New Mexico has never encouraged American population. She is thoroughly Mexican in sentiment, and desires to remain so.

As a matter of State policy, the organization of Arizona is of the first importance. Situated between New Mexico and Sonora, it is possible now to make it a thoroughly American State, which will constantly exert its influence in both directions to nationalize the other two. New Mexico is at present thoroughly Mexican in its character and vote. Sonora, if we acquire it at once, will be the same. By separating Arizona from it, and encouraging an American emigration, it will become "the leaven which shall leaven the whole lump." By allowing it to remain attached to New Mexico, or by attaching it to Sonora when acquired, the American influence will be swallowed up in the great preponderance of the Mexican vote. The Apache Indian is preparing Sonora for the rule of a higher civilization than the Mexican. In the past half century the Mexican element has disappeared from what is now called Arizona, before the devastating career of the Apache. It is every day retreating further South, leaving to us (when it is ripe for our possession), the territory without the population.

The American population is mostly concentrated in the centre of

the Territory, in and near the Santa Cruz valley, and on the lower Gila\*, at the gold mines. The Overland Mail Company, by the establishment of their stations at intervals rarely exceeding twenty miles, have much facilitated intercourse and travel; and the emigration of this year will cluster around these stations, pouring a line of villages across the continent:—in the language of the President, "a chain of American citizens which will never be broken." The establishment of the Overland Mail is not only one of the great triumphs of the age, but it is an element of civilization which none appreciates but the frontiersman.

The ores of copper found in Arizona and Sonora are usually the sulphurets, principally grey. The ores of silver are argentiferous galena, native silver, auriferous sulphuret of silver, black sulphuret of silver, sulphate of silver, sulphate of iron combined. The gangue is usually quartz or feldspar. I have before me many notes descriptive of various mineral localities, even to minuteness, but the limits of this address will not permit especial mention of them.

The development of the mineral wealth of Arizona has but just commenced, yet enough has been done to give a brilliant promise for the future. The Sonora Company, under the direction of Charles D. Poston, Esq., and more lately under that of Major Heintzelman, of the Army, have expended a large capital in opening and prospecting their rich possessions. The Heintzelman mine—so called after the President of the Company—bids fair to become more famous than any of the great mines of old Mexico. From a late letter it is claimed that the ores thus far smelted, yield the astonishing average of \$950 per ton. I saw this mine in September of last year. About two hundred tons of the ore had already been extracted, and the yield from one small furnace was about one thousand ounces per week. At a cost of \$30,000 the Company have brought from San Francisco and erected, amalgamating works, from which they expect to obtain \$3,000 per day—a million a year. This mine has the most extraordinary reputation throughout Sonora. I found, in traveling through the State, that almost every shopkeeper knew the value of the ore. It was obtained from the miners, who had stolen, and sold or exchanged it for goods. The Soporif mine,

\* See Appendix.

† See Appendix.

which has only been worked in a small way, promises also a rich yield. I have cut with a penknife, native silver from ore taken from the Sopori.

San Antonio and Patagonia have been already mentioned, as well as the Compadre mines. Many others are known to exist, and their owners are only waiting for the protection of a Territorial Government to commence work. Others are deterred by want of capital. Several hundred thousand dollars have already been invested in mines in Arizona, and several companies are now forming. It is my profound belief that the most colossal fortunes this country has ever known will be made from the mines of Arizona and Sonora. The Santa Rita copper mine, near the Mimbres, has already been mentioned, as has the Arizona. On the Colorado, forty miles above the mouth of the Gila,\* on navigable waters, a copper mine is being efficiently worked. It promises to be inexhaustible, and, from its advantageous position must be immensely valuable. The ore contains a percentage of gold. Silver has also been found on the Colorado—also gold quartz. On the Gila copper is abundant. In fact, the Territory of Arizona seems inexhaustible in minerals. Iron, copper, silver and gold are found in hundreds of localities. A plum-bago mine was discovered during the past year.

Quicksilver is the only metal of which no mention has yet been made. I do not know of any in the Territory, though its existence is probable.

Of the great extent of the gold region of Arizona there can be no doubt. The late discovery of placers, or surface diggings, on the Gila, has long been anticipated. Emory, in 1849, expressed his belief in its existence. Many an emigrant, on his way to California, has found "the color." Senator Gwin informs me that he heard of gold on the Gila from emigrants at San Diego in 1849. All the frontiersmen and trappers unite in saying that coarse gold is found in the streams north of the Gila. Marcial, the Apache Chief before mentioned, told me the same. That gold, in quartz veins, exists in many parts of the Territory, we know, not only from ancient record and tradition, but from actual observation and experiment. A vein has been opened, and, as soon as it is safe, will be worked, in the Apache pass, four hundred miles

\* See Appendix.

east of the present placers. Almost every silver and copper vein yet opened shows, by close analysis, a trace of gold. In the Sopori mine it has gone as high as three per cent. At the Santa Rita del Cobre, the Mexican miners, after their day's labor is over in the mine, work the placers in the vicinity, making sure but small wages. Tradition tells us that many years since the ores of this mine were so rich in gold as to pay transportation to the city of Mexico on mule-back. A gold placer is believed to exist near a Papago village, south of Tucson. The evidence of rich gold placers in northern Sonora is indisputable. Work in them has nearly or quite ceased, on account of the Apaches, but the record of their past yield is enormous. The facts in reference to the present condition of the Gila gold mines in Arizona are simply these: At a point on the Gila river, about twenty miles from its junction with the Colorado, and in a succession of sand hills, gold was discovered in September, 1858. The emigrants who were still on their way stopped, and, the news reaching California, others came in. I visited the gold mines early in November, and found about one hundred men and several families. A town called Gila city had already been laid out, and temporary houses of brush and adobe were in the course of erection. I examined carefully for myself, and found that several men could afford to pay laborers \$3 per day and their board to work for them. I saw more than twenty dollars washed out of eight shovelfuls of dirt, and this in the rudest manner, and by an unpractised hand. I saw several men whom I knew well would not have been there had they not been doing well, who told me they had made from \$30 to \$125 per day each. I purchased about \$300 in gold dust out of a lot of more than \$2,000. A portion of this dust is here, if any one is curious enough to wish to see it. Several hundred men have come into the mines since I left Arizona. My letters gave me no reason to suppose the mines have given out or shown any signs of failure.\* The country at this point is not inviting, and there are always at any gold diggings, men who do not and will not work, and who, if they cannot make a living by gambling, or feeding on some one else, depreciate the country. Gold digging is the hardest of all work, and very precarious in the richest mines. A man who is earning a comfortable subsistence at home should hesitate long about giving it up for gold hunting. The old

\* Since this address, I have received discouraging accounts from the mines.—S. M.

discoveries of gold on the Spanish trail from Utah to California in 1850, the later one in Kansas, at Pike's Peak, and in Arizona, together with the well-known placers of Sonora, establish conclusively the fact of the existence of gold throughout a great belt of the continent, from north to south. I am indebted to the Hon. George Bancroft for a copy of a curious and rare letter, which is not out of place to mention here. It is dated at Madrid, in 1769, and is addressed to the Duke de Choiseul, minister of foreign affairs for France, by the French ambassador to the Court of Spain. He says :

[EXTRACT.]

MADRID, 6 fevrier, 1769.

M. Galvès qui a passé dans les Californies, a aussi mandé qu'elles abondent en mines d'or et d'argent, et que ces provinces que l'Espagne ne connaissait pour ainsi dire que de nom, pourront, dans la suite, produire une augmentation de revenue, fort considérable.

(Signé,)

OSSUN.

[TRANSLATION.]

MADRID, Feb. 6th, 1769.

M. Galvès, who has travelled in the Californias, has also stated that they abound in mines of gold and silver, and that these provinces that Spain has known thus to speak only by name, will be able in the future to produce a very considerable augmentation of revenue.

(Signed)

OSSUN.

The conclusions to be drawn from the facts I have thus hastily set forth are these : That while Arizona cannot be called an agricultural State, she has a sufficiency of arable land to support a large population ; that as a grazing and pastoral region she has unsurpassed advantages ; but her great wealth is found in her inexhaustible mineral resources. There can be no doubt that if Arizona to-day did not contain a single acre of arable land, her gold and silver, her copper and iron and lead, would some day make her one of the wealthiest of the States of the Union.

Sonora, of which western Arizona once formed a part, is so closely connected in interest with Arizona that a brief mention of her resources and condition is necessary to my subject.

Sonora is bounded on the north by Arizona, on the east by the

Sierra Madre range of mountains, which separate it from Chihuahua, on the south by the river Fuerte, which separates it from Sinaloa, and on the west by the Gulf of California and the Colorado river, which separate it from Lower California. Its capital is now Hermosillo, was formerly Ures,\* and, more anciently, Arizpe. This State is at present virtually independent. The Government is vested in a Governor, elected by the people, and a Legislature, consisting of but one house.

Some years past the property-owners looked forward to annexation to the United States, as an inevitable event. The civil war has put an end to these ideas, and peace having been established at home, Sonora looks to herself with the incidental help given by foreign capital and immigration, for her regeneration and future greatness. That this reliance is well-founded, the vast improvement in the past year is a sure indication.

In the preliminary advertisement to *Las Noticias Estadísticas de Sonora*, by Don José F. Velasco, a work from which I have freely quoted, the author says :

"It is necessary to say, without equivocation, that if there by any State among those which compose the Republic of Mexico of which it is difficult to present exact statistics, that State is undoubtedly Sonora. Populated by an indigenous people, disseminated over the whole State, without laws or politics, and mingled with the nation of which it forms a part, it is very difficult to ascertain its numbers from its chiefs. It is for this reason that I have been only able to give approximately the number of inhabitants. I have only undertaken a work that at least approximates towards the truth, limiting myself to certain notices which may give light to other writers on the same subject."

The State of Sonora, thus called by its earliest people of whom we have any knowledge, derives its names, according to the best authorities from *Senot*, an Opata Indian word, which means *Señora*, or *Madam*. The Conquistadores were treated with great hospitality by the Opata Indians while visiting their rancherias or villages. As a mark of friendship, the Indians strove to imitate the Spanish pronunciation *Senora*, instead of using their own word *Senot*, from which arose the corrupted word Sonora. Sonora has been divided,

\* The Capital is again fixed at Ures.



by various writers, into Upper and Lower Sonora—into Pimeria Alta, and Pimeria Baja; and still further into the subdivisions of Arizpe, Cieneguilla, and Horcasitas in the north, with Hostimuri, Alamos and the Pueblas of the Mayo and Yaqui in the south. The State formerly included Sinaloa, from which it was separated in 1830. It is said to be a part of the plan of the present Governor, Pesqueira, to again unite these States as the basis of a new confederacy.\*

The people of Sonora are generally docile, and, making allowance for the bad system of government and the great misery in which they are found, are obedient to the constituted authorities: in fact, this remarkable docility amounts to weakness of character, and which ambitious revolutionary chiefs have taken advantage of to forward their own views. For many years there has been much suffering from revolutions and Indian depredations, and without hope, until now, for the better, it is not surprising that the Sonoranese lost his energy of character. He gambled to divert himself and pass away time, and without hope for the future, he allowed things to take their course—a perfect fatalist.† Some become desperate, and take unlawful measures to better their condition. It is an unquestionable fact that the association with Americans, regular labor and assured employment, dependent upon good behavior, is fast regenerating the Sonoranese. The miners and farm laborers show great ambition to emulate the work of an American, and to prove that they can do as much in the same time. It only requires a skillful hand and a good government to make the shiftless Sonoranese of the present day a useful member of society. Comparatively few educated men are found in Sonora—a common education, consisting of reading and writing—and I believe that in the whole population it does not exceed ten per cent. more, particularly in the frontier towns. A leading trait in their character is hospitality, and “let the morrow take care of itself” is a common expression in their mouths. He will share his last mouthful, and considers it a matter of course for the stranger to take his place at his board.

The women are kind-hearted, obedient to their husbands, who rule them generally with a rod of iron. Strong-minded women are not known, and usually peace reigns in their homes.

Sonora, for the most part, is mountainous, watered by several

\* Not confirmed. A close alliance, however, exists between the Governments of the two States.

† See Appendix.

small rivers, abundant in mineral wealth:—in fact, is considered to be one of the richest States of the Mexican Disunion. There is a sufficiency of agricultural land to maintain a large population; but the true richness of Sonora consists in its mines of silver and gold, and the great facilities for raising stock. The mines at present are but little worked, owing to the Apaches and revolutions; but laboring under all these disadvantages, she is still able to export annually several millions of dollars in silver bars and gold dust, large quantities of stock to California and the Territory of Arizona: also flour to the adjoining State of Sinaloa.

The most famous mines and mining districts (minerals) are those of Alamos, situated in the district of that name, and property of the Alnadas, Gomez y Urreas; mine of Subiate, near Hermosillo, property of the Verdes; mineral of San Xavier, San Marcial, St. Teresa de Jesus, property of Ynigo, Cubillas & Co. The famous mine or mineral of Babacanora, at present worked by a French company; mine of Baramachi, the richest mine discovered within the last two years, having yielded \$1,000 to the nine hundred weight of ore, and very abundant in ore—at present the yield is not so great; mine of Corral Viejo, gold, silver and lead; La Cananca, silver, copper and lead; La Guachuca; las Planchas de Plata.\*

On the opposite side of the mountain of Babacanora, at the distance of about a league and a half, is found the Rial del Carmen, celebrated for its great mine of that name, and which has been worked to a great extent. It still yields a good profit to the Gambussino.† Ores are still found which yield from ten to twenty mares to the carga. Ores—native silver, auriferous silver, gangue, quartz.

This mine was worked in the first years of the Spanish conquest of Mexico by Hernan Cortez, in later years by a company of Spaniards, who found a chart and description of the mines in the archives of Mexico. It is remembered by the oldest inhabitant of Sinoquipe that native silver, six inches wide, was cut out of the vein and melted in the refining furnace without more treatment than a lead bath. This company, owing to the changes which took place in the Mexican territory, stopped work, carrying off with them several

\* See Appendix for a full description of several Sonora mines.

† The Gambussino is a sort of mining flibuster, who works regardless of the future of the mine.

trains of mules loaded with silver; the mine then partly filled with water, and the Gambussinos, who have been and are the cause of the destruction of so many good mines, commenced operations, cutting out the upper pillars and supports, and in a short time the mine fell in, leaving treasure to an enormous amount buried in the ruins; in later days shafts have been sunk on the same lode, worked, and ores rich in silver have been encountered, paying from fifteen to twenty marcs to the nine cwt. In the rubbish which was thrown out of the old mine, a comfortable subsistence is gained by washing in bateas—quantities of grain silver being found which, refined in the furnace, yield from twenty-five to thirty per cent. pure metal. This, and several other mines of Sonora, have been abandoned, not from the ores having failed or depreciated in value, but from the want of energy in the Mexican race. The mines in the hands of the Spaniards yielded enormous profits to the miner; they were men of indomitable enterprise, who employed capital, science, and spared no expense to succeed in their adventures; whereas the Mexican is poor, without energy, and too lazy to trust, or help himself. Formerly, Sonora the rich, was a proverb; now, Sonora the poor, is a stubborn fact—but not from the want of the elements of richness. These once developed, she will once more become Sonora the rich, and may be great.

“In the Real of Babacanora, a miner is enchanted, and his hopes raised by seeing the beautiful formation which the whole district presents, more particularly that portion which comprises the ‘Sierra del Oregano,’ which, viewed from the houses, presents a magnificent spectacle. My poor pen cannot do it justice, so I shall content myself in stating a few facts concerning it which came to my knowledge: Veins of ore rich in silver are known to exist, from the fact of ore being found in several parts of the mountain. Many capitals have been invested and lost in speculations utterly worthless; whereas a small one, invested in making a good search and prospect of this mountain, would not be lost. This statement I\* make after many years mining experience; myself and many other miners who know the mountain will stake our credit on many tons of precious metal being hid in its interior. The formation clay staté—the richest in Sonora—the fact of rich ore having been found on

\* John Denton Hall, Esq.

its sides and ravines, and the number of rich mines in the vicinity, all lead me to suppose such to be the case. The mines on mines of El Oregano must wait until some adventurous miner will expend a thousand or two to enrich himself with millions.

“Mention has been made of an ancient population. On making particular inquiries respecting them, I find that they are common in all parts of the Sonora river, and even on the river Gila. The river Sonora, from its length, quantity of water and abundance of cultivable land, is peculiarly adapted to maintain a large population. Many of the ruins are of great extent, covering whole table lands, proving that in former times Sonora was much more thickly peopled than at present. Undoubtedly some regularity was observed in laying out these towns. In one I found what appeared to have been a fort; by its position it was well calculated for defence. Unfortunately, no documents exist from which dates could be taken, the archives and all belonging to the Mission having been destroyed at the time the Jesuits were expelled. It is a known fact here, and I believe in many other countries, that the order of Jesuits have done more towards civilization among the Indians than any other religious order in existence. It is undoubtedly the case in Sonora: the ruins they have left behind them prove that they were equal to the task they undertook; and among the old people their kindness and wisdom are still remembered and talked of. \* \* \* \*

“The tradition is current here, and in all parts of the Oyata nation, that the great Montezuma was the chief of their tribe, and a great warrior. After subjecting the other tribes to his rule, he determined on building himself a city to live in on the river Gila—in Casas Blancas. He commenced operations: not liking the situation, or being somewhat disturbed in his work by the Apaches—the only tribe which had not submitted to his rule, joined to the bad omens observed by the priests—he determined to travel in search of a good location, favored by his gods. At the time of commencing his new journey, an eagle was observed to be hovering over the camp; orders were given to observe the bird’s flight, and its resting-place ascertained; his commands were obeyed implicitly, and the eagle was found in the Lake of Mexico, perched on an opal, with a rattlesnake in its beak. Here Montezuma founded the City of Mexico, which would have remained in his possession up to the present date if Hernan Cortez and his gallant adventurers had not

disturbed his calculations in a most important manner. Such is the tradition, and it is considered heresy among the Opatas not to believe it. Eagle, snake and opal is the escutcheon of Mexico. Snake alone would be more appropriate.

"Humboldt mentions in his travels having seen the ruins of Casa Blanca, on the river Gila. Another tradition is current also of Montezuma having told the conquerors of Mexico, that it would be any easy matter for them to subject to their rule the whole of the Indian tribes, but the Apaches never. We shall see what Uncle Sam can do with them in a short time."\*

The yield of the silver mines of Mexico, as computed by Ward and Humboldt from the actual official returns to the Government, from the conquest to 1803, amounts to the enormous sum of \$2,027,855,000, or more than TWO BILLIONS of dollars! Again, Ward says: "I am aware that many of the statements in this and the preceding books respecting the mineral riches of the north of New Spain, (Sonora, including the 'Gadsden Purchase,' Chihuahua, and Durango,) will be thought exaggerated. *They are not so.* They will be confirmed by every future report; and in after years the public, *familiarized with facts*, which are only questioned because they are new, will wonder at its present incredulity, and regret the loss of advantages which may not always be within its reach."

Gold dust has been found in abundance in the placers of San Francisco la Cienga, Las Llanos, Ouisabaquita, St. Perfecto; and Soni is famous for its gold mines, also Cocuspera and Baba Seco; in the district of the Pueblo of Cucurpe, gold is found in abundance; during the rainy season in Baquachi, district of Arispe, it is also found in quantities which pay well. In a word, Sonora, considered in a mineral point of view, equals, if not surpasses, the richest country in the known world, and only requires capital, peace and a liberal government. The new Territory of Arizona which formerly belonged to this State, is considered by the Sonoraneuse to be the richest portion of their country.

The climate is good. The rainy season sets in in June, and lasts till the beginning of September; from this month until March occasional showers fall. The cold is never severe; the weather being very similar to that in California in the same months. From

\* Notes of John Denton Hall, Esq.

March until the rain sets in in June is considered the dry season. The heats are never oppressive—less so than in California. Two crops are raised from off the same land in the year, and which for abundance cannot be surpassed in any country—wheat, maize, beans, peas, etc., being the general grain that is cultivated. Sugar-cane is planted in great quantities in Hermosillo, San Miguel, Ures, Rayon, Oposura, Saguariipa, Huepaca, and the Rio Yaqui. A coarse kind of sugar is made called panocha, which yields to the cultivator an excellent return for his labor, general selling at \$25 the cargo of three hundred weight.\* In all parts of the State most excellent tobacco is raised. Cotton is sown by the Indians on the Rio Yaqui, and the grub (cotton worm) is hardly known in the crops. The average price of wheat is \$8 the cargo of three hundred weight, beans and peas \$6.

The State is divided into nine districts, each being governed by a Prefect, who is appointed by the Governor, and is responsible for the good conduct of his district. The port of Guaymas at present is the only port of entry.† It is as small, but in the business part, a well built town, containing about six thousand inhabitants. The harbor of Guaymas is the best on the Pacific coast. Four miles long, with an inner and outer bay, it will admit ships of the heaviest tonnage, and the commerce of the world could be transacted at this port. The entrance is protected by a long island, which makes it doubly secure.

The principal rivers of Sonora are the Furte, the Yaqui, the Mayo and the Sonora. The Yaqui enters the Gulf of California eighteen miles below Guaymas. It has a dangerous bar, but it is believed to be navigable for light draft steamers to Buena Vista‡, eighty miles from its mouth. The Sonora river flows through the Arispe valley, which is called the garden of Sonora. It is almost wholly in the hands of the Apaches. The desolation of the depopulated towns and ranches is melancholy beyond description. The valleys of the Yaqui, Mayo and Fuerte, are the best sugar lands in the world.§

Ures is a small city of about seven thousand inhabitants, and is situated about sixty leagues from Guaymas. Hermosillo is the largest city, containing from fourteen to fifteen thousand inhabitants.

\* See Appendix.

† Libertad, in latitude 29° 53' N., has recently been opened.

‡ Doubtful. -S. M.    § See Appendix.

It is the centre of commerce. It is one hundred and ten miles north of Guaymas. The next in size and in importance is the Rial de Alamos, situated on the frontiers of Sinaloa; it contains from five to six thousand inhabitants; it is the centre of a large mining district, as its name implies—Rial meaning town or city of mines. Oposura, Saguaripa, Rayon, St. Miguel and Arispe, the ancient capital of Sonora, are large towns, with populations of from four to five thousand each. The entire population of Sonora does not exceed one hundred and thirty-five thousand, comprising Mexicans (*jente de razon*), Opatas, Yaquis, Mayos, Taumales and Papagos; this population, instead of increasing is decreasing—the Apaches, revolutions and emigrations to California and Arizona producing this effect; and in a few years, if some change does not take place, Sonora will become depopulated. The friend to whom I am indebted for many of these notes, says:

"After so many years residence among them, I naturally feel an interest in their welfare, firmly believing that the grain of gold in their character among so much dross is worthy of seeking out, and will repay the finders. The United States could do it, and would to God it should be so; and I and many others will be found ready to co-operate in any just and honest mode of bringing round a mutual good understanding."\*

"But one conclusion can be drawn of the State of Sonora, and that is, in order to redeem to the Sonoranese his character, life and fortune, it is necessary to subject or utterly annihilate the savage Apache who has served as the destroying angel to this fine country. It is the most sure and ready way to gain the eternal gratitude and friendship of the people, and annexation of one of the richest countries in the known world, which will also serve as another connecting link of the great chain of commerce with the Indies."

Velasco says, in concluding his review of Sonora and the Sonoranese:

"In truth this is a most sorrowful scene; it horrors one to consider the state of prostration which we are now in, by the continued bad feeling of party, which keeps us savage in civil war, and all the while forgetting our own interests.

"For parties to harrass each other mutually; for brother to

\* John Denton Hall, Esq., to whom I beg to make my grateful acknowledgments for many of the facts in reference to Sonora.

slaughter brother to satisfy revenge, etc., in a moment, are formed enthusiastic masses; but the same does not happen when the common enemy is to be punished, who are now with gigantic strides destroying the country. Until the Sonoranese shall know that as long as they do not bury in the fold of their country, and each one give a brotherly embrace in good faith, we shall continue to be the plaything of passions the most strong and savage."

Having had considerable practical experience on the plains, four journeys overland across the continent in the past four years,\* I was desirous of stating a few facts, showing the comparative merits of the different routes for a Pacific Railroad. The limits of this address will not permit, and I therefore turn from the subject, with the prediction that the route known as the Southern, along the 32d parallel, is the only one that will be built in this generation. Every exploration has shown it to be not only the most practicable, but probably the only practicable route. The advocates of this route point to the significant fact that the mail from San Antonio to San Diego has never once failed in eighteen months of operation, winter or summer. The Great Overland Mail makes its best time on the 32d parallel, and that portion of the route denounced as the worst, from El Paso west, has proved itself the best. Thirteen hundred miles by stage in December or January in less than eight days. Is there any other route on the continent where this can be accomplished? Not on the Salt Lake route.† It is wholly impracticable. Not on the Albuquerque route, else Lieutenant Beale would not go into winter quarters. On the 32d parallel no winter quarters are necessary. It is useless to attempt to evade this question of climate on so extended a route. In addition, the 32d parallel is by far the most level, and has the most water at all seasons of the year. (See Lieutenant Parke's report.) The first terminus of the Pacific Railroad will be Guaymas, on the Gulf of California. From El Paso to Guaymas the distance is only about four hundred miles,—at most four hundred and fifty. It will run across the Guzman valley through the Guadalupe or some more southern pass to Arizpe, thence to Ures, thence to Hermosillo, thence to Guaymas. It can be built most, if not all the way, for \$10,000 per mile, and put in running condition. It would pay to-day between Hermosillo and Guaymas in freight alone. It will

\* Since doubled.

† See Appendix.

## APPENDIX TO SECOND EDITION.

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The history of Arizona since 1859 has two aspects—one of great and steady improvement, the other of calamity and decline. The first was the natural result of the development of the great natural resources of the Territory; the second of fortuitous circumstances, and the shameful abandonment and neglect of the country by the Administration at Washington. The uninterrupted success of the Great Overland Mail brought in its train a constantly increasing emigration. The valleys of the Santa Cruz, Sonoita, San Pedro and Mimbres were rapidly filling up with farmers, while on the Gila many thousand dollars were expended in taking out acequias and redeeming the rich bottom lands at available points. The Federal Government promised protection, and did, in fact, establish new military posts to protect the infant settlement. These posts, however, were poorly garrisoned. The troops were mostly infantry—almost useless to pursue or punish the Apaches. The small cavalry force in the Territory, although most ably handled by Capt. R. S. Ewell, 1st Dragoons, U. S. A., (who has since proved his signal ability on a wider field as Major-Gen. Ewell of the Confederate Army) was entirely unable to make a campaign with decisive results against the Indians. In spite of this serious drawback new mines were opened, capital obtained in the East for their development:—the farmers flourished and built permanent improvements, and each year showed a decided advance upon the last. The change came suddenly and without warning. The Overland Mail was withdrawn, then the troops, and the settlements in the valleys above-named succumbed almost at once to the attacks of the Apaches. Many lives were lost—property of all description abandoned—crops to an enormous amount were left standing in the fields, never to be gathered. Never was desolation so sudden—so complete. In my late journey from Tucson to Guaymas, I passed over one hundred and fifty miles of beautiful country, stud-

ded with ranches and farms, where, at every step, was found comfortable houses, outbuildings, fences and tilled fields utterly abandoned and tenantless. The mining interest suffered at the same time. Partly through the cowardice of agents and superintendents, partly through the fault of Eastern directors, the various silver mines in Central Arizona were temporarily abandoned, and I was left with a handful of men who were willing to share my fortune, and if fate so willed it, be the last Americans in the Territory to fall by the lance or arrow of the Apache. We not only survived, but we built up a great work in the heart of the country—thoroughly demonstrated the great value of the mines—and what is more and better, proved conclusively that the Apaches are no obstacle to working in the Territory, compared with the great result to be accomplished.

It is sufficient proof of this, that I did not lose two hours' work in ten months on account of the Indians. Some valuable lives were lost, but it was by recklessly disregarding my repeated injunctions and directions.

The Territory has been occupied by Confederate troops, but in small force, except on the Rio Grande.

After their retreat before the forces of General Canby—not Gen. Carleton, as is falsely stated by the latter and his professional claqueurs,—Arizona was occupied and remains in the possession of the California Volunteers.

The gold fields on the Gila river, alluded to as a new discovery in my address, proved limited in extent; and although worked mostly by Mexicans for several years with a large yield of gold, were deserted about a year ago, for the more attractive placers of the Colorado.

It is said that an enterprise is on foot under the auspices of well-known business men of this city, to bring water from the Gila on to this ground by steam power. The result can scarcely fail to richly reward the authors of the enterprise.

At various points along the Colorado on both sides of the river, gold has been found copiously disseminated—some spots yielding enormously, others nothing. Chimney Peak, eighteen miles from Fort Yuma, was in November and December a favorite locality. La Paz, about one hundred and eighty miles above Fort Yuma, was previously a great attraction, and is since. At this point quite a village had grown up, when I visited it in November, 1862. The

population was then about eight hundred, and increasing. No distinct or well-defined ledges had then been discovered, but the most beautiful specimens of gold-quartz, silver, copper, silver-lead, and silver and copper I ever saw had been found, all of which upon assay gave astonishing results. I am informed since that extensive ledges have been discovered and are being prospected in this district. Copper has also been found below La Paz, at different points on and near the river. Salt has been found near the Colorado in such large deposits as to guarantee a supply of this very necessary aid to the reduction of the refractory silver ores. Adventurous "prospectors" have penetrated the country lying between the Gila and Colorado, beyond the Desert belt, and making a temporary peace with the Tonto Apaches, have found on the head-waters of the Salinas and San Francisco rivers and their small tributaries, good gold prospects, and an abundance of water for sluicing. All these parties, from whom I have notes of their explorations, confirm the reports made to me several years since by Weaver, the old "mountain man," and by Apache and Pimo Chiefs, of the existence of rich valleys, heavy timber and fine pasture lands north of the Gila. The country north of La Paz, near the Colorado on both sides, is at present attracting much attention, and great discoveries are daily reported. The navigation of the Colorado by steamers to the vicinity of these mines must make them very valuable at no distant day.

The mines in Central Arizona, in the Santa Cruz and Santa Rita mountains, and near the Sonora line, have been fully prospected, and no doubt now exists in the minds of the well-informed of their great value. The Heintzelman Mine, now owned I believe almost entirely by the heirs of Col. Sam. Colt, is not at present worked, owing I believe to the death of Col. Colt. There is no doubt of the richness of this mine. It was fully proved under the management of Mr. Kustel. Magnificent machinery for the Freyburg barrel-process, with engines of eighty horse-power, were sent out from New York, three years since, the whole manufactured under the personal supervision of Col. Colt, whose mechanical genius has rarely been surpassed. Jealousy on the part of Western stockholders, and an insane fear that Colt would "freeze" them all out, delayed the erection of this machinery; bad management at the mine, and other causes impeded progress until the troops were withdrawn from the country, and the last manager for the company, Mr. C. D. Poston, turning over his right to Colt, left for the East.

The present superintendent, Col. F. T. Lally, has, he informs me, opened a new shaft, in which he has struck very rich metal; but, as above stated, work is now suspended. During the temporary abandonment of this mine, the Mexican "gambusinos" carried away immense quantities of rich metal; and the village of Saric—just over the Mexican line, where the ore was reduced,—flourished and grew rich upon the folly of the Eastern managers.

The Sopori and Arizona Land and Mining Companies, who own a vast tract of mineral, grazing and arable land in the Santa Cruz Valley and vicinity, have also suspended operations. Their stock is held in good hands, and will be good property. They intend, I am informed, to recommence operations at an early day. Some of the heaviest Eastern capitalists are the principal owners of these stocks.

The Santa Rita Company own some valuable mines north of the town of Tubac. They suspended operations at a time when success was just in their reach, partly, I believe, from bad management, and partly from the withdrawal of the troops. They will, I presume, recommence, now that a large military force occupies the Territory.\*

\* The separation of Arizona from the Military Department of California is a great mistake. Under any circumstances, if economy and time are consulted, army supplies must be drawn from California. The military posts called Fort McLane and Fort Breckenridge were established by the War Department, upon the recommendation of the writer, while Western Arizona was placed under the control of Gen. Clarke, U. S. A., then commanding the Pacific Department. Gen. Clarke did me the honor to consult me on several occasions, and at his request I selected a site for a new military post near the mouth of the Salinas, a few miles from the Pimos villages. This post must some day be established. The views of General Clarke were similar to my own in reference to supplying Arizona from California.

If a sound judgment prevails at Washington (which may be rationally doubted,) Arizona will be again restored to the command of General Wright, in whom the troops, as well as the people recognize a true-hearted gentleman and intelligent soldier—qualities they have failed to discover in the individual now exercising command over the Territory.

It should be said that the reports of travelers by the Southern Overland Mail, that Arizona is a desert should be taken *cum grano salis*. Almost any man unaccustomed to such a journey, worn out with fatigue and want of sleep would imagine himself in Hell, even if passing through Paradise. It would be about as fair to judge California from San Bernardino and San Diego counties, as to judge Arizona from the country west of Tucson. The letters from the California Column, published in several of the California newspapers, are mostly written to inflate some balloon reputation that will get a woful collapse some day, or to accomplish some private end, (for example, the shameful attack upon General Canby, a most able, patriotic soldier, and gentleman.) They are certainly not intended to enlighten the public. There is no necessity to assert what is deliberately false about the country in order to accomplish the march of the California Volunteers to New Mexico. The march was as good a one as could have been made under so inefficient a General. The men are entitled to great credit, as much for their patient endurance of uncalled for unmilitary and arduous labors, as for their march.

Under a competent commander, the march could have been made in better time, and with far greater ease to the men. Under one who had any regard for the truth, the Commander-in-Chief and the public would have had the facts in connection with it, and not a romance which is worthy a place in a new edition of Munchausen.—S. M.

Many mines—the San Pedro, San Antonio, Buenavista, Empire and others in Central Arizona—have been opened, but want of capital and the condition of the country have retarded their development.

They will before long become permanent and valuable investments. Near the Mexican line, south of Tucson, the Cahuabi and Fresnal Mines are being successfully worked by Señor Padrez and other Mexicans. The patio process is adopted with good results. A large amount of silver is taken out monthly. There is a rich field here for California capital, which must inevitably find its way there before many months. All the mines above mentioned, except the San Antonio, are of the so-called hard ores—sulphurets of silver with copper combined.

In the Santa Cruz mountains, about eighty miles east of Tucson, is an immense deposit of silver-lead ores, argentiferous galena, of extraordinary richness. The sulphurets of lead and silver, mingled with the carbonates, give results previously unheard of by mineralogists. The only portion of this district yet largely developed is the "Mowry Silver Mines," the property of the writer. The main shaft of these mines has been sunk to the depth of more than two hundred feet, with galleries and auxiliary shafts, a thousand feet more. Prospecting shafts have been sunk at various places, and tunnels opened along the lead, on the property of the writer, (twenty-six hundred feet in extent), in all of which paying ores have been "struck," at from ten to one hundred feet from the surface. About \$200,000 has been expended in the purchase of these mines, erection of reduction works, houses for laborers, and everything necessary for an extensive and permanent establishment, including steam-engine and mill. Under exceedingly adverse circumstances, in a country abandoned except by my own people, the mines were thoroughly opened and a large quantity of ore reduced. It was my intention to have used only the reverberatory process for the reduction of my ores, but on account of the long continuance of the rainy season of 1861, I was forced to begin with the Ornos Castellafios, (the common upright German or Mexican blast furnace,) exceedingly simple in construction, and requiring but little skill or science to work. Several months' experience with these furnaces has convinced me of the great waste in silver resulting from their use, although the working proved remunerative beyond my expectation. I am satisfied that the loss in silver is, under the best circumstances, at least twenty-five per

cent; and generally more, owing to careless attendance and the inability to regulate the heat or the blast. There are twelve of these furnaces at the reduction works, six of which are run alternate weeks. The yield is of course lead and silver, which is shipped to Europe in bars weighing about seventy pounds each. These bars sell in England at from \$200 per ton upwards, giving a clear profit over all expenses—mining, smelting, freight, insurance and commissions—of over a \$100 per ton. A portion of these bars are refined at the mines in the English cupel furnace (the Mexican vaso), to supply silver for the payment of current expenses. The silver is moulded into bars, from \$2 up to \$300, and is a ready and convenient circulating medium in a country where coin exists only in the memory of some individual who has been in California.

Twenty-five tons of the Mowry ores were sent to Europe as specimens, in 1862. The result was an offer of £50 sterling, \$250, per ton for the ore as it ran, properly cleaned.

The results to be obtained from these ores treated by the reverberatory furnace, are much greater than by the present method. This was demonstrated by the erection of three reverberatories, with a chimney stack fifty-one feet in height.

In June, 1862, the proprietor of the "Mowry Silver Mines" was seized by a large armed force, under the orders of Gen. J. H. Carleton, while in the legitimate pursuit of his business, and retained as a political prisoner\* for nearly six months. The mines were placed in the hands of a dishonest and incompetent man as Government receiver, who did much damage, caused great loss, and finally on being obliged to give up his place, made away with nearly all the goods, wood, coal, arms and stores at the mines. No improvements were made during this person's administration, and the property now being held by the Federal Government, under pretence of the Confiscation Act, none can be made by the owner until his property is restored to his possession. This will undoubtedly be done as soon as the authorities at Washington can be heard from, as the seizure

\* This seizure was made upon a false, ridiculous, and malicious charge. After nearly six months' close imprisonment the writer was discharged, "there being no evidence" (in the opinion of the Court which tried his case,) "either oral or documentary against him;" a charming commentary upon the constitutional guarantee to every citizen of "life, property and the pursuit of happiness."

was illegal, and dictated by personal hostility on the part of Gen. Carleton. The yield of the mines with the present furnaces, when all are in operation, is about \$4,500 per week of silver, refined at the mines. The refuse from the refining furnaces, litharge, is sold in Sonora, to be used as a flux at such mines as the Bronces, Cruzcitas, Mina Prieta and others containing refractory ores. It is correctly estimated that the sale of the litharge will pay all the expenses of the mines. As soon as the property is restored by the government to its rightful owner, a number of reverberatory furnaces will be erected, and the mines will be made to pay at once \$2,000 per day.\* The supply of ore is immense, easily mined and brought to the surface, daily growing more abundant and richer. I have been thus specific in the description of these mines to give a clear idea to those who seek investment in mines, of the great value of the Santa Cruz district of Arizona. A new mine called the "Olive" has been discovered and opened to a considerable depth near the Mowry Mines. It is of the same character, and probably the same lead as that of the Mowry Mines. It is owned by the discoverers, three of my workmen. A controlling interest has been or will be purchased by capitalists here, and by Captain C. E. Mowry. La Esperanza, five and a half miles from the Mowry Mines, almost on the Sonora line, has been opened sufficiently to demonstrate the existence of an extensive lead. There are nine veins cropping out on the surface, which can be tunnelled a thousand feet below the cropping. The ores are argentiferous galena, very rich in silver and lead. It is in all respects as valuable a mine as could be desired. It is owned by a company organized here, of "solid men," and will be immediately worked on a large scale. The experience gained by the works of the Mowry Mines, will enable the Esperanza and other similar ores to be treated at much less expense, and give large dividends at an early day. It is some consolation to me that my mistakes, costly as they have been, will be of incalculable benefit to those who are now investing their capital in Arizona. Some one had to be the pioneer, and it was perhaps appropriate that it should fall to my lot, as I was the first to introduce Arizona as a candidate for the honors of a new State. The advantage these mines of lead and silver possess over the more refractory ores containing copper and sulphurets, is

\* The furnaces now in use, with a fan blast driven by steam power, will then be used, as the mills are in Washoe, for the reduction of ores of other mines in the vicinity.



the great ease of reduction. Fire is the only requisite. They contain their own flux. No expensive machinery, quicksilver or salt, or other foreign flux is needed, and the lead will pay all the expense of working, reducing and shipping, giving the silver clear in the English or San Francisco market, if shipped in the form of lead and silver bars. If refined at the mines, the litharge (*greta* in Mexican mining phrase) will pay all expenses above stated. The demand for litharge is increasing, and there will always be a good market for it, on account of the working of new mines in Arizona and Sonora. The Pattinson process of separating lead and silver is cheap and economical of both metals, but at present will not pay as well as the method now in use.

In connection with this subject, it is proper to say that the immense advantage Sonora and Arizona have over California or Nevada for the development of mineral wealth, is the low price of labor, fifty cents to one dollar per day, paid in great part in merchandize at large profits. Transportation is also much less. Those interested will do well to inquire particularly into these points, as well as into the character of the mines. Both Arizona and Sonora will bear the most searching scrutiny, and will reward the inquirer. It is as well to say here, that capital in large sums is needed for the successful prosecution of silver mining. This is a condition precedent which must be fully accepted, but with less capital than anywhere else greater results can be obtained in the countries in question.

In eastern Arizona, near the head-waters of the Mimbres river, gold has been discovered in placers and quartz. A town called Pino Alto has been built up, and at one time over a thousand people worked in the vicinity. With the withdrawal of the troops this district suffered, but still many remained. The late establishment of a strong military post at this point will assist greatly in its development. The copper mines of ancient fame in the Mimbres, have fully sustained their old reputation. Smelting works have been erected, new mines opened, and the copper in pigs shipped in wagons to Lavaca, Texas, thence to New York. The copper sold at higher rates than the Lake Superior, and paid a handsome profit to the owners— notwithstanding the great distance it was transported. These mines, as they have been in the past, will continue to be a source of large revenue to the proprietors. The mines in the Organ mountains, near the Rio Grande, are not in operation. The Stevenson, Harris and

others are certainly good mines, and will be made profitable. I append some notes, written by a competent person two years since, from actual observation. The presence of two thousand troops in Arizona, whose number is soon to be doubled, and the orders lately given, will prove the death-warrant of the Apaches.

It is stated already that their bravest and most dangerous band has been severely punished with the loss of their principal chief and many men. The subordinate officers of the California column are "eager for the fray," and the men are worthy of all praise for endurance and the qualities which make good Indian fighters.

I anticipate for Arizona a steady and prosperous career.

## THE MINES OF ARIZONA.

Written February, 1861.

### PATAGONIA, NOW MOWRY SILVER MINES.

My visit to the Patagonia Mine, now called Mowry Silver Mines, has lasted four days—time necessary to give it a full examination in all its parts, and to make a careful assay of its ores. But why was it called the Patagonia Mine? Is it because it is situated in a desert inhabited only by Indians? Such were the questions I put to myself whilst traveling, and which I thought might be answered affirmatively. Great was my surprise, however, when, instead of finding, as I expected, barren mountains as at Washoe and Mono, I gazed on beautiful landscapes, and a country covered with trees of different kinds, with fertile lands perfectly watered. True it is that the nearest neighbors, the Apaches, are far from being even equal to the Patagonians; but this, it seemed to me, could not be a reason for giving to such a beautiful spot, which in spring must be covered with flowers, so savage a name. Mr. Mowry was perfectly right to alter it.

This property, containing about five hundred acres of land, is situated ten miles from parallel 32° 20' north latitude, which forms the limit between Arizona and Mexico, twenty miles from Fort Buchanan, fourteen from the town of Santa Cruz, in Sonora, and at an elevation of 6,160 feet from the level of the sea; and a good road, 280 miles in length, and which, with a little repair, might be made excellent, places it in direct communication with Guaymas. By this route, freight from San Francisco to the mine does not go beyond five cents\* per pound.

The mine is situated on the last hills forming the eastern slope of the Sierra de Santa Cruz, and is bounded on the northeast by exten-

\* Since reduced to less than four cents. Return freight from the mines is about two cents.

sive plains covered by the mesquit and oak trees, which reach the line of Sonora, whose elevated mountains rise in the horizon. Between these plains and the mine is to be seen the Sierra Espuela, called also Wachuka Mountains.

The road leading to the mine from Fort Buchanan crosses a range of hills and mountains completely covered with oak, pine, sycamore, poplar, willow and hazlenut. The land and the hills around the mine are covered with green oak, cedar, pine and manzanitas. The whole country abounds with rabbits, quails and wild turkeys. It is not a rare occurrence to meet droves of deer and antelopes, numbering from twenty-five to thirty. The amateur of more intense excitement may also indulge in bear and Apache hunting.

About a mile from the mine, and near a little village called Commission, of some fifteen houses, intended for the peons and laborers of the mines, there is a creek, called Commission Creek, which is on the property itself, whose waters never dry up, and which are more than sufficient to run one or several mills. The buildings for residences and those for stores and the furnaces, are half-way between the mine and the small village. Near by, there is a spring of excellent water, which also never dries up. There are other springs lost in the hills, and which may easily be turned to some purposes.

### THE LODES AND ORES.

The principal lode of the Patagonia mine is composed principally of argentiferous galena, and runs south 85° E. Its thickness, which increases as it dips in the earth—now eighty-three feet in depth—is of about three feet.\* Three small veins, excessively rich, cross each other in the main vein, all running in different directions. The size of these small veins varies from ten to nineteen inches. Other veins, whose outcroppings are visible on the top of the hill, and which run in a parallel direction at a great distance, will, according to all probabilities, be met with as the working of the mine proceeds. No prospects have as yet been undertaken to ascertain the nature of these veins.

The galena of the principal vein contains a small quantity of copper and arsenic. It seemed to me that I detected appearances of

\* Much increased in width and richness at the great depth of over two hundred feet. The vein after spreads out into chambers of pure ore of great size, no gangue appearing between the side walls. Two peons have taken out ten tons of rich ore in one day's work.

zing, but I had no means to ascertain the fact. An assay of the different ores has given results varying from \$80 to \$706 in silver per ton, and up to sixty-two per cent. of lead. Their reduction is of the utmost facility.

#### THE SHAFTS AND TUNNELS.

Unfortunately,\* all the operations perfected up to this day are, I might say, useless. The labor expended on shafts and tunnels has been conducted so carelessly—the different stratas of earth have been subjected to so little investigation, that whilst on one hand unnecessary expenses and labor have been incurred, on the other, a quantity of ore, sufficient probably to pay for the whole expenses of the establishment, has been thrown aside as worthless. Ores which I have picked up on the creek, being assayed, have given the best results that I have obtained.

But the actual owners of the mines are not the ones who ought to complain of the bad direction of the works, for, according to my idea, it is principally this bad management which has enabled them to purchase the whole mine at a comparatively low price. However, it will be easy to remedy the evil, either by beginning new works in a more suitable locality, or by modifying those already existing. The quality of the mine is such as to cover, in a short space of time, all the expenses which may be incurred in a rational manner.

The discovery of the Patagonia mine dates only from the fall of 1858, but it would appear that its existence was suspected long ago, for the first parcels of ore gathered by the Mexicans were taken, at the time of the late discovery, from shafts which had been sunk many years ago, and which had been abandoned.

#### THE OWNERS.

The first owners were: Col. J. W. Douglass, Capt. R. S. Ewell, Lieuts. J. N. Moore, — Randal, and — Lord, and a Mr. Doss—all belonging to the United States Army excepting the last named individual and Col. Douglass. These parties started some preliminary works—sunk shafts, extracted a certain quantity of ore, and built up several furnaces for smelting. But, being short of capital for a regular system of reduction on a large scale, two of the principal share-

\* All this has since been corrected, and the mine worked under the able direction of a skillful mining engineer, Mr. George Habermann.

holders, Messrs. Lord and Doss, who had charge of the whole mine, sold their interest during the year 1858-9, to a Mr. E. Brevoort, who thereupon became superintendent of the mine and principal owner.

The administration of Mr. Brevoort was not a happy one. The mine, which, as I have before stated, had been badly opened and badly worked, being turned into inexperienced hands, fared much worse. A certain quantity of ore was extracted, but whether the proceeds were expended in useless operations, or for any other purposes, they were not sufficient to cover the costs incurred. These failures gave rise to disagreements between the owners, which could not be settled except by the sale of their whole interest, which Capt. Ewell and his partners made to Mr. Brevoort, this last-named gentleman turning the interest immediately over to Mr. H. T. Titus. But these negotiations did not put a stop to the difficulties, which were renewed on account of the payment of the purchase money. Consequently, the sale of the whole was resolved upon, and the conveyance took place in the spring of 1860, in favor of Lieut. Mowry, all the interested parties joining in the deed. The price of the mine, including the lands surrounding it, all the works and establishment standing at the time, fixed at \$25,000, was paid in cash by the new owner, who some time after sold one-fifth to a wealthy capitalist in the East. Hence, four-fifths of the Patagonia mine are now held by Mr. Mowry, who has given his name to it.

In the hands of the last-named gentleman, and under the direction of Mr. Charles Mowry, his brother, the works will be started with unusual activity. Already preparations have been made to carry on works of a considerable extent, so that next summer the mine will be in full operation.

#### THE MANAGEMENT OF THE MINE.

The old furnaces having been badly constructed, and being out of use, they will be replaced by others containing all the later improvements, either for smelting or refining. A steam engine of fifteen to twenty horse power will be put up for the trituration of the ores, for the working of the pumps, and to run a saw mill. The waters of the creek will be gathered in large reservoirs, twelve feet in depth, constructed by means of thick embankments. Buildings will be put up for the accommodation of the superintendant of the mine, and the reducing establishment, and for the engineer and other em-

ployees. A laboratory for assays will also be annexed to the works. The ores will be carried from the mine to the reducing establishment by a railroad, for the building of which Mr. R. Jones, Jr., has already taken the preliminary steps. Finally, for the accommodation of the laborers, numbering from seventy to eighty, and of the inhabitants on the frontiers of Sonora, a large store will be opened for the sale of all sorts of provisions and merchandise. The expenses to be incurred this year to put in operation the different projects in view, will exceed the sum of \$60,000.

Such is the history of the mine, which I intended to relate to you with details, because within a short space of time it is called upon to rank among mines of the first class. Even now, in the neighborhood, by the abundance and richness of its ores, the facilities for extraction and reduction, and the conveniences of the locality, it is considered one of the best in Arizona. Its importance would be greatly increased if a project, in which rich capitalists of the East are actively engaged, is put in execution, which is to build a railroad between Guaymas and El Paso, in Texas, which would connect with the Pacific Railroad. This road, following the ridge of the Sierra de Santa Cruz, would run at a distance of only ten miles from Mr. Mowry's mine.

The mine which I have just described is not the only one to be found in that part of Arizona. The Santa Cruz Sierra, already renowned since the days of the Jesuits, who had opened in that locality the Compadre and French mines, has lately given evidences of new richness. Besides the two which I have just named, the Boundary, Empire, Eagle and St. Louis Mining Companies form a part of the Sierra.

#### THE EAGLE MINE.

This mine is situated to the east of the Mowry mine, and its vein, composed of argentiferous galena, exactly similar to the Mowry mine, is, it is stated, its continuation.

#### THE SAN PEDRO MINE.

This mine is situated on the east side of the San Pedro river, about twenty-five miles from the Overland Mail road, and half a mile from the river.

#### EMPIRE OR MONTEZUMA MINE.

I have mentioned above this mine as forming a part of the Santa

Cruz Sierra. It is half-way between the Mowry Mine and the town of Santa Cruz. The ores are composed of lead and silver. The first owners were Th. Gardner and Hopkins, who it seems sold their interest out to New York companies.

#### SANTA RITA MINING COMPANY.

The Sierra de la Santa Rita, as that of the Santa Cruz, inclose rich deposits of precious ores. The Cazada, Florida and Salero mines are united in one company, under the above title. The last one was known a long while ago, and was worked by the Jesuits. In that one, also, the argentiferous galena dominates. Shortly furnaces will be put up for smelting and reducing; they will be erected on the very mountains of Santa Rita, which are to the east of Tubac, at the distance of about ten miles. The superintendent of the mine is Mr. H. C. Grosvenor, and Mr. Pompelly is the engineer. The capital is one million of dollars. These mines were opened in 1856.

#### MARIPOSA MINING COMPANY.

This Company is working a copper mine, situated forty miles from Fort Breckenridge, at the junction of the San Pedro and Arriwaypa rivers, and from three to four miles south of the Gila. The road known as the Leach Wagon Road, near by, renders the transportation of the ores and provisions quite easy. It is under the direction of Mr. A. B. Gray, ex-surveyor of the United States, attached to the commission of the Mexican frontiers, and engineer-in-chief of the Pacific Railroad. Mr. Hopkins is the engineer of the mines; the house of Souther, of New York, is the principal owner.

#### SONORA EXPLORING AND MINING COMPANY.

This mine, situated at about thirty miles from Tubac, in the Cerro Colorado, is one of the principal mines, if not the richest in the Territory. The company is working the vein known as the Heintzelman Mine, rich in argentiferous coppers, and also several other veins on the Rancho Arivaco. The actual and imperfect system of reduction is by means of amalgamating barrels. Steam engines of forty horse power, with a new process of amalgamation and refining, will soon be introduced. One of the principal shareholders, Mr. Charles D. Poston is the Director, and at the same time lessee of the mine for the term of ten years. This Company was incorporated in

Cincinnati, Ohio, with a capital of two millions of dollars, divided into twenty thousand shares. The sum already expended for the working of this mine is estimated at two hundred and thirty thousand dollars either in ready cash or from the proceeds of the mine.

#### GAHUABI MINING COMPANY.

The mine going by that name is near meridian 112 and 32 north latitude, in a region inhabited by the Papagos Indians. The argentiferous copper ores are treated according to the Mexican amalgamatory process, known as the patio. I have seen specimens from this mine in the hands of Mr. Herman Ehrenberg, President of the Company, of extreme richness. The mine was opened since 1859.

#### ARIZONA COPPER MINING COMPANY.

The bad administration and the difficulties of transportation have been the main causes why this mine, so rich, and which created so much excitement in California, two or three years ago, has not given any good results. Its oxides and copper sulphurets are excessively rich, the extraction exceedingly easy, and the veins are numerous. Works at this present moment are suspended. This mine is situated one hundred and twenty miles southeast from Fort Yuma. It was opened in 1855, and the Company was incorporated in San Francisco.

#### SOPORI LAND AND MINING COMPANY.

The mine of Sopori, opened many years ago, had in Mexico an extensive reputation. The ores extracted were exceedingly rich in gold and silver, but the works were so badly carried on that the vein is lost, and not even any exterior traces of its position is left. A few arastras in bad condition are all that is left of the operations there. The mine forms a part of the Sopori Rancho, of an area of 21,000 acres, situated west of the Mal Pais Sierra, and south of the Canao Rancho, which are both considered as the best ranches of Arizona. The Sopori Company is incorporated in Providence, R. I., with a capital of one million of dollars. Gov. Jackson is the President; Lieut. Mowry, one of the principal shareholders, is, at the same time, one of the Trustees.

#### ARIZONA LAND AND MINING COMPANY.

This mine is situated north of the Rancho of Sopori. This Company owns a large tract of land, of thirty-two leagues square, on

which is situated the old silver mine of San Xavier, which was worked during the time of the Jesuits, and which appears exceedingly rich; other veins, equally rich, are to be found in the centre of the property, on the Sierra Tinaja. The Company was incorporated in Providence, Rhode Island, with a capital of two millions dollars. The Hon. S. G. Arnold is the President. The Treasurer is Mr. Alfred Antony, President of the Jackson Bank of Providence. Col. Colt, Lieut. Mowry, and other rich capitalists of the East, are the actual owners. Mr. Mowry is the holder of more than one-half of the stock of the company. N. Richmond Jones, Jr., is the engineer-in-chief of this mine, as also of the Sopori mine.

#### COLORADO RIVER COPPER MINE.

About three years ago a Mr. Halstead, well known on the Colorado districts as an indefatigable prospector, discovered this mine on the shores of the river, at about forty miles from Fort Yuma. Having been examined and tested by experts from New York, they found it to be very extensive and very rich. Several tons sent to San Francisco last year were also admitted to be of uncommon richness. Consequently, laborers were engaged in Sonora, and preparations made to work the mine on an extensive scale. Difficulties, however, eventually arose which prevented the completion of the works. The mine is owned by Messrs. Wilcox, Johnson and Hartshorn, owners of the steamer navigating the Colorado, by Mr. Hooper, principal merchant at Fort Yuma, and by Lieut. Mowry.

#### STEVENSON MINING COMPANY.

This mine has been worked during several years by Mr. Stevenson, according to the Mexican process, and yielded him from \$40,000 to \$50,000. Afterwards Mr. Stevenson sold his mine to Major Sprague, of the U. S. Army, who organized a company in New York, to which belong General Clarke, Doct. Mills, Mr. Russell, of the Pony Express and Missouri bonds notoriety, and several other persons. The mine appears to be very rich in silver and lead, but it has been wretchedly administered.

The Stevenson mine is situated on the Rio Grande, not far from Mesilla.

#### HARRIS MINE.

The mine belonging to this Company was discovered several years ago. It was recently purchased by Lieut. Mowry of Judge Hoppin,

Mr. Cuniff, and Mr. Bull. This mine is also on the Rio Grande, six miles from the Stevenson mine. The ore is composed of lead and silver.

ST. AUGUSTIN MINING COMPANY.

This mine is also situated on the Rio Grande, and the ores are like the above.

Several other silver veins, supposed to be very rich, have been discovered on the same river, but they have not yet been worked. All these mines of the Rio Grande are to be found in the hills at the foot of the Organ Mountains.

Besides silver, copper and lead mines, coal mines are also to be found near the Rio Grande in the Organ Mountains, in Arizona Territory. There are also mines of plumbago in the Sierra Rita, and some of iron in different localities. Traces of quicksilver have been found in the Heintzelman Mine, belonging to the Sonora Company, but they own particularly rich gold placers and veins of auriferous quartz. The new district of Pino Alto, whose placer diggings have been discovered in May last, and which have yielded fine results in gold of a fine quality, is also rich in quartz veins.

One of the main ones is the one known by the name of Jackson quartz vein, owned by G. A. Oury, of Tucson, P. T. Herbert and others. The vein was discovered in July, 1860, by J. J. Jackson, on Bear Creek, about thirty miles from the Overland Mail station, on the Mimbres river, and twenty-five miles from the Gila river. The vein is two feet in thickness, and promises to become excessively rich. Specimens taken from a depth of ten feet, and which were handed to me by Mr. Oury, have yielded more than \$600 of pure gold to the ton. The persons who have visited the Pino Alto district speak of it as a section of country exceedingly healthy, well wooded, but quite barren in the summer months. A population of 800 to 1,000 souls inhabit already the district and the town bearing its name. An express, connecting with that of Wells, Fargo & Co., runs between that town and Mesilla.

Another mine of auriferous quartz, which is stated to be quite rich, was lately discovered ninety miles from Fort Yuma, on the Colorado. The owners are Messrs. Halstead and Yaeger, residents of Fort Yuma.

On the Mimbres river, ninety miles from the Rio Grande, are to be found the renowned mines of Santa Rita del Cobre, worked by

Mexicans many years ago, and well known for their richness. These mines and the Hanover copper mines, situated in the same locality, were profitably worked a long time ago. The copper, worked into bars, is sent to New York, by way of port Lavaca, in Texas. Two new towns, Mowry City and Burchville, are also built on the Mimbres river.

Auriferous deposits of some importance are also to be found on the shores of the Gila, not only at its source, but all along its course. When we passed by Gila City, three weeks ago, nothing was spoken of but the discovery of rich deposits of gold on the river. It was stated that Mexicans were gathering from ten to fifteen dollars per day. Besides, at the junction of the Gila and the Colorado, about three hundred Mexicans are constantly at work, and obtain excellent pay. The greater part of this gold is forwarded by Mr. Hooper, of Fort Yuma.

The particulars I have just given you, although already quite lengthy, are far from containing all that might be stated in regard to the mineral wealth of that Territory; but I must stop here, as I only intend to give you statements entirely correct. They will suffice, however, to prove, I sincerely hope, that Arizona Territory, so little known up to the present moment, is destined to occupy a prominent position among the States of the American Confederation.

F. B.

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SONORA.

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The prospects of Sonora have much improved since 1859. The constitutional power of the State has been boldly asserted and maintained with courage and ability by Governor Pesqueira. The disturbances caused by the Yaqui Indians, suppressed with a firm hand, revolutions nipped in the bud, and profound peace maintained for a long time past. A new port, La Libertad, on the Gulf of California, above Guaymas, has been opened, giving an immediate outlet to the valuable district of Altar and northeastern Sonora, and to Arizona. A liberal grant has been made by the Legislature of Sonora to an

Eastern Company, ably represented by General Angel Trias, for the right of way of a railroad from Guaymas to El Paso, to connect with the Southern Pacific Railroad. This road, which would now have been in an advanced state had it not been for the civil war in the United States, must some day be built. The extension of the Opelousas Railroad from New Orleans, with the Memphis branch, to San Antonio, Texas, and El Paso, then to Guaymas, will surely be built before any other road, when wise counsel shall take the place of the madness of the hour, and peace again shed her benignant smile over our unhappy country. European capital, with the valuable grants in aid of constructing the road, was secured to a sufficient amount to insure its rapid completion. The calculations on which this foreign aid was procured remain valid, and the development of Sonora and Arizona will increase their value. The great valley of the Mississippi will be placed in easy communication with the Pacific—a communication most devoutly to be wished. An immense item—never yet noted I believe in the trade of such a road—will be the freight of unnumbered tons of ores, not sufficiently rich to bear the present costly transportation. As a friend, who is more poetical than pious, remarked to me—"God never intended these ores, worth ten or twenty dollars a ton, to remain useless forever." I see no reason to change, in any degree, my opinion of the great superiority of the Southern route along the 32d parallel for the Overland Mail and Pacific Railroad.

A temporary and partial success during the very mild winter of 1862 and '63, of the Northern Overland Mail, is no decided proof in its favor. "One swallow does not make summer." The advantage of climate—and vastly less cost—is indisputably with the Southern route. I have, therefore, reproduced the extract from the speech of Senator Davis, and my own brief remarks. I stand by them, and am willing to risk what little of reputation I may have on their accuracy.

A considerable amount of Eastern capital has been invested in city lots in Guaymas, and landed property near this magnificent port. The foundries of this city (San Francisco) are turning out engines, mills and costly machinery for the several mines owned, in part, here. The steamship line established between San Francisco and Guaymas is not only a permanent institution, but the communication will soon be greatly facilitated by the addition of another steamer to

the route. The last steamer went full to her guards with freight and passengers, and this is but the beginning. I am drawing no fancy picture. The reader can inquire for himself. I repeat with a sincere conviction of their truth, the words of Ward in his able work on Mexico. "I am aware that many of the statements in this and the preceding books, respecting the mineral riches of the north of New Spain, (Sonora, Arizona, Chihuahua and Durango) will be thought exaggerated. *They are not so. They will be confirmed by every future report*; and in after years the public, familiarized with facts—which are questioned only because they are new—will wonder at its present incredulity, and regret the loss of advantages which may not always be within its reach."

I submit the following description of various mines in Sonora to the attentive consideration of the public. Detailed notices of La Cananea, Cieneguita, and others, are given, not to show they are the only good mines, but as types of different classes of mines, which are found in the State. The question of labor is one which commends itself to the attention of the capitalist: cheap, and under proper management, efficient and permanent. My own experience has taught me that the lower class of Mexicans, with the Opata and Yaqui Indians, are docile, faithful, good servants, capable of strong attachment when firmly and kindly treated. They have been "peons" (servants) for generations. They will always remain so, as it is their natural condition. The master, if he consults his own interest, and is a proper person to carry on extensive works, is (in their own language) their "amo y patron"—"guide, philosopher and friend." They depend upon him, and serve him willingly and well.

I can fairly assert, that although having large pecuniary interests in both Arizona and Sonora, I have not exaggerated the advantages or palliated the drawbacks to the investment of capital and personal enterprise in these States.

They are part of the Pacific Empire, in which I claim a citizenship of more than ten years. In these pages I have had but one desire, to state things as they are, and in the spirit of an honorable ambition to connect my name, in a permanent and useful way, with her magnificent progress to a place among the powers of the world.\*

\* To appreciate what wonderful internal resources Sonora has, one should visit the Hacienda de la Alameda, fifteen miles from Hermosillo, owned by Don Manuel Yrigoyen, or of La Labor, owned by the Astizaranas. A few weeks since, with a member of the Yrigoyen family, I went over

## MINING DISTRICTS.

Alamos is situated some 240 miles south-east from the port of Guaymas. This district is particularly rich in silver leads. The principal or most noted mines are Nuestra Señora de Valvanero in the small Real of Promontorio, five miles north, which has been owned and worked by the family of Almadras for the last century. The present owner, Don José M. Almada, is now working a deposit of black ores which he found at a depth of 600 feet, with surprising results. His reduction works are situated at Los Mercedes, about two miles to the east of Alamos. The mines of Dios Padre, Santo Domingo, Libertad Cotera, and many others are in the immediate vicinity of Promontorio. The Real of Minas Nuevas, about two miles east of Alamos, contains many rich mines; among them San José Uvalama, Discobredora, Rosario de Talpa, Sambono and others. The Rosario de Talpa and the Sambono are now successfully worked by Juan A. Robinson, of Guaymas, and T. Robinson Bours of Stockton. The district of Alamos contributes very largely to the export of silver from Sonora.

San Xavier is distant about 140 miles from the port of Guaymas in a northeast direction, and about the same distance south-east from the city of Hermosillo, approachable from both points by an excellent wagon road. This is one of the oldest and richest mineral districts of Sonora. There are many mines situated within a radius of about three miles, viz., Las Bronces, Las Cruzecitas, Las Afucseños, Las Cumbres, La Division, La Naguila, Las Animos, La Sierra,

the Alameta. There are miles of wheat, corn and sugar cane. An immense field is being cleared for cotton. Some specimens of the cotton of good fine staple, growing wild, were exhibited. A flour mill of the best description, with abundance of water power; sugar mill and works; a manufactory of blankets, the wool for which and the dye stuffs, are grown on the place; a wagon manufactory is also carried on for the sole use of the Hacienda; tobacco also is produced, of excellent quality; oranges, lemons, pomegranates, and other tropical fruits, of delicious flavor, are grown in abundance.

These places are simply principalities, where a man has all the products of the earth under tribute, and at hand. The large cotton mill near La Labor, at San Miguel, has been offered to San Francisco capitalists, on liberal terms. The cotton can be raised at its very door. Indigo, Brazil wood, cochineal and other dye stuffs grow spontaneously—in the Yaqui and Mayo valleys, also, coffee of the best quality.

and many others. The most important are Las Bronces, worked by Don Mateas Alsua, who has erected extensive reduction works, having stamps, barrel furnaces, etc.; his ores are treated by the Freyburg process, yielding about \$1,000 per day. Mr. Alsua is also working the Naquila.

Las Bronces is situated about two hundred yards lower down than Las Cruzecitas. The latter, which now belongs to Las Cruzecitas Mining Company of this city, has been extensively developed; ten tons can be raised daily, and when further elaborated, will yield much greater quantities. The vein, which is particularly well defined, increases in width and richness as it descends; and now, at a depth of 145 feet, the vein is nine feet wide. The ore of the pilares is very rich, while that from the mine averages over \$150 per ton all through. The petanque\* extracted from the lower excavations assays over \$3,000 per ton of 2,000lb. The company will erect reduction works at the mines, and think to be in operation about the 1st of October next. The company is managed by persons of wealth and high respectability. About fifteen miles from San Xavier is San Antonio de la Huerta, at which place is located La Mina Prieta Musidora and other valuable mines. In the district of Saquaripa are many valuable mines of both gold and silver; the famous Mulas mine has yielded millions of fine gold, and the Cieneguita Mines worked by Mr. Robinson, of Guaymas, are in that vicinity.

Los Cedros, belonging to Don José Santos Terminel, is situated in the district of Barroyaca, near the small town of Tesopaco, forty-five leagues from Guaymas in the direction of Alamos. This is a very rich mine and has been extensively worked. It is surrounded by rich and arable lands. A permanent stream of water flows in the vicinity of the mine.

The State of Sonora is particularly favored for mining operations, having plenty of fuel, pasture and water, labor being abundant and cheap; common laborers, "peons," to be had at from thirty-seven and one-half cents per day, and furnace-tenders at from fifty to seventy-five cents.

\* Petanque is a miner's name for rich sulphurets of silver.